



Knauf Cleaneo Klett Solutions

Note on English translation / Hinweise zur englischen Fassung

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Contents

Introduction	
Cleaneo Klett System	6
Simple, sustainable, flexible	6
Knauf Cleaneo Klett Acoustical systems	6
Cleaneo Klett Board	6
Cleaneo Klett Surface	6
Innovative Klett system	6
Field of application	6
Application areas	6
Benefits Cleaneo Klett Acoustical systems	7
System overview of Cleaneo acoustic board ceilings with Klett surface	8
System overview Cleaneo acoustic wall lining with Klett surface	9
Edge type I Board design	10
Data for planning	
D125K.de Cleaneo acoustic board ceilings with Klett surface with wooden frame	12
Maximum grid spacings	13
D127K.de Cleaneo acoustic board ceilings with Klett surface with Metal	14
Maximum grid spacings	15
D137K.de Free-spanning Cleaneo acoustic board ceilings with Klett surface	16
Maximum room widths / grid spacings	17
Suspenders	18
Total construction height of Cleaneo acoustic board ceilings with Klett surface	20
Construction details	
D125K.de Cleaneo acoustic board ceilings with Klett surface with wooden frame	21
D127K.de Cleaneo acoustic board ceilings with Klett surface with metal grid	22
D137K.de Free-spanning Cleaneo acoustic board ceilings with Klett surface	24
Data for planning	
W623K.de Cleaneo acoustic wall lining with Klett surface with CD channel	26
System variants	26
Maximum permissible wall height	27
Construction depth Cleaneo Acoustic wall lining	28
Construction details	
W623K.de Cleaneo acoustic wall lining with Klett surface with CD channel	29
Special details	
Ceiling absorber with Cleaneo Klett	34
Ceiling absorber with metal grid	34
Ceiling absorber with wood frame	35
Wall absorber with Cleaneo Klett	36
Wall absorber with metal grid	36
Wall absorber with wood frame	37
Access panels	38
Installation	38
Construction details	38
Curved designs	39

Data for planning	
Sound absorption – Fundamentals	42
Definitions	42
Requirements for the insulation layer.....	43
Total construction height and construction depth	43
D125K.de and D127K.de Sound absorption	44
D137K.de Sound absorption	46
W623K.de Sound absorption	47
W623K.de Cleaneo Acoustic Wall Lining with 33 % Cleaneo Klett	47
W623K.de Cleaneo Acoustic Wall Lining with 50 % Cleaneo Klett	48
W623K.de Cleaneo Acoustic Wall Lining with 100 % Cleaneo Klett	49
Individual absorber wall or ceiling sound absorption	50
<hr/>	
Installation and application	
Ceiling systems grid	52
Installation of the grid – suspended ceilings	52
Installation of the grid – free-spanning CW profiles	53
Arrangement of the insulation layer	53
Ceiling systems cladding	54
Cleaneo Klett Board installation	54
Fastening of the cladding	54
Cleaneo Klett Surface	54
<hr/>	
Installation and application	
Wall lining substructure Arrangement of the insulation layer	55
Installation of the grid	55
Arrangement of the insulation layer	55
Wall lining cladding	56
Installation schemes.....	56
Cleaneo Klett Board installation	56
Fastening of the cladding	56
Cleaneo Klett Surface	56
<hr/>	
Usage instructions	
Dimensioning principles Anchoring of loads	58
Dimensioning principles	58
Attachment of loads to Cleaneo Acoustic Board Ceilings	58
Notes Proof of Usability	59
Notes on the document	59
Symbols in this document	59
Intended Use of Knauf systems	59
General instructions	59
Installation zones acc. to DIN 4103-1	59
Construction notes	59
Proofs of Usability	59



Cleaneo Klett

Introduction

Cleaneo Klett System

Simple, sustainable, flexible

A sustainable acoustical system for the highest acoustical and visual appearance demands with the maximum installation simplicity.



Knauf Cleaneo Klett Acoustical systems

Consisting of a Cleaneo Klett Board with factory glued Klett foil, which is screw fastened to the grid as a base board using Diamant screws. The application of the base board is joint on joint and thus no filling of the joints is required.

The ultimate surface design of the Cleaneo Klett acoustic system is created using the Cleaneo Klett Surface felt absorber. Thanks to the innovative Klett (hook and loop) system, it is simply, quickly and cleanly attached to the Cleaneo Klett Board base board without any additional fasteners.

Cleaneo Klett Surface is available in a choice of 4 colours, offering a wide range of design options that can be corrected and changed at any time thanks to the innovative Klett system.

Cleaneo Klett Board

- Front face with factory glued Klett foil
- Fleece or foil laminated on the rear

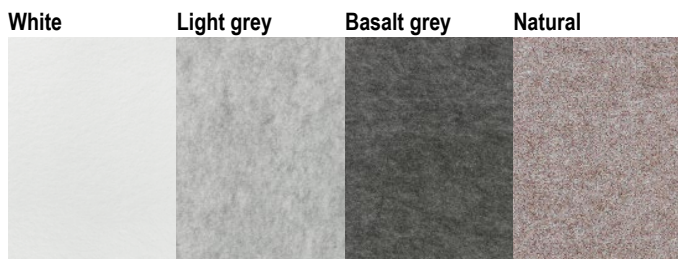
Standard format

1200 x 2000 x 12.5 mm



Cleaneo Klett Surface

Colour choices



Standard formats

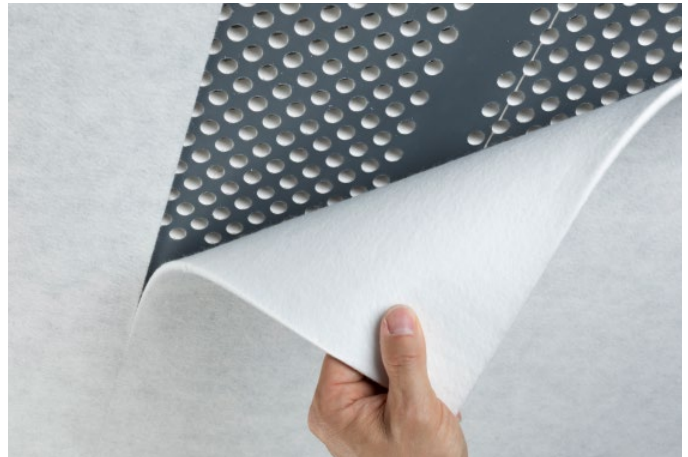
1600 x 600 x 6.5 mm

Special formats

On request

Innovative Klett system

Simple, fast and clean installation



Field of application

Cleaneo Klett acoustical systems effectively upgrade rooms acoustically and provide a pleasant room climate.

The Cleaneo Klett acoustical system can be used universally with:

- Board ceiling, suspended
- Board ceiling, free-spanning
- Wall lining
- Ceiling absorber
- Wall absorber

Application areas

- New building and renovation
- Administration building/public information center
- Open-plan offices
- Auditorium / colleges / schools
- Kindergartens
- Hotel lobbys
- Canteens / refectories
- Meeting places
- Hospitals
- Doctors surgeries

► Good to know

The reaction to fire of Cleaneo Klett Board and Cleaneo Klett Surface is not easily flammable.

Benefits Cleaneo Klett Acoustical systems



Installation
Simple, fast and clean.



Sound absorption
Best acoustic performance thanks to A-absorber (extremely absorbing).



Complete freedom of design
Wide range of design options that can be corrected and changed at any time thanks to the innovative Klett system.



Cutting
Simply cut Cleaneo Klett Surface to fit with a cutter knife without the development of dust.



No jointing
No jointing of the Cleaneo Klett Board base board. No need to wait until it is dry and elaborate sanding work is avoided.



Easy to recondition and repair
Subsequent installation, for example, of lighting fixtures is possible. Subsequent repositioning is also possible.



Cleaning
Cleaneo Klett Surface is wipe-able. See also [Assembly Instructions Cleaneo Klett Surface E3101_AI.de](#)



Sustainable
Sorted pure materials and up to 100% recycling capability.

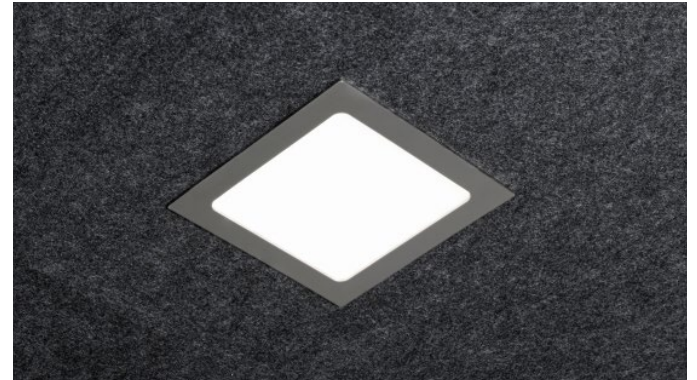


Flexibility
Quick retrofitting and upgrading for a customized room design.

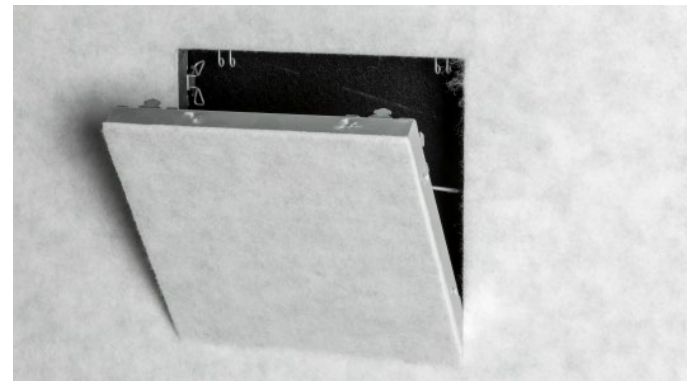


Indoor climate
Sustainable climate management as a comfort and health factor.

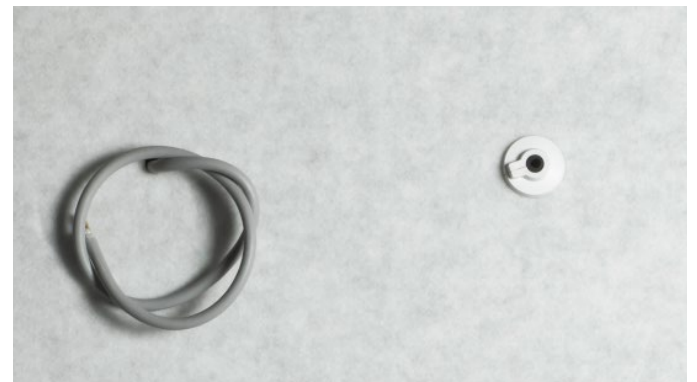
Lighting fixtures



Access panels



Penetrations



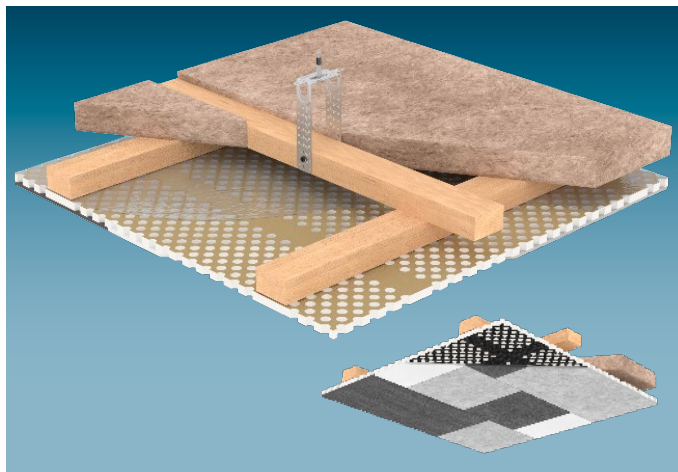
System overview of Cleaneo acoustic board ceilings with Klett surface

Cleaneo acoustic board ceilings with Klett surface

Acoustic board ceilings with a Klett surface consist of a suspended or free-spanning grid that is clad with Cleaneo Klett Board as a base board and covered with Cleaneo Klett Surface. Jointing of the Cleaneo Klett Board base board is not required.

There are 4 colour choices available for the Cleaneo Klett Surface felt absorber with the surface design, which can be combined as required.

D125K.de Cleaneo acoustic board ceilings with Klett surface with wooden frame



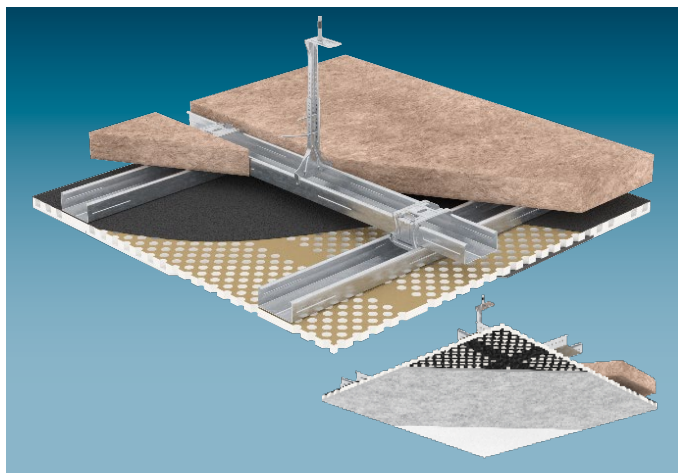
Cleaneo Klett board with fleece or foil lamination on the rear side are screw fastened to a wooden frame of carrying and furring timber battens (double-batten frame). Anchoring of the frame is undertaken with suspenders on the basic ceiling.

We recommend applying an acoustically effective insulation layer to the furring timber batten.

- The connection to wall is implemented with fleece lamination with shadow gap.
- Seal the connection to the wall with backing in case of foil lamination with shadow gap.

The ultimate surface design of the Cleaneo Klett board is created using the Cleaneo Klett Surface felt absorber.

D127K.de Cleaneo acoustic board ceilings with Klett surface with metal grid



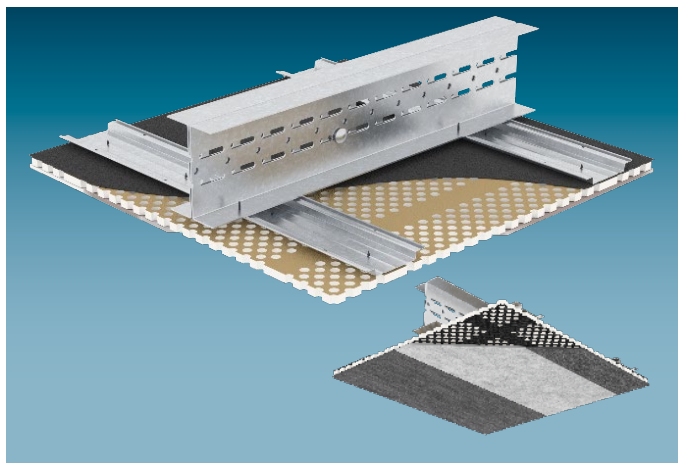
Cleaneo Klett board with fleece or foil lamination on the rear side are screw fastened to a metal grid of carrying and furring channels (double-layer profiles) made of sheet metal profiles CD 60/27. Anchoring of the CD channels is undertaken with suspenders on the basic ceiling.

We recommend applying an acoustically effective insulation layer to the furring channels.

- The connection to wall is implemented with fleece lamination with shadow gap.
- Seal the connection to the wall with backing in case of foil lamination with shadow gap.

The ultimate surface design of the Cleaneo Klett board is created using the Cleaneo Klett Surface felt absorber.

D137K.de Free-spanning Cleaneo acoustic board ceilings with Klett surface



Cleaneo Klett Boards with fleece or foil lamination on the rear side are fixed with screws to a metal grid of carrying channels made of single or double profiles types CW or UA as well as furring channels made from hat-shaped channels. The carrying channels are anchored only to the flanking walls.

We recommend laying an acoustically effective insulation layer between the carrying channels (upon the furring channels).

- The connection to wall is implemented with fleece lamination with shadow gap.
- Seal the connection to the wall with backing in case of foil lamination with shadow gap.

The ultimate surface design of the Cleaneo Klett board is created using the Cleaneo Klett Surface felt absorber.

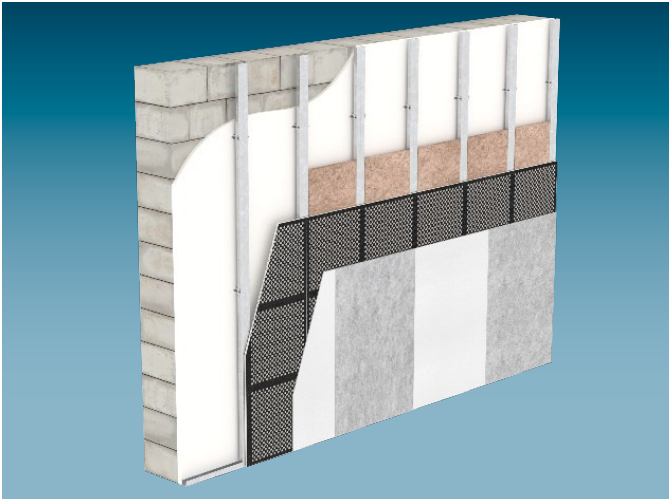
Cleaneo acoustic wall lining with Klett surface with CD channel

Cleaneo acoustic wall lining with Klett surface consists of a metal grid made of sheet metal profiles CD 60/27, which are attached to the basis wall with Universal Brackets. The robust Diamant board can be used for cladding in areas at risk of impacts. To improve the acoustic quality of the room, the cladding in the absorber area is clad with Cleaneo Klett Board as the base board and Cleaneo Klett Surface as the lining/covering.

Jointing of the Cleaneo Klett Board base board is not required.

There are 4 colour choices available for the Cleaneo Klett Surface felt absorber with the surface design, which can be combined as required.

W623K.de Cleaneo acoustic wall lining with Klett surface



The Cleaneo acoustic wall lining with Klett surface **W623K.de** consists of a metal grid made of sheet metal profiles CD 60/27, which are attached to the basis wall with Universal Brackets. Thus a very slim construction can be achieved. The cladding can be applied continuously with Cleaneo Klett Board with foil lamination or in the upper area with Cleaneo Klett Board with foil lamination and in the lower area with a layer of 18 mm Diamant GKFI. The ultimate surface design in the area of the Cleaneo Klett board is created using the Cleaneo Klett Surface felt absorber.

- Stud spacing 400 mm
- Partition height up to 10.00 m

Edge types

Scheme drawings

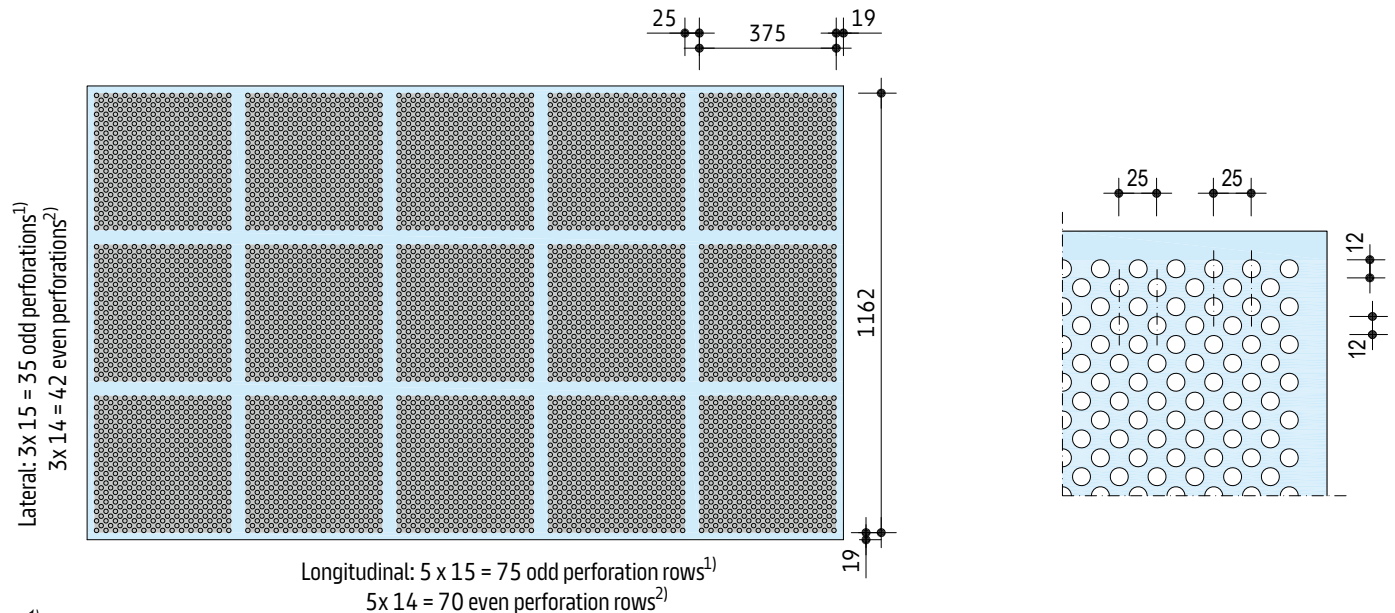
Standard edge type	Face side - board	Description
Cleaneo Klett Board – with fleece or foil laminated on the rear		
<p>SK 4-sided cut square edge</p> <p>Fleece lamination</p> <p>Foil lamination</p>		<p>Cleaneo Klett Boards SK are perforated gypsum boards with block perforation and feature a 4-sided cut square edge (4SK) as standard. The boards are placed joint on joint without jointing.</p> <ul style="list-style-type: none"> ■ Design with fibre fleece lining without additional measures ■ Design with foil, apply acrylic to the board joints

Board design

Design	Perforation	Perforations per "block"				Edge – non-perforated		Perforation ratio (board)	Board dimensions (Standard size)		Furring channel Maximum axial spacing (b)	Edge types
		Lateral	Longitudinal	Lateral	Longitudinal	Lateral	Longitudinal		Width	Length		
Block perforation	12/25 R	35	75	42	70	19	19	29.8	1200	2000	400	SK

Double row staggered 12 R

Scheme drawings | Face side | Dimensions in mm



¹⁾ Odd rows e.g. 1, 3, ...

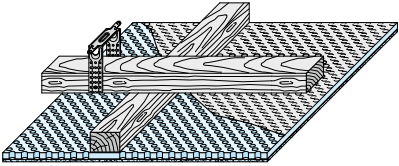
²⁾ Even rows e.g. 2, 4, ...



Acoustic ceiling systems

System variants

Cleaneo acoustic board ceilings with Klett surface without fire resistance

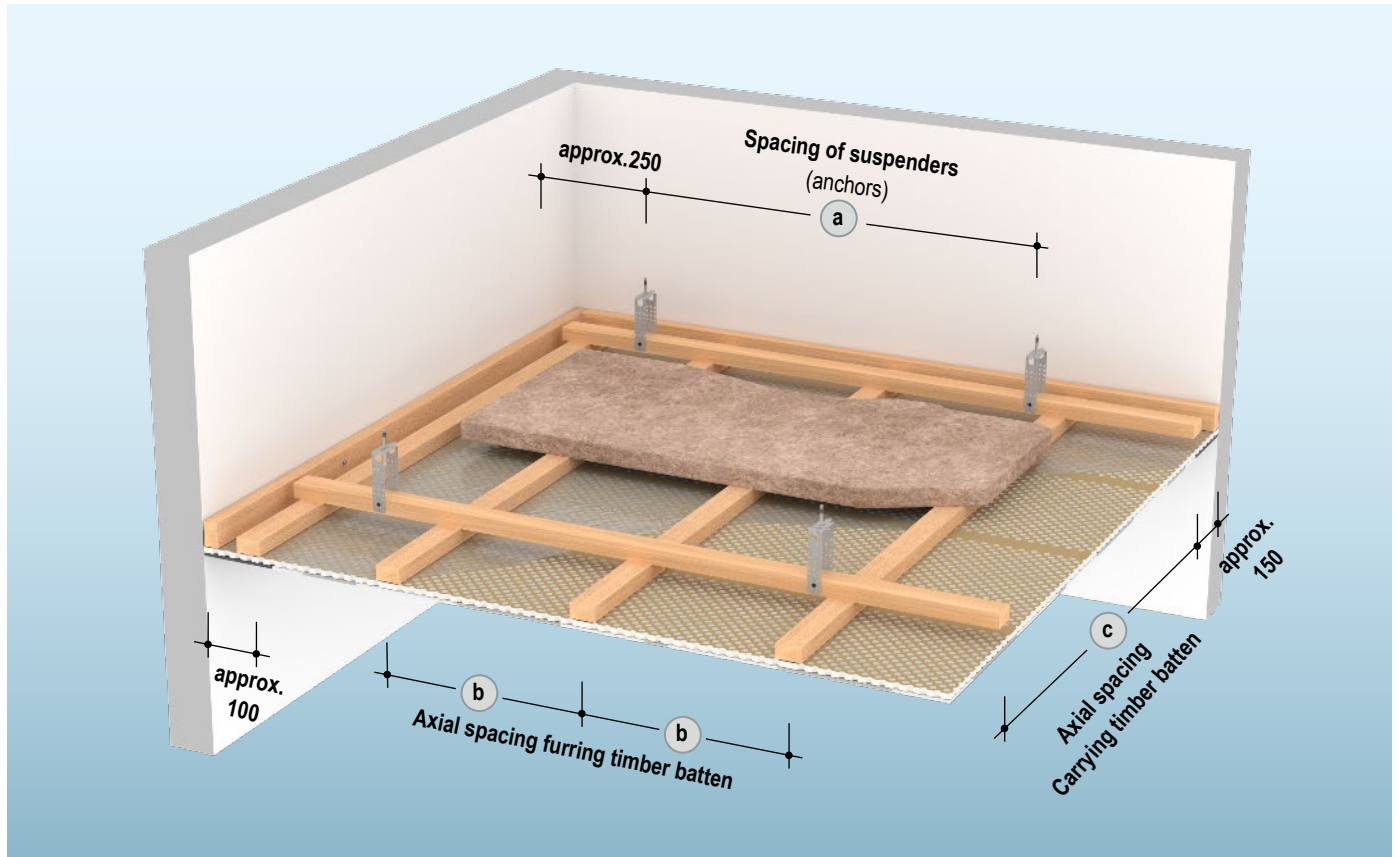
	Fire resistance class		Cladding		Rated weight Without insulation layer kg/m ²	Furring timber batten Maximum axial spacing b mm	Insulation layer	
	From below	From above	Cleaneo Klett Board + Cleaneo Klett Surface	Thick-ness mm			Required for fire resist-ance Min. thickness mm	Min. den-sity kg/m ³
D125K.de Cleaneo acoustic board ceilings with Klett surface with wooden frame								
	-	-	•	12.5 + 6.5	14.3	400	-	-

Lay Cleaneo Klett Board laterally to the furring timber battens

Note Observe notes on [pages 58 to 59](#).

Maximum grid spacings

Dimensions in mm



Determination of the load class

Load class kN/m ²	Nominal weight + weight of additional loads kg/m ²
Up to 0.30	30
	20
Up to 0.15	10

Without fire resistance – Carrying timber batten and furring timber batten ≥ 50 x 30 mm

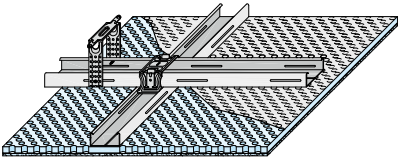
Axial spacings carrying timber batten c	Suspender spacings a		Axial spacing furring timber batten b
	Load class in kN/m ²		
	up to 0.15	up to 0.30	
500	1200	950	400
600	1150	900	
700	1100	850	
800	1050	800	
900	1000	800	
1000	950	750	
1100	900	750	
1200	900	–	

Note

Customized dimensioning of the ceiling substructure is possible on request.

System variants

Cleaneo acoustic board ceilings with Klett surface without fire resistance

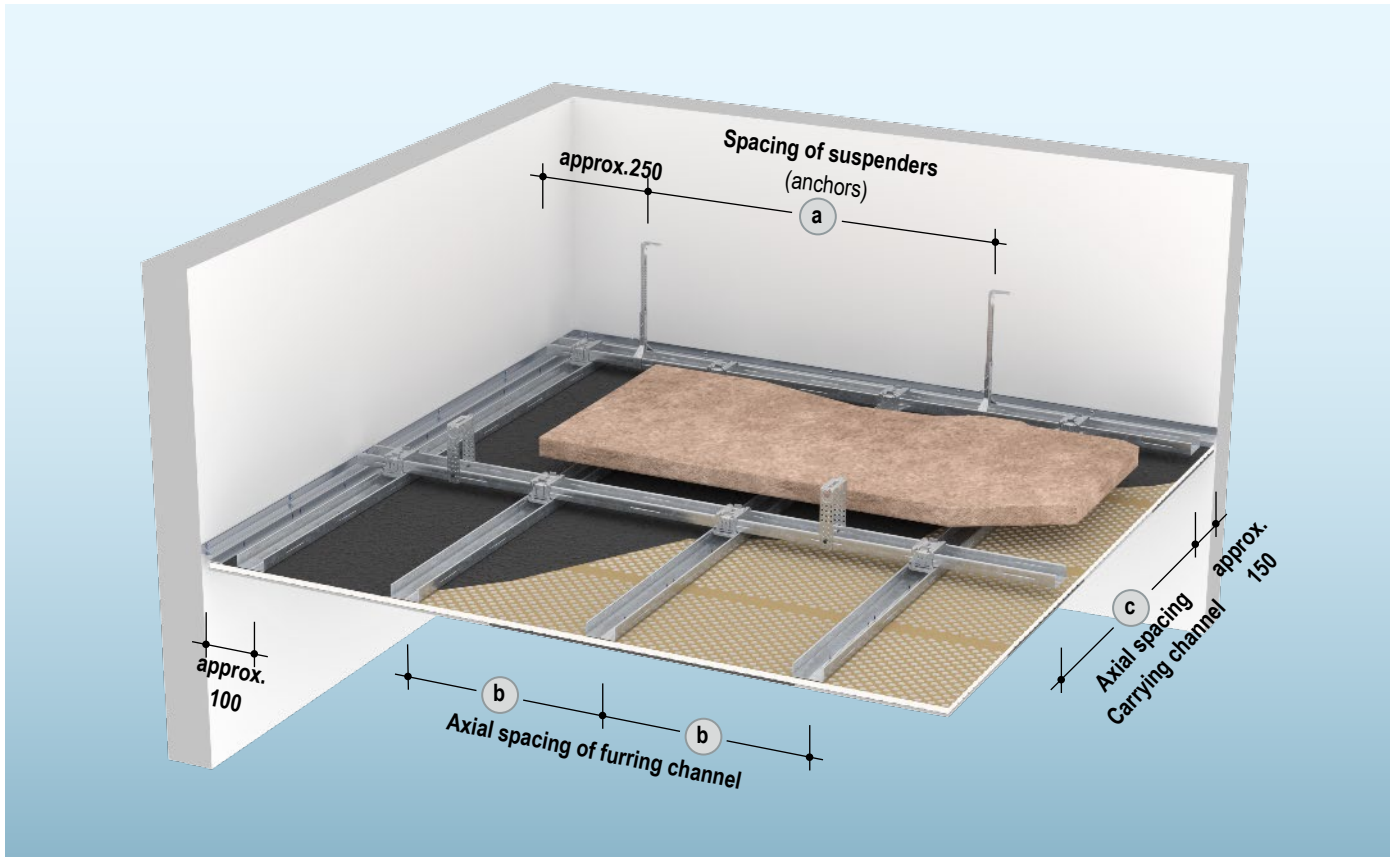
	Fire resistance class		Cladding		Rated weight Without insulation layer kg/m ²	Furring channel Maximum axial spacing (b) mm	Insulation layer	
	From below	From above	Cleaneo Klett Board + Cleaneo Klett Surface mm	Thick-ness mm			Required for fire resist- ance Min. thickness mm	Min. den- sity kg/m ³
D127K.de Acoustic board ceilings with Klett surface with metal grid								
	-	-	•	12.5 +	14.1	400	-	
			•	6.5				

Lay Cleaneo Klett Board laterally to the furring channels

Note Observe notes on [pages 58 to 59](#).

Maximum grid spacings

Dimensions in mm



Determination of the load class

Load class kN/m ²	Nominal weight + weight of additional loads kg/m ²
Up to 0.30	30
	20
Up to 0.15	10

Without fire resistance – Carrying and furring channel

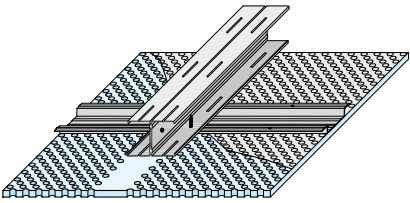
Axial spacings carrying channel c	Suspender spacings a		Axial spacing furring channel b
	Load class in kN/m ² up to 0.15 up to 0.30		
500	1200	950	400
600	1150	900	
700	1100	850	
800	1050	800	
900	1000	800	
1000	950	750	
1100	900	750	
1200	900	–	

Note

Customized dimensioning of the ceiling substructure is possible on request.

System variants

Free-spanning Cleaneo acoustic board ceilings with Klett surface without fire resistance

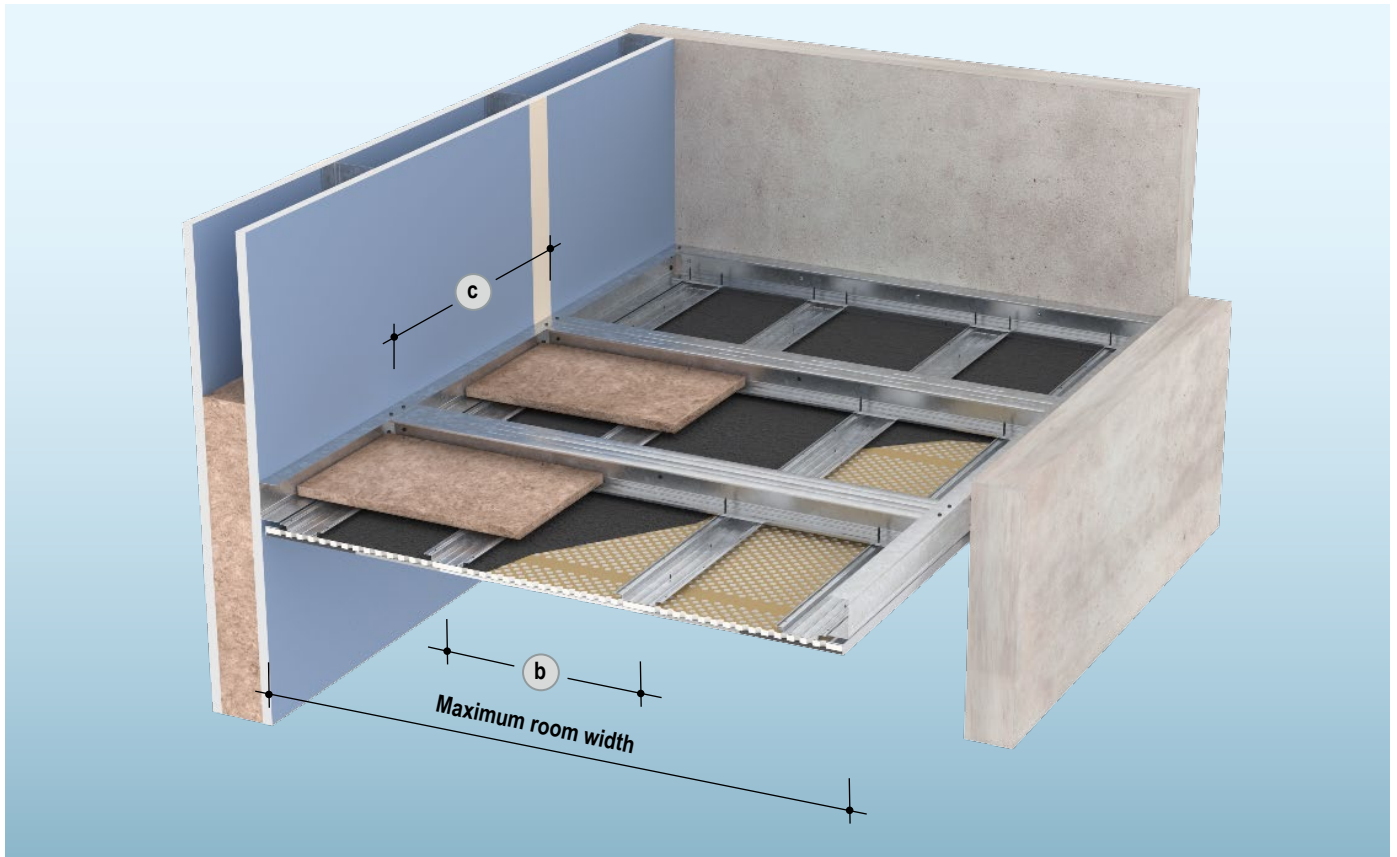
	Fire resistance class		Cladding		Carrying channel CW/UA single / double profile Maximum axial spacing c mm	Furring channel Hat-shaped channel 98/15 Maximum axial spacing b mm	Insulation layer		
	For fire exposure		Cleaneo Klett Board	Cleaneo Klett Surface			Thickness mm	Required for fire resistance	Min. thickness mm
	From below	From above							
D137K.de Free-spanning Cleaneo acoustic board ceilings with Klett surface									
	-	-	•	12.5 + 6.5	625	400	-	-	-

Lay Cleaneo Klett Board laterally to the furring channels

Note Observe notes on [pages 58 to 59](#).

Maximum room widths / grid spacings

Dimensions in mm



Profile	Maximum room widths ¹⁾ Carrying channel spacings c	
	500 mm m	625 mm m
CW single profile metal gauge 0.6 mm		
CW 50	2.05	1.95
CW 75	2.55	2.45
CW 100	3.00	2.85
CW 125	3.40	3.25
CW 150	3.75	3.60
UA single profile metal gauge 2.0 mm		
UA 50	2.45	2.35
UA 75	3.05	2.90
UA 100	3.60	3.45
UA 125	4.05	3.90
UA 150	4.50	4.35

CW profile / UA profile as carrying channel	UW perimeter runner on connection to wall load bearing
(2x) CW/UA 50	→ UW 50
(2x) CW/UA 75	→ UW 75
(2x) CW/UA 100	→ UW 100
(2x) CW/UA 125	→ UW 125
(2x) CW/UA 150	→ UW 150

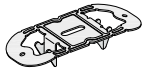
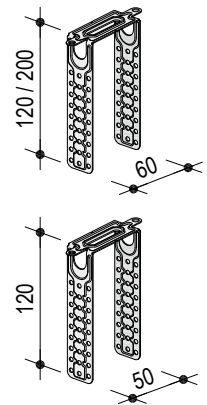
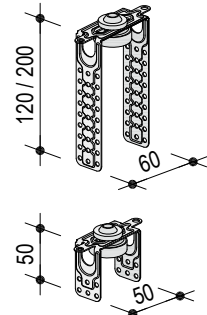
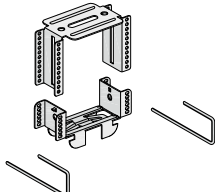
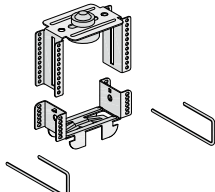
Profile	Maximum room widths ¹⁾ Carrying channel spacings c	
	500 mm m	625 mm m
CW double profile metal gauge 0.6 mm		
2x CW 50	2.40	2.25
2x CW 75	2.95	2.85
2x CW 100	3.45	3.30
2x CW 125	3.90	3.75
2x CW 150	4.35	4.15
UA double profile metal gauge 2.0 mm		
2x UA 50	2.80	2.65
2x UA 75	3.40	3.30
2x UA 100	4.00	3.90
2x UA 125	4.50	4.40
2x UA 150	5.00	4.85

1) Max. room widths including additional loads ($0.03 \text{ kN/m}^2 = 3 \text{ kg/m}^2$) for insulation layers necessary for acoustical measures and/or fixing loads.

Notes
Both larger room widths as well as a customized dimensioning of the ceiling substructure is possible on request.
Free-spanning ceiling profiles may not be joined or extended (larger room widths possible with centre suspension)

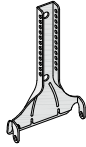





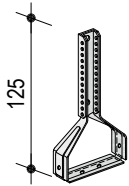
Suspenders

Dimensions in mm

Suspension	Drawing	Comment
Multi-level ceiling system – 0.15 kN (15 kg) load-bearing capacity class		
Direct Bracket For CD 60/27	 Bend side tabs	Anchor to fire protection ceiling with Knauf FN 4.3 x 35 or Knauf FN 4.3 x 65
0.40 kN (40 kg) load-bearing capacity class		
Universal Bracket For CD 60/27 For timber batten 50 x 30		<ul style="list-style-type: none"> ■ Anchoring to the reinforced concrete ceiling with 1x Knauf Ceiling Steel Dowel at centre ■ Anchoring to the joist with 2x Knauf TN 3.5 x 35 or 2x Knauf TN 3.9 x 35 in the tabs (sufficient joist width required) or 1x Knauf FN 4,3 x 35 at center ■ Anchoring to the trapezoid sheet metal with an approved anchoring element
Damping Universal Bracket for CD 60/27 For timber batten 50 x 30		<p>Bend or cut the Universal Bracket / Damping Universal Bracket according to the required suspension height, screw fasten with</p> <ul style="list-style-type: none"> ■ Timber batten (2x Knauf TN 3.5 x 25) ■ CD 60/27 (2x Metal Screws LN 3.5 x 11) <ul style="list-style-type: none"> ■ Anchoring to reinforced concrete ceiling with 1x suitable steel dowel at centre (observe the anchoring length) ■ Anchor to beam with 1x Knauf FN 4.3 x 65 at center (observe the anchoring length) ■ Anchoring to the trapezoid sheet metal with an approved anchoring element (observe the anchoring length)
Adjustable Universal Bracket For CD 60/27		<ul style="list-style-type: none"> ■ Anchoring to the reinforced concrete ceiling with 1x Knauf Ceiling Steel Dowel at centre ■ Anchoring to the joist with 2x Knauf TN 3.5 x 35 or 2x Knauf TN 3.9 x 35 in the circular perforations or 1x Knauf FN 4.3 x 35 at center ■ Anchoring to the trapezoid sheet metal with an approved anchoring element
Adjustable damping Universal Bracket For CD 60/27		<p>Adjustable Universal Bracket/Adjustable Damping Universal Bracket to be adjusted to suit required upper grid level. Connect the upper and lower section with 2x Nonius pins (secure against sliding out).</p> <ul style="list-style-type: none"> ■ Anchoring to reinforced concrete ceiling with 1x suitable steel dowel at centre (observe the anchoring length) ■ Anchor to beam with 1x Knauf FN 4.3 x 65 at center (observe the anchoring length) ■ Anchoring to the trapezoid sheet metal with an approved anchoring element (observe the anchoring length)
Notes	Anchoring to basic ceilings made of other building materials with specially approved or standardized anchoring elements. Use rigid suspenders only.	

Suspenders (continued)

Dimensions in mm

Suspension	Drawing	Comment
0.40 kN (40 kg) load-bearing capacity class		
<p>Nonius hanger bottom For CD 60/27</p>		<p>Suspended with Nonius Hanger Top</p>  <p>or</p> <p>Nonius Swing Top</p>  <p>and</p> <p>1x Nonius Pin (secure against slide out)</p>  <p>or</p> <p>1x Nonius Clip</p>  <p>If required use additional Nonius connector</p> 
<p>Nonius stirrup Height 125 mm: For CD 60/27</p> <p>Height 135 mm: For timber batten 50 x 30 (screw fix at side with TN 3.5 x 25)</p>	 <p>Bend Nonius stirrup around channel and fit together until it snaps in</p>	

Nonius Hanger Top:

- Anchoring to the reinforced concrete ceiling with
Knauf Ceiling Steel Dowel
- Anchor to joist with
1x Knauf FN 4.3 x 35
- Anchoring to the trapezoid sheet metal with
an approved anchoring element

Nonius Swing Top:

- Anchoring to reinforced concrete ceiling with
1x suitable steel dowel
(observe the anchoring length)
- Anchor to beam/joist with
1x Knauf FN 4.3 x 65
(observe the anchoring length)
- Anchoring to the trapezoid sheet metal with
an approved anchoring element
(observe the anchoring length)

Notes

Anchoring to basic ceilings made of other building materials with specially approved or standardized anchoring elements.
Use rigid suspenders only.

Total construction height of Cleaneo acoustic board ceilings with Klett surface

Total construction height of suspended ceilings

Dimensions in mm

The total construction height of the ceiling results from the sum of the heights of suspenders, height of the grid and cladding

System	Suspended with Nonius Top Nonius stirrup				Frame Batten (w x h) Profile	Total grid height
	Nonius stirrup	Nonius suspender	Nonius Hanger Top Nonius stirrup	Nonius suspender		
D127K.de	130	130	140	140	CD 60/27 + CD 60/27	54

System	Direct suspension Universal Bracket	Damping Universal Bracket	Adjustable Universal Bracket	Adjustable Damping Universal Bracket	Frame Batten (w x h) Profile	Total grid height
	D125K.de	20 – 180	25 – 190	–		
D127K.de	15 – 180	18 – 190	35 – 85	40 – 90	CD 60/27 + CD 60/27	54

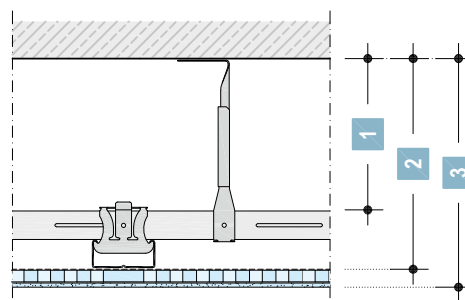
System	Multi-level Ceiling System Direct Bracket				Frame Profile	Total grid height
	D127K.de	4				

Calculation example – determination of total construction height
e.g. D127K.de With metal grid

Steps	Dimensions in mm
1 Upper grid level with Nonius Suspender	130
2 Height of grid Carrying channel CD and furring channel CD	+ 54
3 Cladding thickness 12.5 mm + 6.5 mm	+ 19
4 Sum	= 203

Approx. 203 mm required total height of suspended ceiling

Term definitions



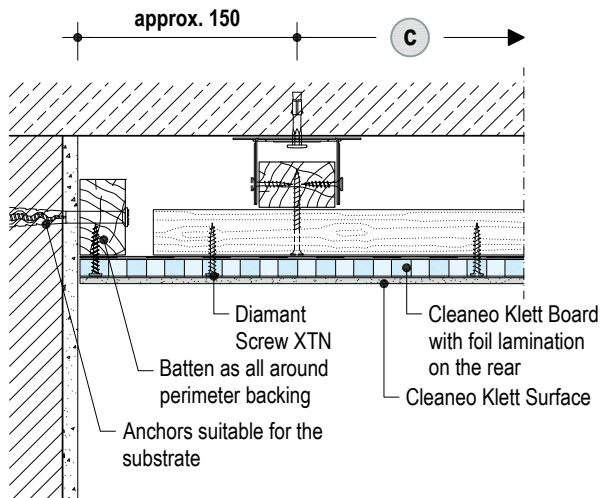
- 1 Upper grid level (height of suspension / installation height)
- 2 Suspension height (height of the ceiling plenum)
- 3 Total construction height (construction / total height / depth)

Details

Scale 1:5 | Dimensions in mm

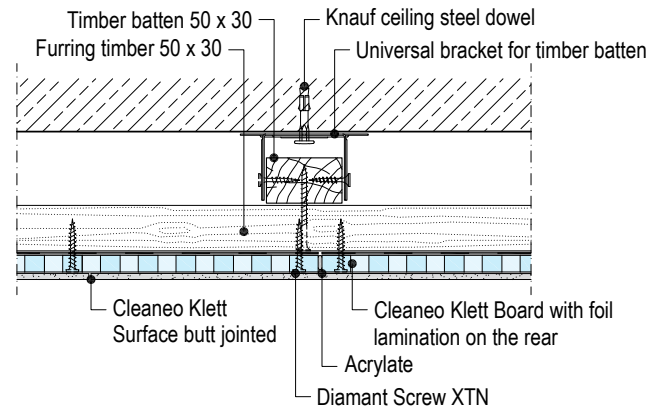
D125K.de-A10 Connection to solid wall

Without fire resistance



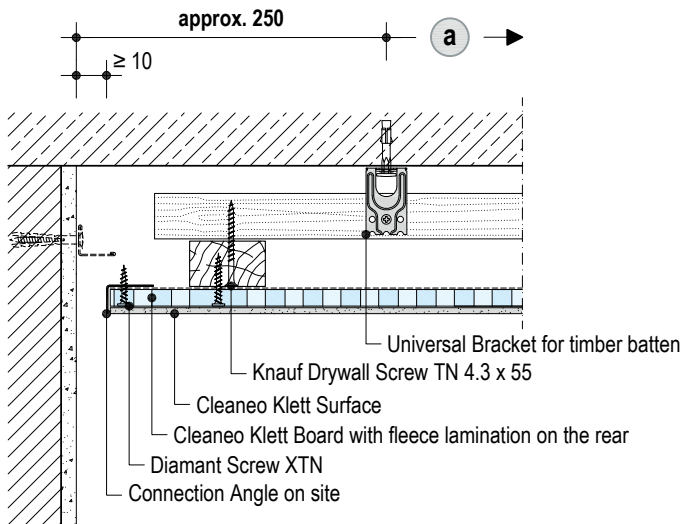
D125K.de-B10 Long edge

Without fire resistance



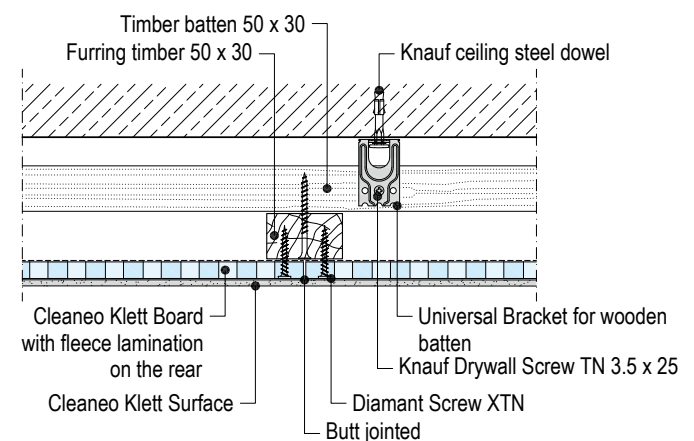
D125K.de-D1 Connection to solid wall

Without fire resistance



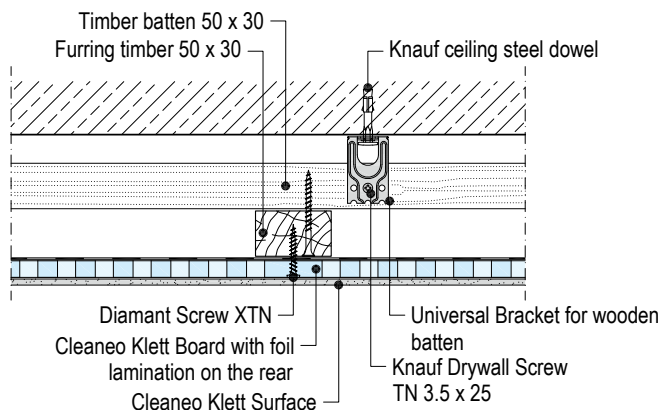
D125K.de-C1 Front edge

Without fire resistance



D125K.de-C10 Front edge

Without fire resistance



Note

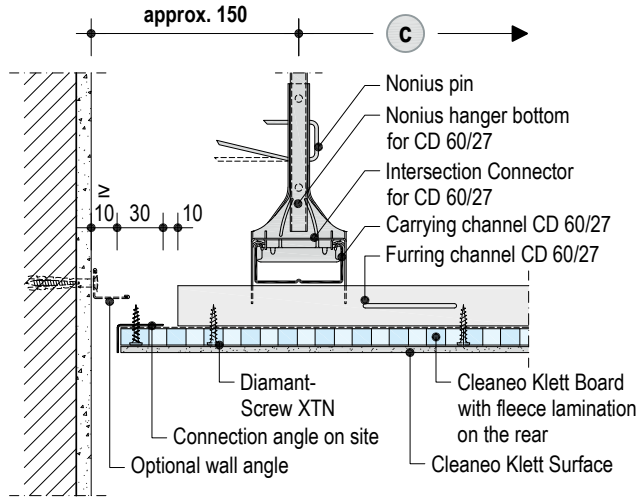
Wall connection with Cleaneo Klett Board with fleece lamination only permissible with shadow gap. A Connection Angle (e.g. 20 x 30 x 2 mm) is required on site for professional and clean installation of the Cleaneo Klett Surface.

Details

Scale 1:5 | Dimensions in mm

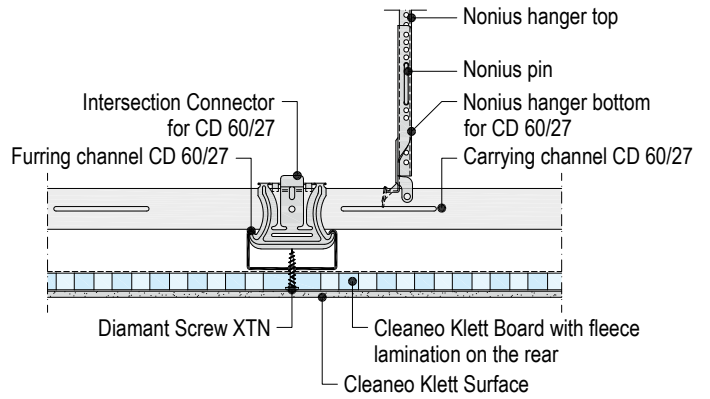
D127K.de-A1 Connection to solid wall

Without fire resistance



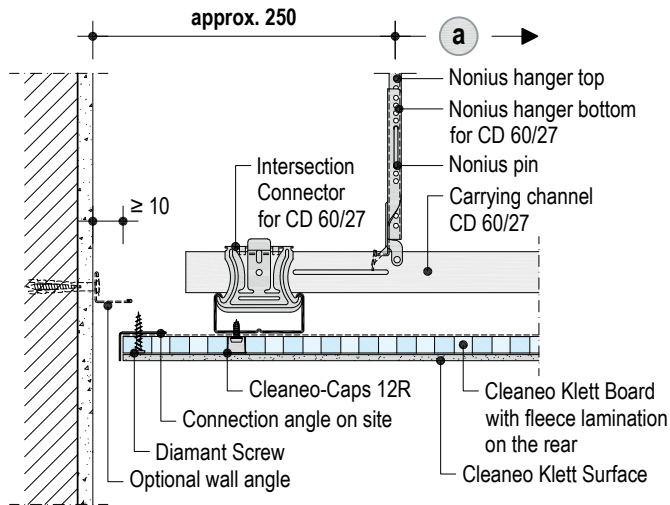
D127K.de-C1 Front edge

Without fire resistance



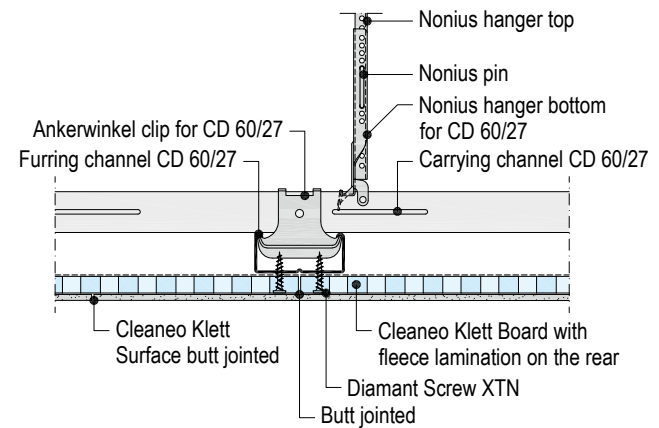
D127K.de-D1 Connection to solid wall

Without fire resistance



D127K.de-C2 Front edge

Without fire resistance



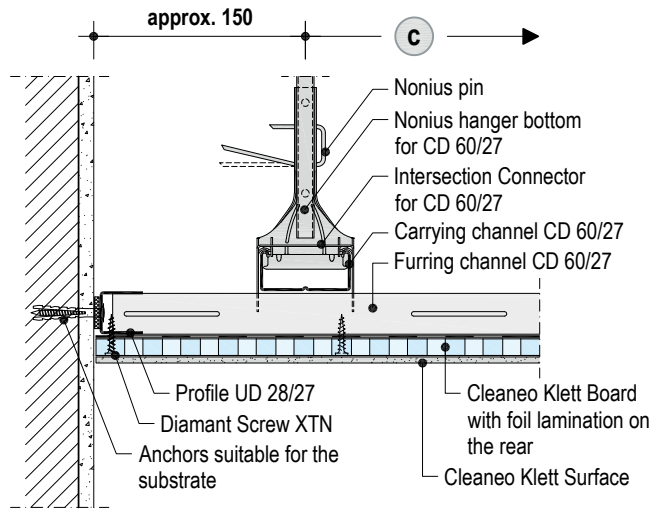
Note Wall connection with Cleaneo Klett Board with fleece lamination only permissible with shadow gap. A Connection Angle (e.g. 20 x 30 x 2 mm) is required on site for professional and clean installation of the Cleaneo Klett Surface.

Details

Scale 1:5 | Dimensions in mm

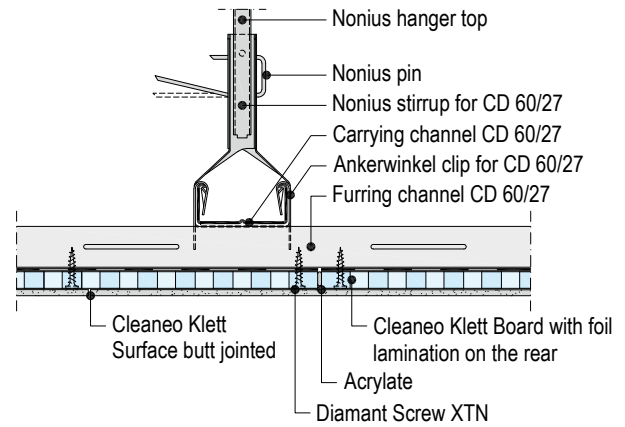
D127K.de-A10 Connection to solid wall

Without fire resistance



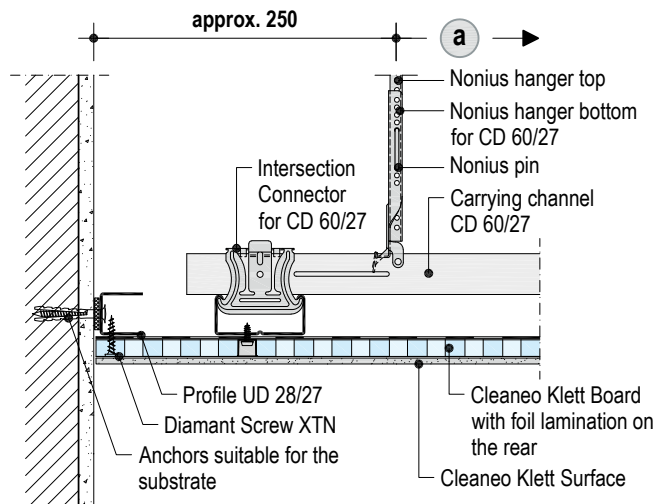
D127K.de-B10 Long edge

Without fire resistance



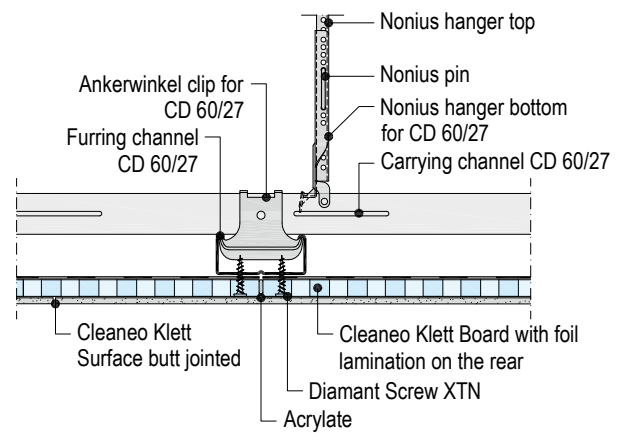
D127K.de-D10 Connection to solid wall

Without fire resistance



D127K.de-C10 Front edge

Without fire resistance

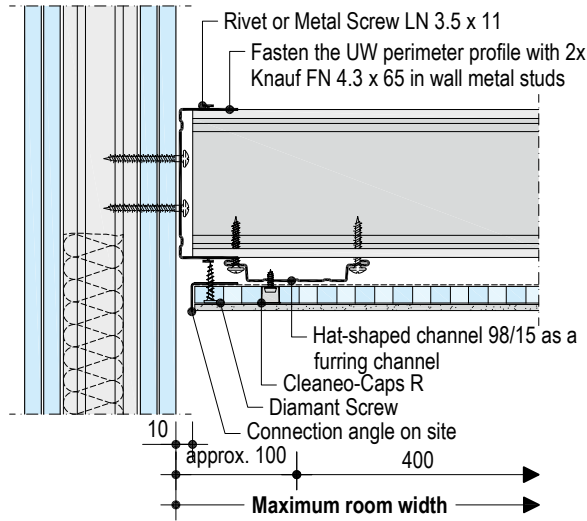


Details

Scale 1:5 | Dimensions in mm

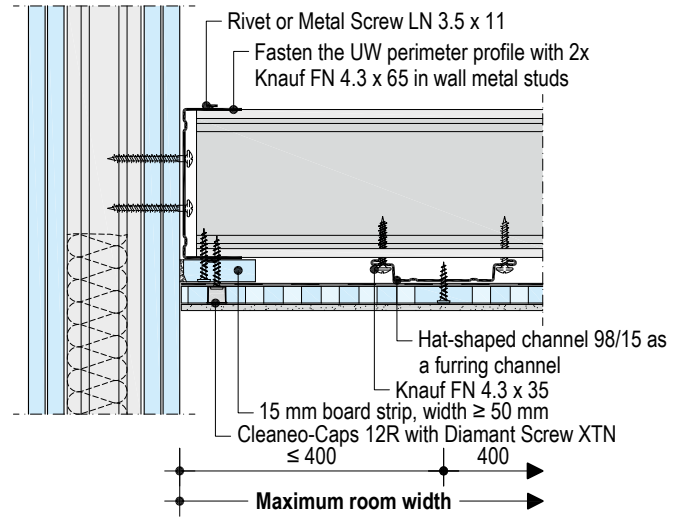
D137K.de-D1 Load bearing connection to wall

Without fire resistance



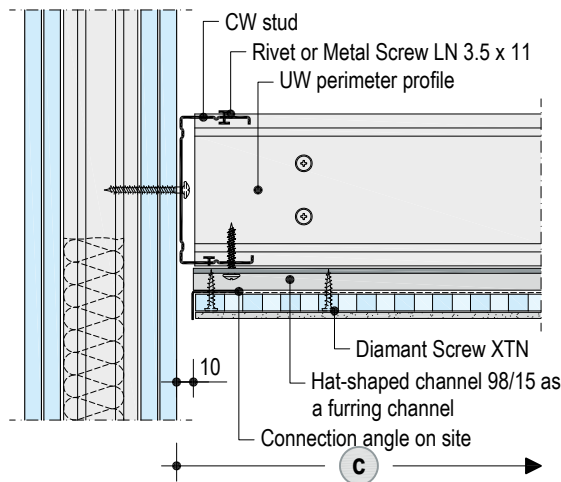
D137K.de-D10 Load bearing connection to wall

Without fire resistance



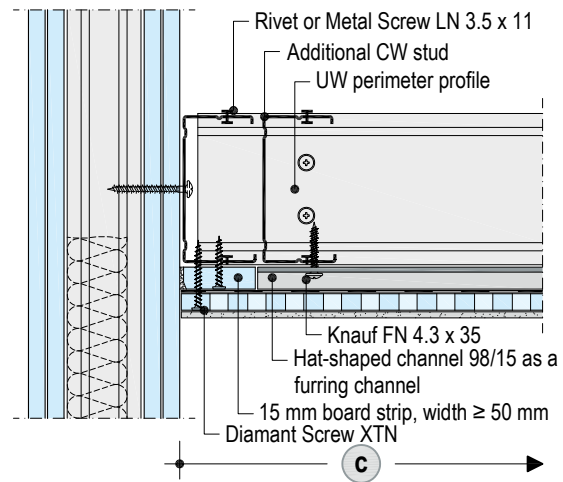
D137K.de-A1 Structural connection to wall

Without fire resistance



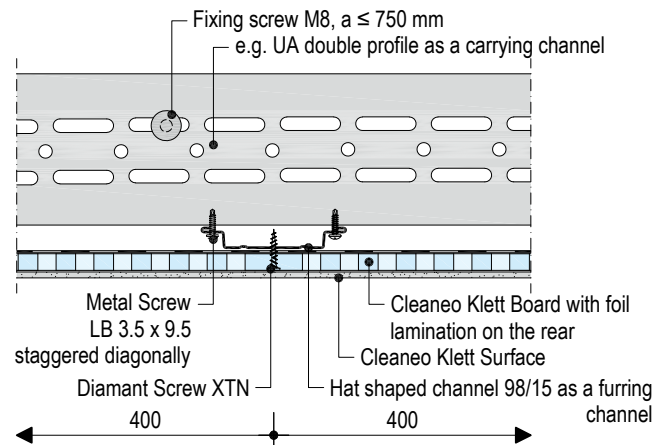
D137K.de-A10 Structural connection to wall

Without fire resistance



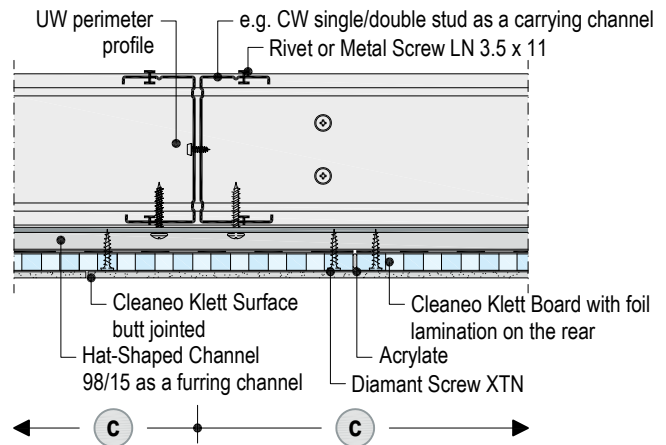
D137K.de-B1 Front edge

Without fire resistance



D137K.de-C1 Long edge

Without fire resistance



Note Wall connection with Cleaneo Klett Board with fleece lamination only permissible with shadow gap. A Connection Angle (e.g. 20 x 30 x 2 mm) is required on site for professional and clean installation of the Cleaneo Klett Surface.



Acoustic wall lining

System variants

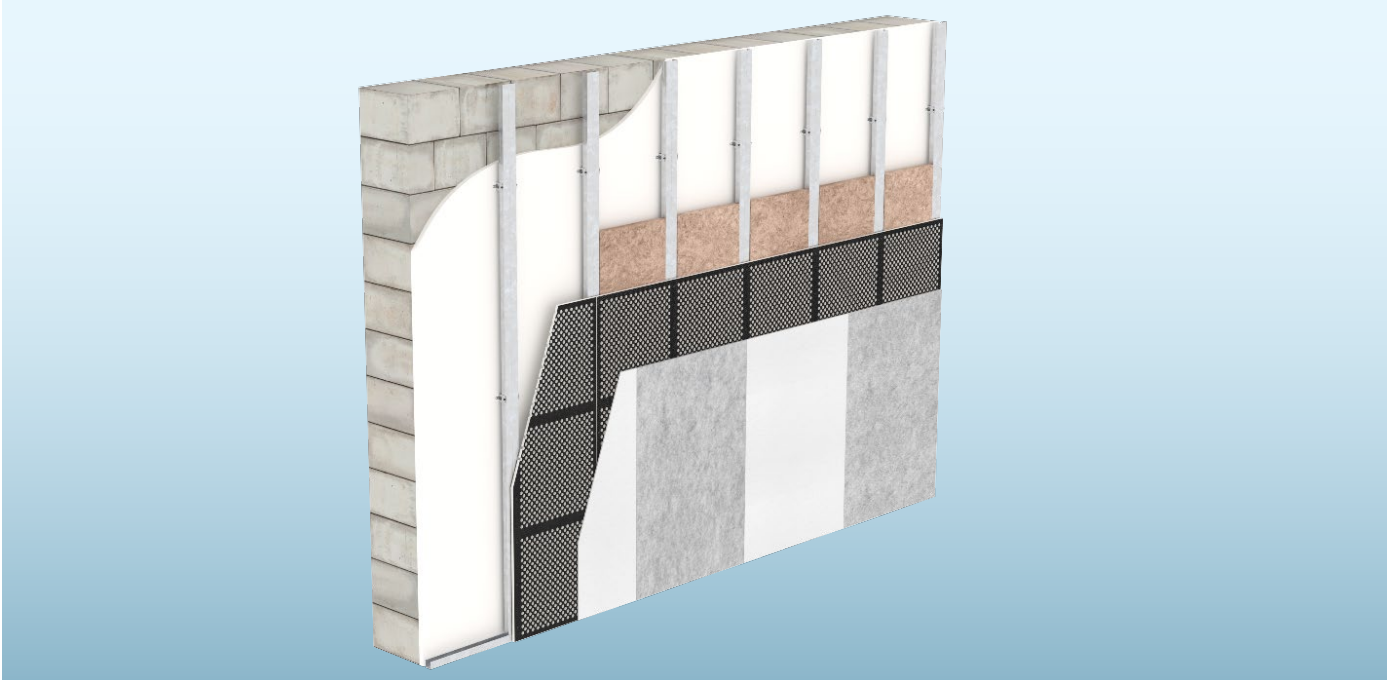
Knauf system	Cladding			Weight	Minimum thickness	Knauf profile	Cavity	Insulation layer
	Cleaneo Klett Board	+	Cleaneo Klett Surface	None Insulation layer				Minimum thickness
	Diamant		t mm	approx. kg/m ²	D mm		h mm	mm
W623K.de Cleaneo acoustic wall lining with Klett surface					Metal grid CD 60/27 directly fastened with Universal Brackets			
<p>Perforated area</p>	•		12.5 + 6.5	19	≥ 62.5	CD 60/27	> 40	> 30
<p>Non-perforated area</p>			• 18					

Weight specifications apply for 33 % perforated and 67 % non-perforated surface area

Notes	W623K.de Cleaneo acoustic wall lining with Klett surface only permissible with rear-side foil lamination Cleaneo Klett Board. Observe notes on pages 58 to 59 .
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Partition heights

W623K.de Cleaneo acoustic wall lining with Klett surface with CD channel



Maximum permissible wall height

Knauf profile	Maximum stud spacing a mm	Maximum partition height m
Metal gauge 0.6 mm		
CD 60/27	400	10.00

- Attach first Universal Bracket approx. 900 mm from upper edge of the ready floor, and further Universal Brackets at axial spacings of ≤ 1500 mm.
- Maximum permissible wall cavity 127 mm

Construction depth Cleaneo Acoustic wall lining

Direct lining/fastening system W623K.de

Dimensions in mm

Suspension	Drawing	Comment
Universal Bracket For CD 60/27 Maximum permissible wall cavity 127 mm	<p>Bend or cut the Universal Bracket according to the required cavity depth, screw fasten to CD 60/27 (2x metal screws LN 3.5 x 11).</p>	Anchoring on existing wall with 1x suitable fastener at center (observe anchoring depth) e.g. Knauf Nailable Plug with masonry, attach first Universal Bracket approx. 900 mm from upper edge of the ready floor, and further Universal Brackets at axial spacings of ≤ 1500 mm.

CD Channel spacing to the existing wall systems W623K.de

System	Universal Bracket
W623K.de	10 – 100

Calculation example – Determination of the construction depth of the acoustical wall lining

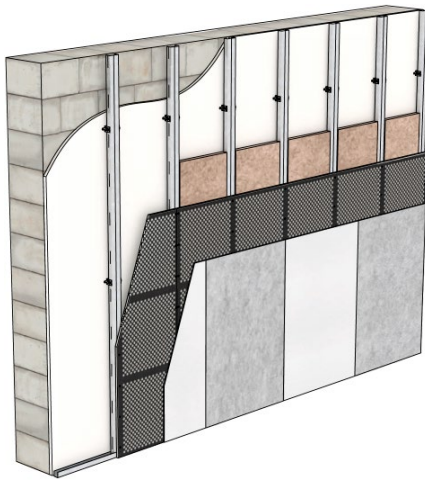
Steps	Dimensions in mm
1 Spacing of stud to wall	10
2 Flange width of the studs CD channel	+ 27
3 Sub-total cavity depth	= 37
4 Thickness of the cladding in perforated area 12.5 mm + 6.5 mm	+ 19
5 Sum	= 56

Approx. 56 mm required total construction depth of wall lining

Details

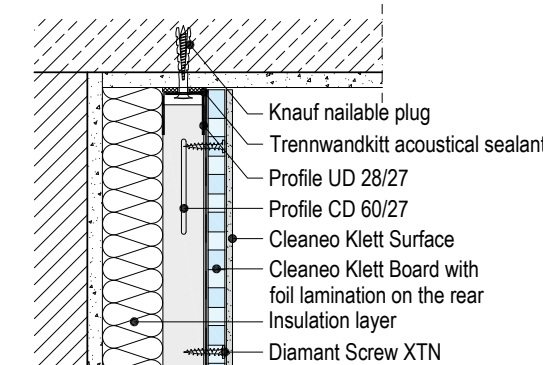
Scale 1:5

W623K.de-P1 Cleaneo Klett on the surface

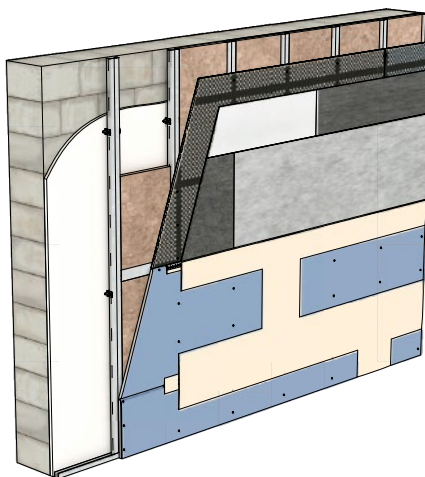


W623K.de-VO1 Ceiling connection to basic ceiling

Vertical section I Without fire resistance

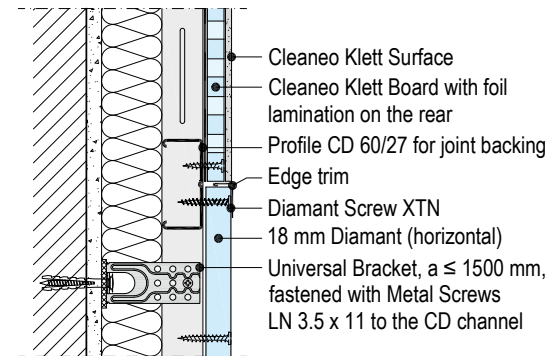


W623K.de-P2 Combined cladding



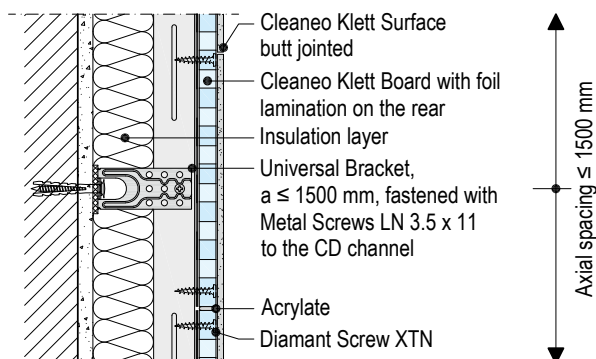
W623K.de-VM2 Board transition

Vertical section I Without fire resistance



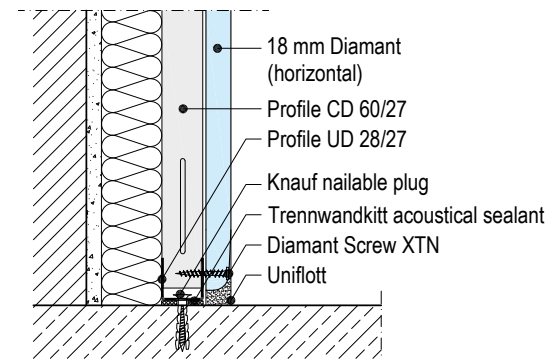
W623K.de-VM1 Board joint

Vertical section I Without fire resistance



W623K.de-VU1 Connection to floor on basic floor

Vertical section I Without fire resistance



Note

Attach first Universal Bracket approx. 900 mm from upper edge of the ready floor, and further Universal Brackets at axial spacings of ≤ 1500 mm.

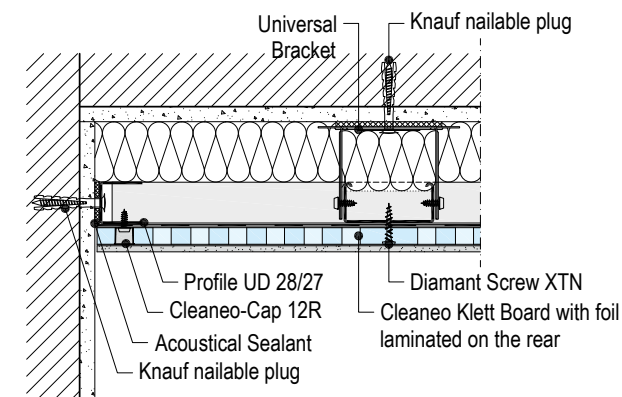
W623K.de Cleaneo acoustic wall lining with Klett surface with CD channel

Details

Scale 1:5

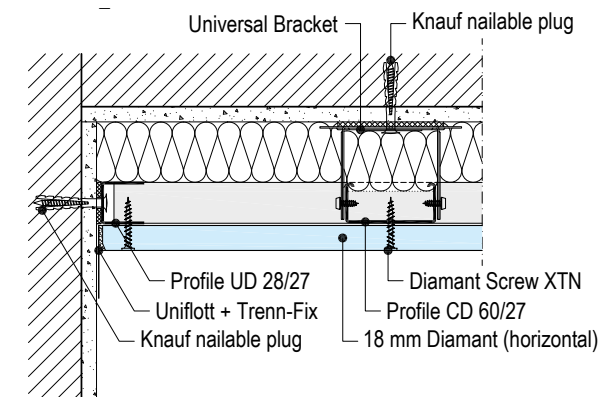
W623K.de-B1 Connection to solid wall

Horizontal section | Without fire resistance



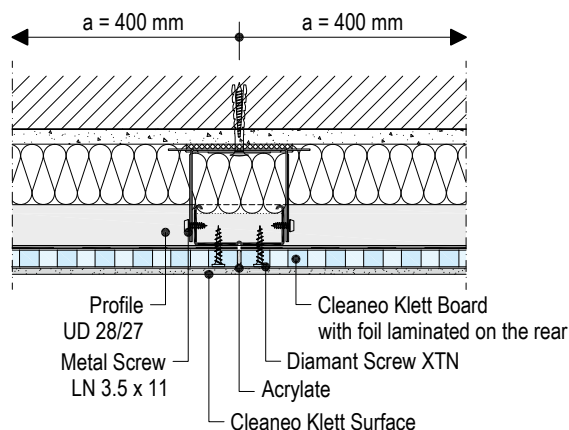
W623K.de-B2 Connection to solid wall

Horizontal section | Without fire resistance



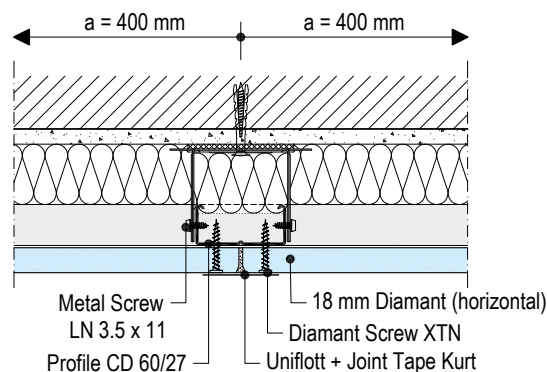
W623K.de-H2 Board joint

Horizontal section | Without fire resistance



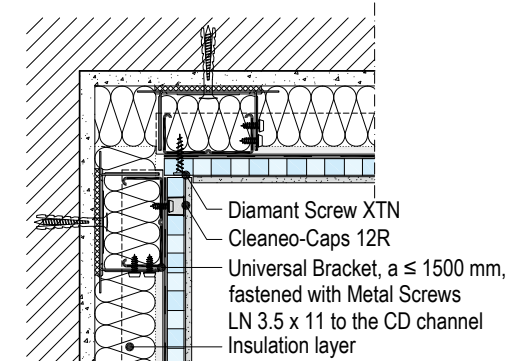
W623K.de-H3 Board joint

Horizontal section | Without fire resistance



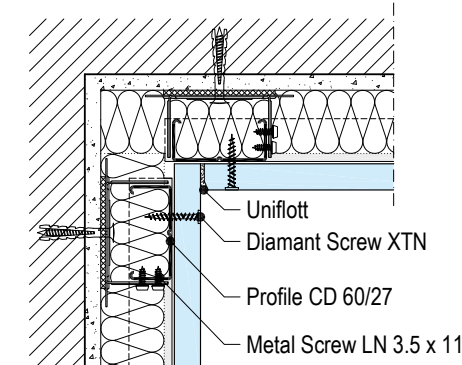
W623K.de-A1 Inside corner

Horizontal section | Without fire resistance



W623K.de-A2 Inside corner

Horizontal section | Without fire resistance

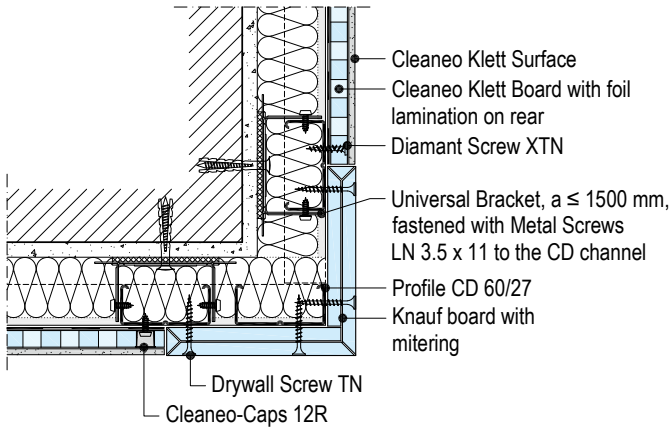


Details

Scale 1:5

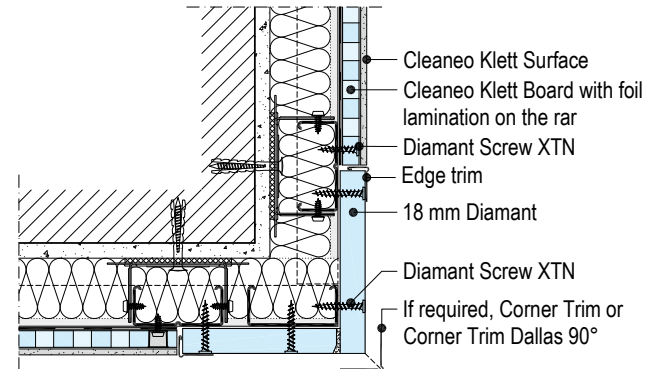
W623K.de-E1 Outside corner

Recommendation with Cleaneo Klett cladding on the surface
Horizontal section I Without fire resistance



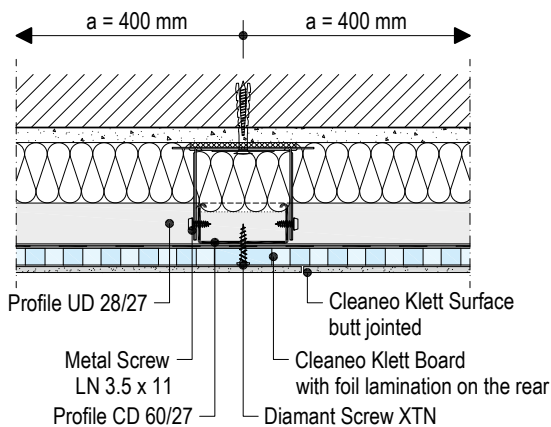
W623K.de-E3 Outside corner

Recommendation with combined cladding
Horizontal section I Without fire resistance



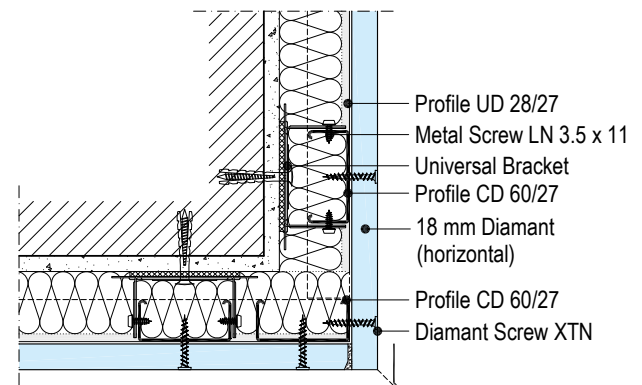
W623K.de-H1 Board web CD channel

Horizontal section I Without fire resistance



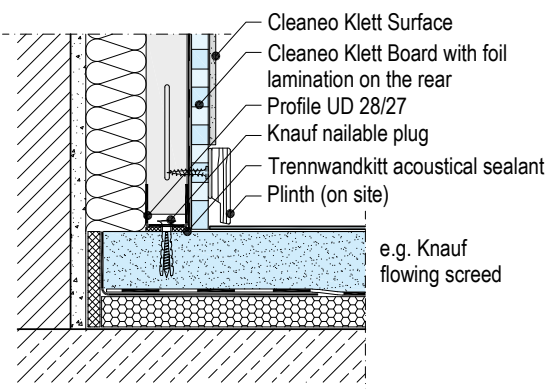
W623K.de-E2 Outside corner

Horizontal section I Without fire resistance



W623K.de-VU2 Connection to floor on screed

Vertical section I Without fire resistance





Special details

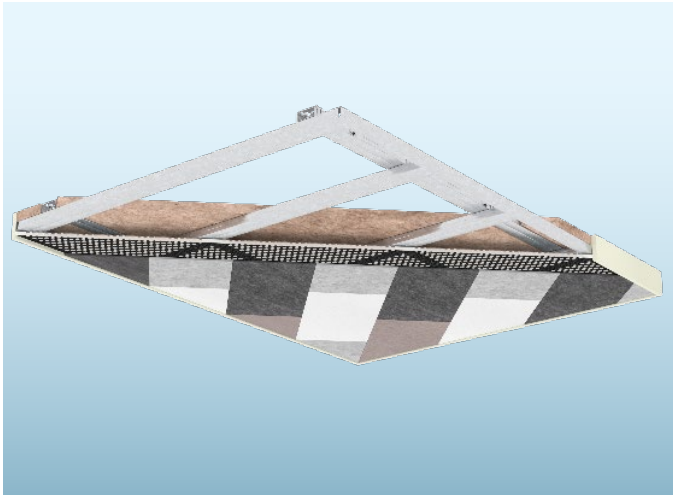
Ceiling absorber with Cleaneo Klett

Wall absorber with Cleaneo Klett

Access panels

Curved designs with Cleaneo Klett

Ceiling absorber with metal grid



Maximum grid spacings

Carrying and furring channel

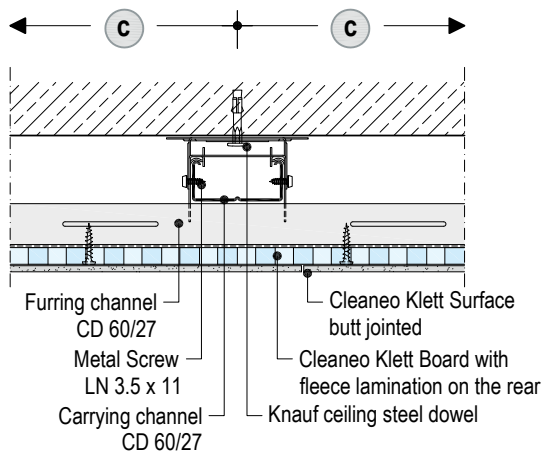
- a** Suspender spacings
- b** Axial spacing of furring channel
- c** Carrying channel spacings

Acc. to table [page 15](#)

Details

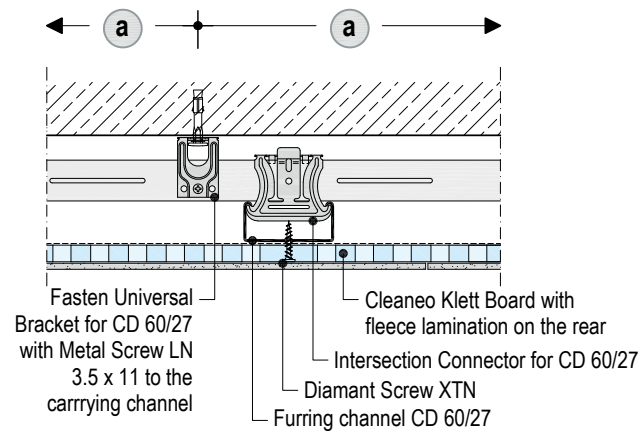
Section – parallel to furring channel

Without fire resistance



Section – Lateral to furring channel

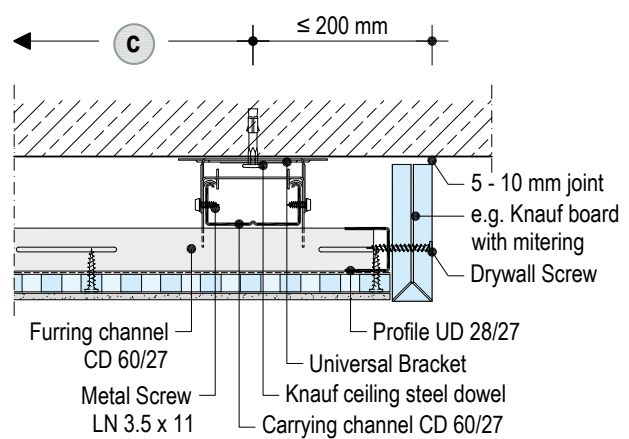
Without fire resistance



Vertical section I Scale 1:5

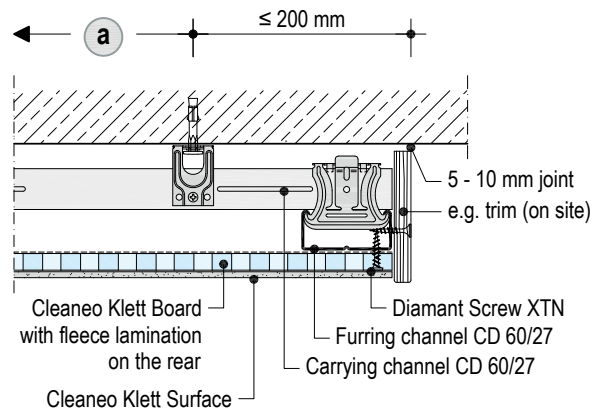
Absorber end – parallel to furring channel with Knauf design unit

Without fire resistance

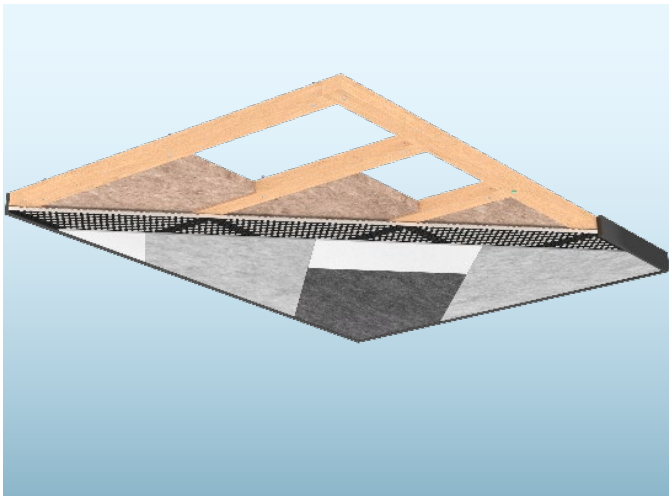


Absorber end – lateral to furring channel with trim

Without fire resistance



Ceiling absorber with wood frame



Maximum grid spacings

Carrying and furring timber batten $\geq 50 \times 30$ mm

- a** Suspender spacings
- b** Axial spacing furring timber batten
- c** Axial spacing carrying timber batten

Acc. to table [page 13](#)

Furring timber batten only $\geq 50 \times 30$ mm directly anchored

Spacings of anchors:

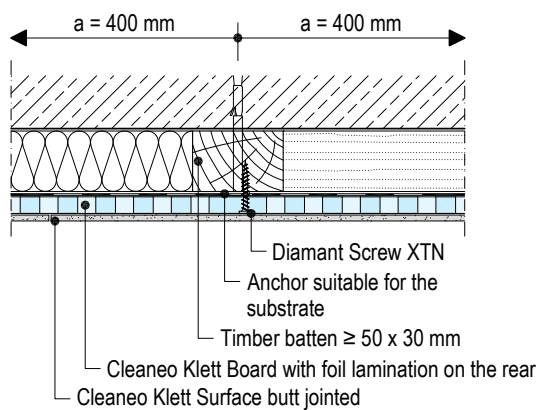
- ≤ 1200 mm up to 15 kg/m^2
- ≤ 950 mm up to 40 kg/m^2

Axial spacing furring timber batten: 400 mm

Details

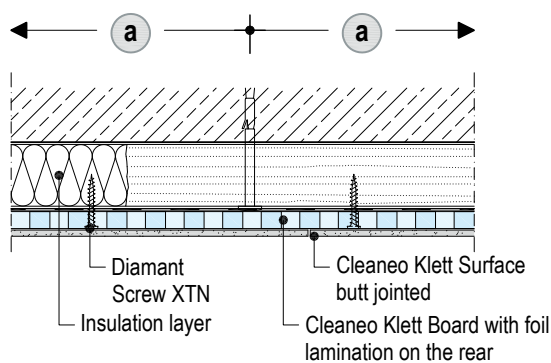
Section – lateral to furring timber batten

Without fire resistance



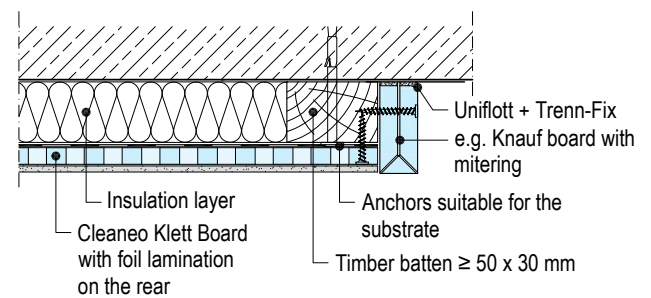
Section –parallel to furring timber batten

Without fire resistance



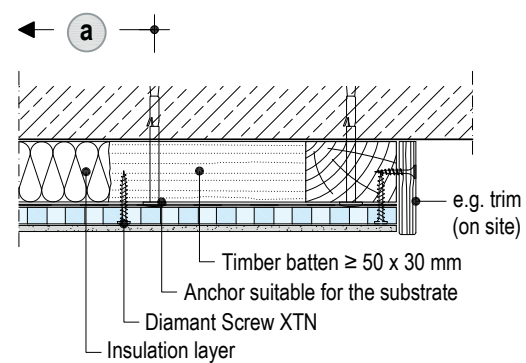
Absorber end – with Knauf design unit

Without fire resistance



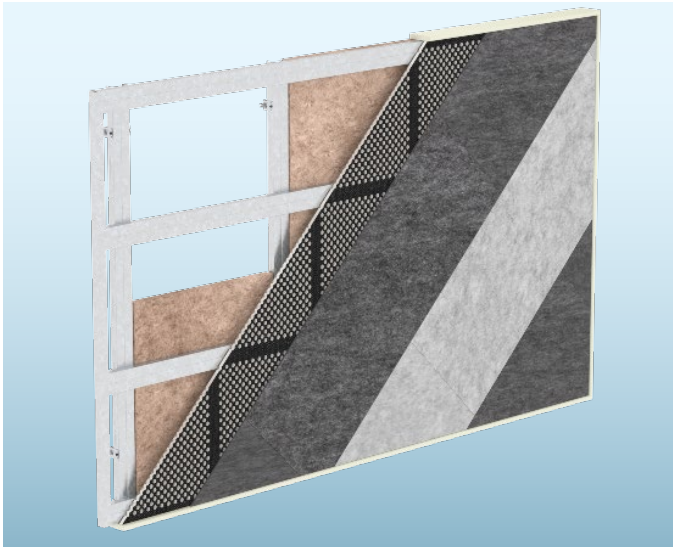
Absorber end – with trim

Without fire resistance



Scale 1:5

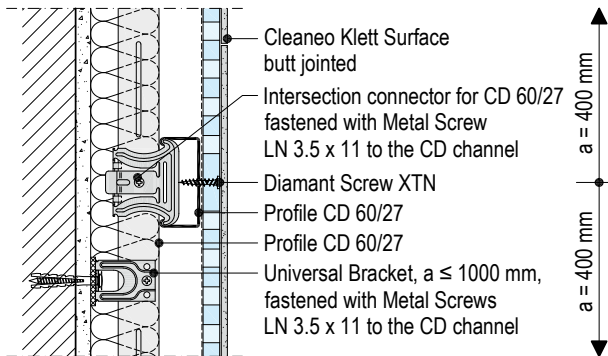
Wall absorber with metal grid



Details

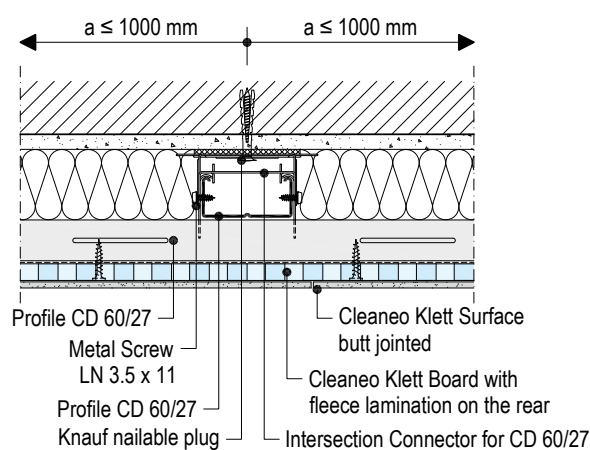
Section – Lateral to furring channel

Vertical section I Without fire resistance



Section – parallel to furring channel

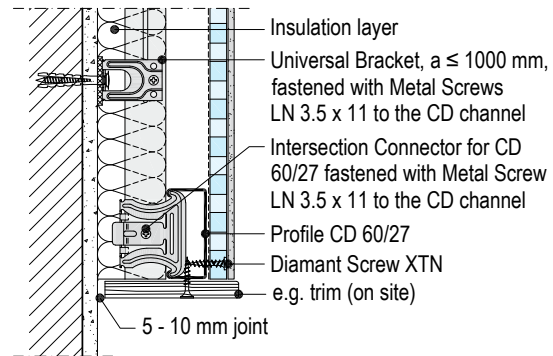
Horizontal section I Without fire resistance



Scale 1:5

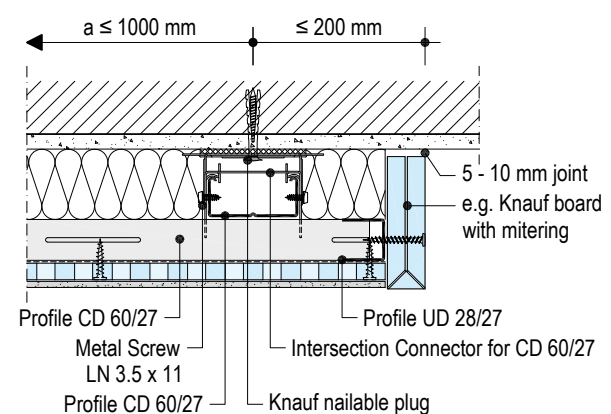
Absorber end – lateral to furring channel with trim

Vertical section I Without fire resistance

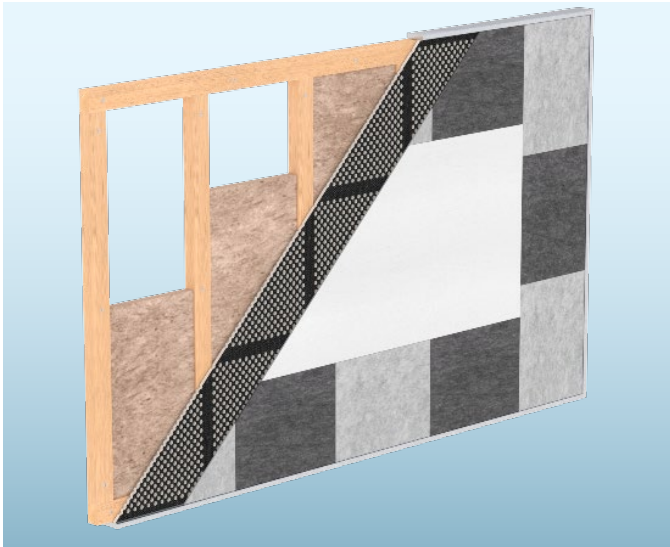


Absorber end – parallel to furring channel with Knauf design unit

Horizontal section I Without fire resistance



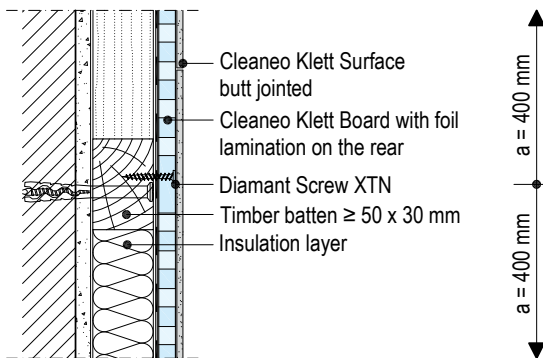
Wall absorber with wood frame



Details

Section – lateral to furring timber batten

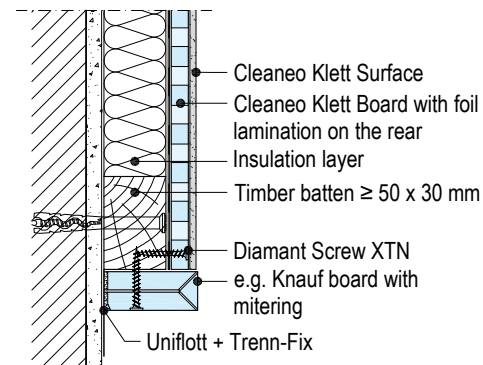
Vertical section I Without fire resistance



Scale 1:5

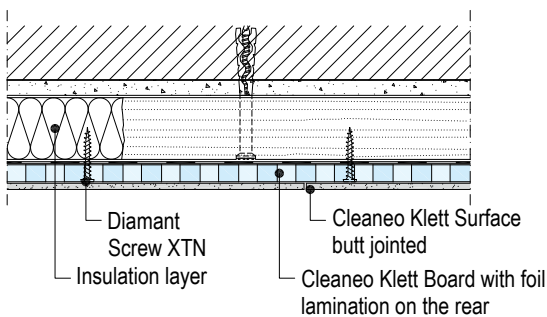
Absorber end – with Knauf design unit

Vertical section I Without fire resistance



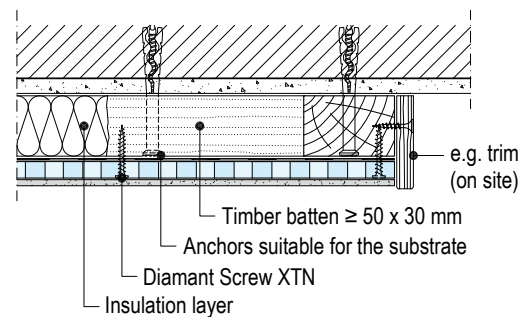
Section –parallel to furring timber batten

Horizontal section I Without fire resistance

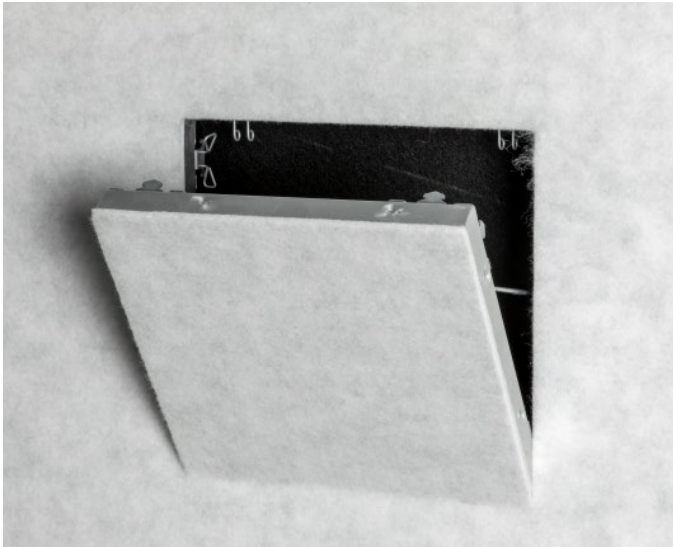


Absorber end – with trim

Horizontal section I Without fire resistance



Installation

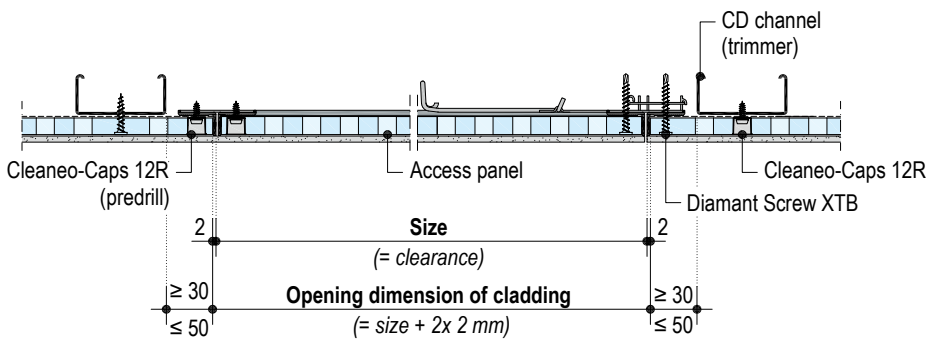


Construction details

Scale 1:5 | Dimensions in mm

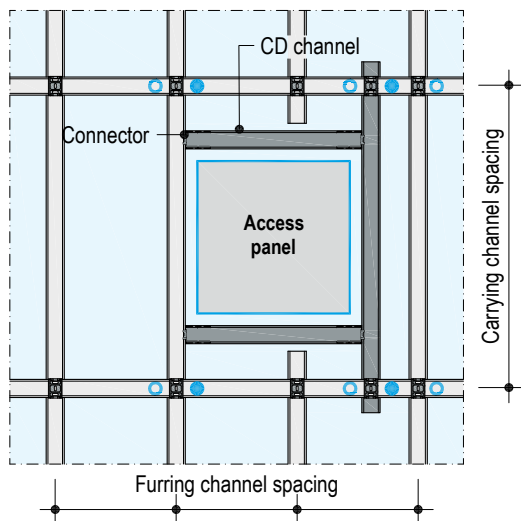
Installation in Cleaneo acoustic board ceilings with Klett surface with metal grid

Vertical section | Without fire resistance



Top view Ceiling installation

Scheme drawing | Not to scale



Legend

- Additional grid
- 4 additional suspension points (e.g. Nonius suspension)
- Alternative suspension points

Universal connectors are required for the trimmers. Further suspenders are required if the suspended profiles are to be exchanged.

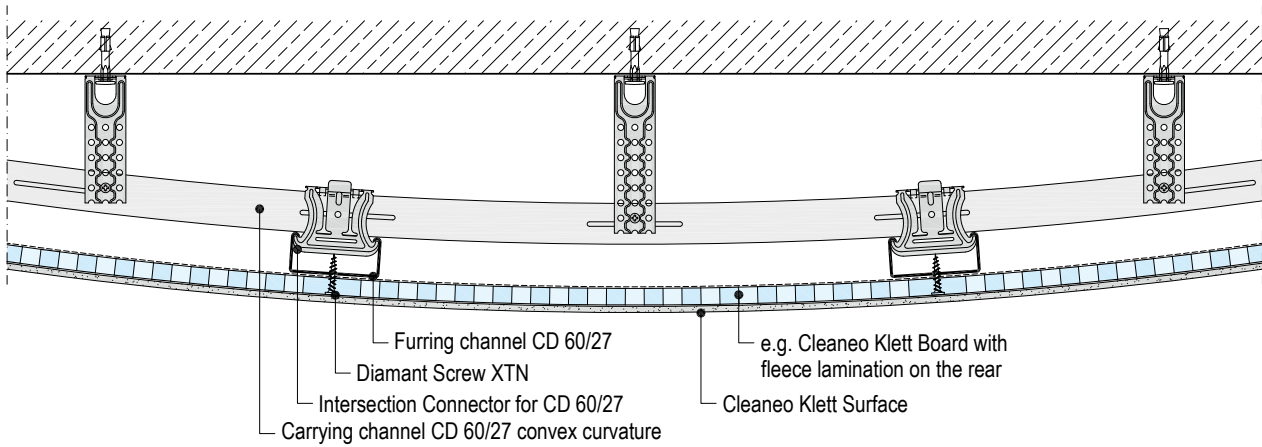
Notes	Use access panel REVO 12.5 with screw fastened Diamant GKFI for on-site exchange. Disassemble the flush screw fastened Diamant board and replace it by a Cleaneo Klett Board with the same dimensions.
	Dimensions, available options and further information, see product data sheet REVO 12.5 E112.de . Observe the installation instructions acc. to the assembly instructions Knauf REVO Perforated Board 1.5 E112c-A01.de .

Details

Vertical section I Scale 1:5

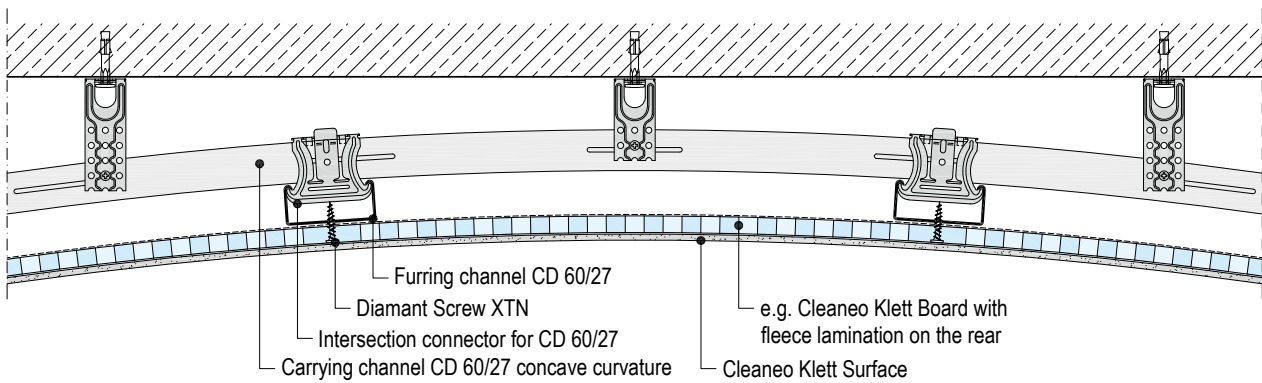
Cleaneo acoustic board ceilings with Klett surface with metal grid, convex

Without fire resistance



Cleaneo acoustic board ceilings with Klett surface with metal grid, concave

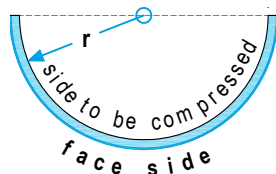
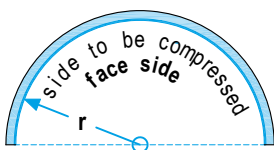
Without fire resistance



Bending radius

Concave – inside arch

Convex – outside arch



Permissible bending radius r Cleaneo Klett Board in longitudinal direction, pre-bent dry on the template ≥ 3000 mm

Maximum grid spacings

Carrying and furring channel

- a** Suspender spacings
- b** Axial spacing of furring channel
- c** Carrying channel spacings

Acc. to table [page 15](#)



Data for room acoustic planning
Sound absorption

Definitions

Definitions of the sound absorption coefficients following EN ISO 11654

The building materials and substances used in a room can be sound reflective from an acoustical point of view, so that they have no or very low sound absorbing characteristics. In this case, the rated sound absorption coefficient α_w is practically 0.

In contrast, there are materials that are highly sound absorbing. Should 100% of the impinging sound energy be absorbed, i.e. the sound energy is fully converted to heat energy, the rated sound absorption coefficient α_w is practically 1.

α_s indicates the values of the frequency-dependent sound absorption coefficient measured in a reverberation chamber in third octaves. The practical sound absorption coefficient is formed based on this factor.

α_p are the values of the frequency-dependent, practical sound absorption coefficient made up of three third octaves. They are frequently used for frequency-dependent prognoses.

α_w is the rated sound absorption coefficient. It is independent of the frequency and specified as a single value quantity. The determination of the single value quantity is undertaken in accordance with the procedure described in the [Technical brochure Room Acoustics with Knauf AK02.de](#).

Shape indicators as suffixes to the rated sound absorption coefficient provide some indication of whether an absorbing material is particularly effective in the low, medium or high frequency range.

The following indicators are used:

- **L**, when the product is particularly effective in the low frequency range.
e.g. $\alpha_w = 0.60$ (L)
- **M**, when the product is particularly effective in the medium frequency range.
e.g. $\alpha_w = 0.70$ (M)
- **H**, when the product is particularly effective in the high frequency range.
e.g. $\alpha_w = 0.85$ (H)
- Combinations are possible.
e.g. $\alpha_w = 0.70$ (MH)

Sound absorption class and descriptive term acc. to VDI 3755

Weighted Sound absorption coefficient α_w	Rating
> 0.80	Extremely absorbing
0.60 to 0.75	Highly absorbing
0.30 to 0.55	Absorbing
0.15 to 0.25	Hardly absorbing
≤ 0.10	Reflecting

Knauf sound absorption diagrams

The frequency-dependent absorption values for room acoustic prognoses in dependence on the total construction height or depth and insulation materials are listed on the following pages. In addition to the values in tabular form, the curve progression of the frequency-dependent absorption response is represented in a graph offering a quick overview.

For planar surfaces, the characteristic quantity for the practical sound absorption coefficient is the response between the octave frequencies of 125 Hz to 4000 Hz. Furthermore, the sound absorption coefficient α_w is specified as a single value quantity in addition to an NRC (Noise Reduction Coefficient) for the products. The American NRC quantity is determined from the α_s values as an arithmetic mean value of the third-octave frequencies 250 Hz, 500 Hz, 1000 Hz and 2000 Hz, and rounded off and expressed to the nearest multiple of 0.05.

For the majority of the listed items the acoustic quality was determined by measurement in a reverberation chamber in accordance with a standardized test procedure. The results of the tests are compiled in a test certificate and can be requested from the Technical Advisory Service.

Note	Determination of the single value quantity of the sound absorption coefficient α_w see Technical brochure Room Acoustics with Knauf AK02.de
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Note	The Knauf Raumakustikrechner (room acoustics calculator) is available for individual calculation when Knauf acoustic products are employed (currently in German only).
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Requirements for the insulation layer

In this table, the demands placed on the insulation layer are listed for the Acoustic systems with insulation layer on the following pages.

System	Total construction height / construction depth ¹ mm	Mineral wool EN 13162 thickness mm	Length-related flow resistance kPa·s/m ²	Insulation layer - examples Examples Knauf Insulation
D125K.de	> 98	20	> 12	Akustik-Dämmplatte TP 120 A
		40	> 5	Trennwand-Dämmplatte TP 115
D127K.de	> 87	20	> 12	Akustik-Dämmplatte TP 120 A
		40	> 5	Trennwand-Dämmplatte TP 115
D137K.de	> 87	20	> 12	Akustik-Dämmplatte TP 120 A
W623K.de Cleaneo Klett Board with Cleaneo Klett Surface	> 65	30	> 12	Akustik-Dämmplatte TP 120 A
	145	40	> 5	Trennwand-Dämmplatte TP 115
Individual absorber Metal grid	> 75	2x 30	> 12	Akustik-Dämmplatte TP 120 A
Individual absorber Wood frame	> 50	30	> 12	Akustik-Dämmplatte TP 120 A

Total construction height and construction depth

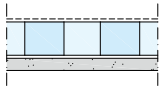
The construction depth is a decisive property for the acoustic effectiveness. With an increase in spacings, the sound absorption values in the low frequency range improve. Depending on the system, the total construction height (ceiling systems) or construction depths (wall lining) have different effectiveness.

Scheme drawings

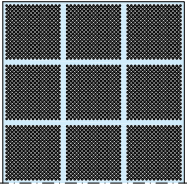
Ceiling systems D125K.de / D127K.de	D137K.de	Wall lining W623K.de	Individual absorbers Metal grid / wooden frame

¹ Total construction height or depth, see also [page 20](#) and [28](#)

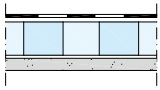
D125K.de and D127K.de Cleaneo acoustic board ceilings with Klett surface



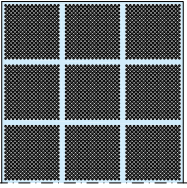
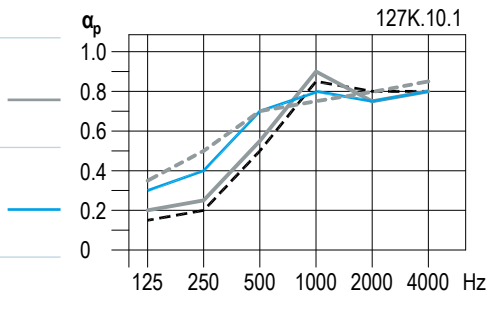
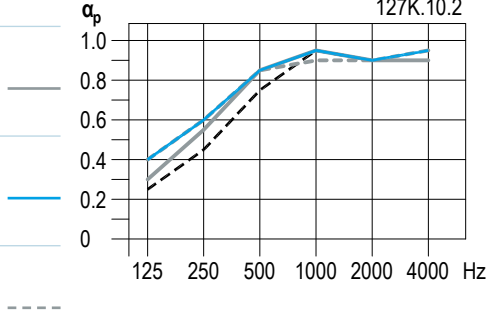
12.5 mm Cleaneo Klett Board with fleece lamination on the rear side and Cleaneo Klett Surface

Perforation pattern	Total construction height mm	NRC	α_w	Frequency-dependent absorption coefficient α_p							
				125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz		
Without insulation layer											
Alternating circular perforation 12/25 R 	65	0.65	0.55 (MH)	0.10	0.25	0.65	0.90	0.85	0.80	-----	
	80	0.70	0.65 (MH)	0.15	0.35	0.75	0.90	0.80	0.80	-----	
	200	0.75	0.80	0.40	0.60	0.80	0.75	0.80	0.85	-----	
	400	0.70	0.75	0.60	0.65	0.65	0.75	0.80	0.85	-----	
With insulation layer (For requirements on insulation layer see page 43)											
Perforation ratio: 29.8%	65	0.85	0.90	0.30	0.60	0.90	0.95	0.90	0.90	-----	
	80	0.85	0.95	0.45	0.75	0.95	0.90	0.90	0.90	-----	
	200	0.85	0.95	0.45	0.75	0.90	0.95	0.90	0.95	-----	
	400	0.85	0.95	0.60	0.75	0.90	0.95	0.90	0.95	-----	

D125K.de and D127K.de Cleaneo acoustic board ceilings with Klett surface



12.5 mm Cleaneo Klett Board with foil lamination on the rear side and Cleaneo Klett Surface

Perforation pattern	Total construction height mm	NRC	α_w	Frequency-dependent absorption coefficient α_p						
				125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	
Without insulation layer										
Alternating circular perforation 12/25 R 	65	0.60	0.50 (MH)	0.15	0.20	0.50	0.85	0.80	0.80	
	80	0.60	0.55 (MH)	0.20	0.25	0.55	0.90	0.75	0.80	
	200	0.65	0.70	0.30	0.40	0.70	0.80	0.75	0.80	
	400	0.70	0.75	0.35	0.50	0.70	0.75	0.80	0.85	
With insulation layer (For requirements on insulation layer see page 43)										
Perforation ratio: 29.8%	65	0.75	0.75 (H)	0.25	0.45	0.75	0.95	0.90	0.90	
	80	0.80	0.85	0.30	0.55	0.85	0.95	0.90	0.90	
	200	0.80	0.85	0.40	0.60	0.85	0.95	0.90	0.95	
	400	0.80	0.85	0.40	0.60	0.85	0.90	0.90	0.95	

D137K.de Free-spanning Cleaneo acoustic board ceilings with Klett surface

12.5 mm Cleaneo Klett Board with foil lamination or fleece lamination on the rear side and Cleaneo Klett Surface

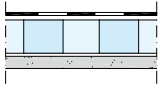
Perforation pattern	Total construction height mm	NRC	α_w	Frequency-dependent absorption coefficient α_p						
				125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	

For this system, the absorption values of system D127K.de can be used when the construction depth is taken into consideration.

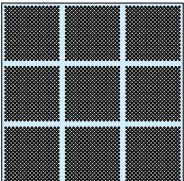
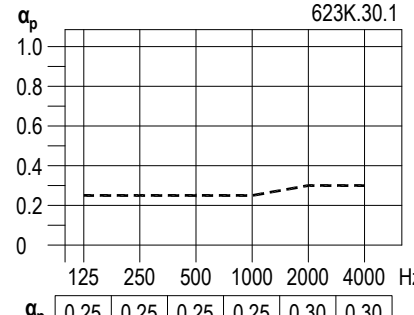
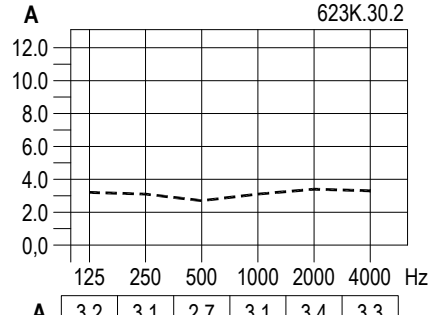
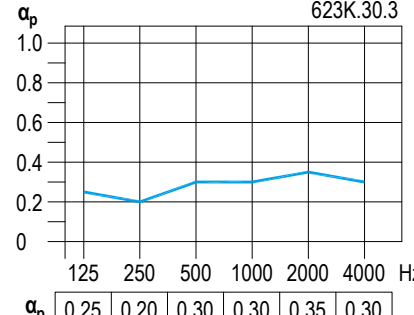
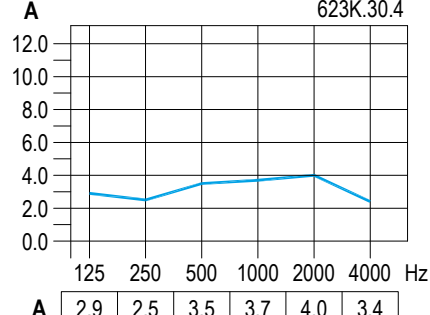
W623K.de Cleaneo Acoustic Wall Lining with 33 % Cleaneo Klett

Specified values relate to a test surface of the 12 m² wall where 4 m² is clad with Cleaneo Klett

4 m ² Cleaneo Klett
8 m ² Diamant



12.5 mm Cleaneo Klett Board with foil lamination on the rear side and Cleaneo Klett Surface

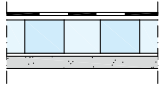
Perforation pattern	Construction depth mm	Sound absorption coefficient			Equivalent sound absorption coefficient area A ¹⁾
		NRC	α_w	Frequency-dependent absorption coefficient α_p	
With insulation layer (For requirements on insulation layer see page 43)					
Alternating circular perforation 12/25 R  Perforation ratio: 29.8%	65	0.25	0.30	 <p>623K.30.1</p> <p>α_p 0.25 0.25 0.25 0.25 0.30 0.30</p>	 <p>623K.30.2</p> <p>A 3.2 3.1 2.7 3.1 3.4 3.3</p>
	145	0.30	0.35	 <p>623K.30.3</p> <p>α_p 0.25 0.20 0.30 0.30 0.35 0.30</p>	 <p>623K.30.4</p> <p>A 2.9 2.5 3.5 3.7 4.0 3.4</p>

1) Arithmetic mean value of the third-octave frequencies

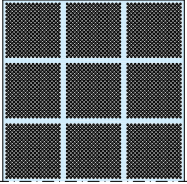
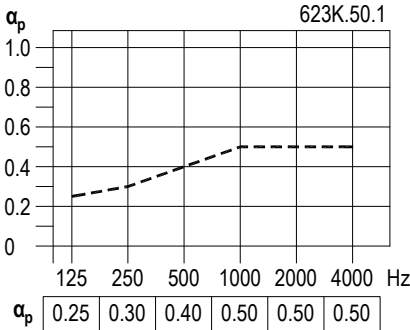
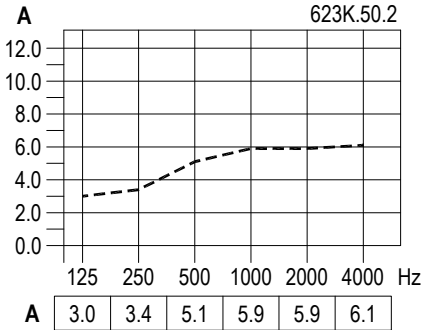
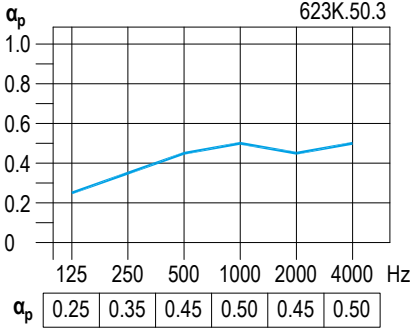
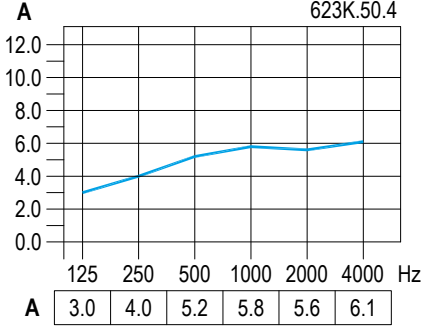
W623K.de Cleaneo Acoustic Wall Lining with 50 % Cleaneo Klett

Specified values relate to a test surface of the 12 m² wall where 6 m² is clad with Cleaneo Klett

6 m ² Cleaneo Klett
6 m ² Diamant



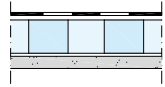
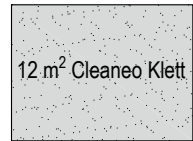
12.5 mm Cleaneo Klett Board with foil lamination on the rear side and Cleaneo Klett Surface

Perforation pattern	Con- struction depth mm	Sound absorption coefficient		Frequency-dependent absorption coefficient α_p	With reference to the total test body surface of 12 m ²
		NRC	α_w		
With insulation layer (For requirements on insulation layer see page 43)					
Alternating circular perforation 12/25 R  Perforation ratio: 29.8%	65	0.40	0.50	 <p>623K.50.1</p> <p>α_p 0.25 0.30 0.40 0.50 0.50 0.50</p>	 <p>623K.50.2</p> <p>A 3.0 3.4 5.1 5.9 5.9 6.1</p>
	145	0.45	0.50	 <p>623K.50.3</p> <p>α_p 0.25 0.35 0.45 0.50 0.45 0.50</p>	 <p>623K.50.4</p> <p>A 3.0 4.0 5.2 5.8 5.6 6.1</p>

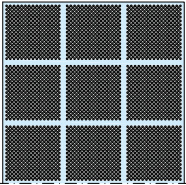
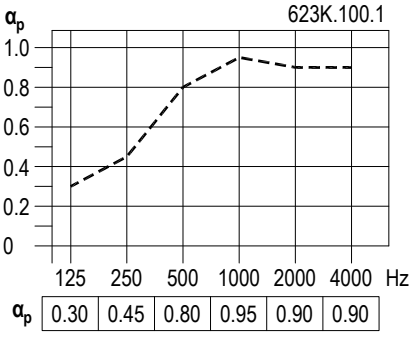
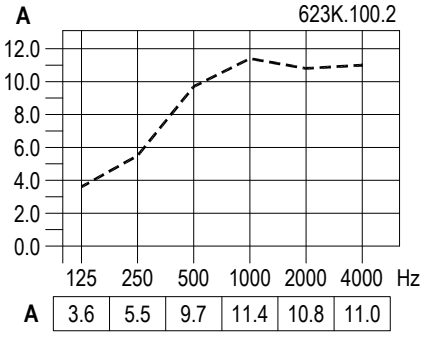
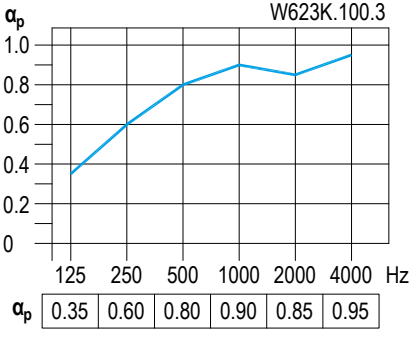
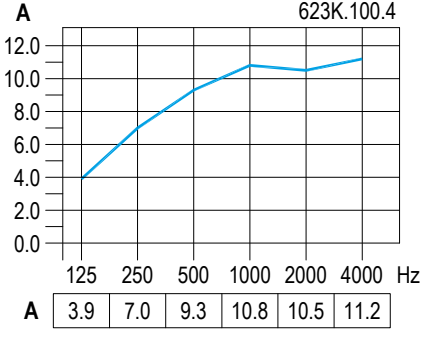
1) Arithmetic mean value of the third-octave frequencies

W623K.de Cleaneo Acoustic Wall Lining with 100 % Cleaneo Klett

Specified values relate to a test surface of the 12 m² wall where 12 m² is clad with Cleaneo Klett



12.5 mm Cleaneo Klett Board with foil lamination on the rear side and Cleaneo Klett Surface

Perforation pattern	Con- struction depth mm	Sound absorption coefficient With reference to the Cleaneo Klett share of 12 m ²			Equivalent sound absorption coefficient area A ¹⁾ With reference to the total test body surface of 12 m ²
		NRC	α_w	Frequency-dependent absorption coefficient α_p	
With insulation layer (For requirements on insulation layer see page 43)					
Alternating circular perforation 12/25 R  Perforation ratio: 29.8%	65	0.80	0.75 (H)	 <p>623K.100.1</p> <p>α_p 0.30 0.45 0.80 0.95 0.90 0.90</p>	 <p>623K.100.2</p> <p>A 3.6 5.5 9.7 11.4 10.8 11.0</p>
	145	0.80	0.85	 <p>W623K.100.3</p> <p>α_p 0.35 0.60 0.80 0.90 0.85 0.95</p>	 <p>623K.100.4</p> <p>A 3.9 7.0 9.3 10.8 10.5 11.2</p>

1) Arithmetic mean value of the third-octave frequencies

Individual absorber wall or ceiling sound absorption

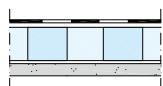
Individual absorber with metal grid for wall or ceiling



12.5 mm Cleaneo Klett Board with foil lamination on the rear side and Cleaneo Klett Surface

Perforation pattern	Con- struction depth / total con- struction height	NRC	α_w	Frequency-dependent absorption coefficient α_p						
				125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	
With insulation layer (For requirements on insulation layer see page 43)										
Alternating circular perforation 12/25 R Perforation ratio: 29.8%	75	0.75	0.75 (H)	0.30	0.45	0.75	0.90	0.95	0.95	

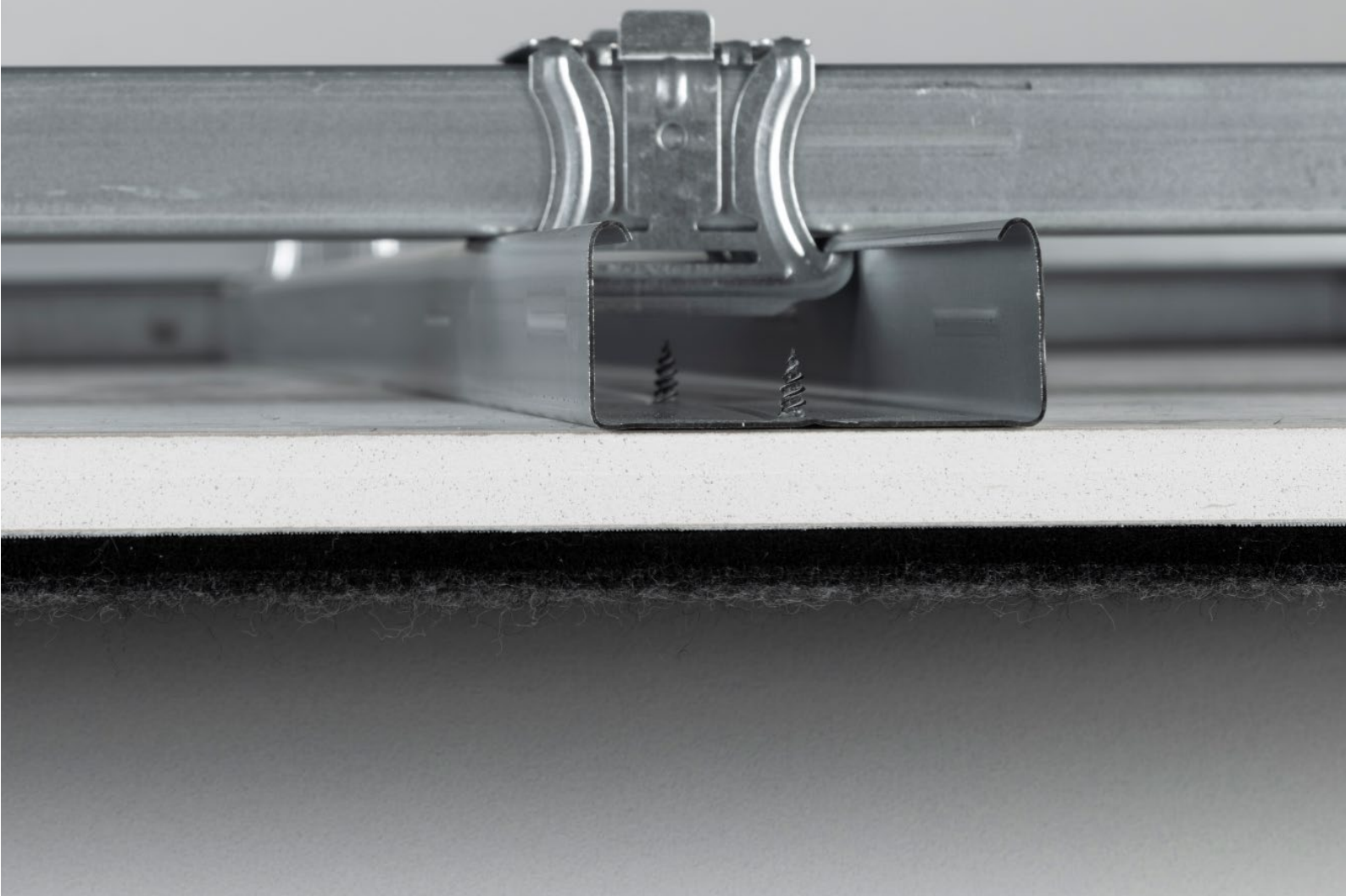
Individual absorber with wood frame for wall or ceiling



12.5 mm Cleaneo Klett Board with foil lamination on the rear side and Cleaneo Klett Surface

Perforation pattern	Con- struction depth / to- tal con- struction height	NRC	α_w	Frequency-dependent absorption coefficient α_p						
				125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	
With insulation layer (For requirements on insulation layer see page 43)										
Alternating circular perforation 12/25 R Perforation ratio: 29.8%	50	0.75	0.70 (H)	0.30	0.40	0.70	0.90	0.95	0.95	

Note For the single absorber application with Cleaneo Klett Board with fleece lamination on the rear and Cleaneo Klett Surface, the values stated in the tables above can be applied analogously.



Installation and application

Ceiling systems

Wall linings

Installation of the grid – suspended ceilings

Anchoring to basic ceilings

Anchoring of the suspension must be undertaken using anchors suitable for the substrate:

- Reinforced concrete: Knauf Deckennagel ceiling steel dowels / suitable steel dowels
- Other building materials: Use anchors specially suited to the materials or standardized anchors.

Anchoring to joists

The anchoring of the suspenders to the wooden joists is undertaken using Knauf Drywall Screws TN or Knauf Multi-Purpose Screw FN.

Fastening of suspenders to wooden joists with Knauf screws

Hangers	Fastening to wooden joists
Penetration depth in wooden joists $\geq 5 t_n$, minimum 24 mm	
Universal Bracket / Adjustable Universal Bracket / Nonius suspension	FN 4.3 x 35
Damping Universal Bracket / Adjustable Damping Universal Bracket / Nonius Hanger Top	FN 4.3 x 65
Universal Bracket fastened in the tabs	2x TN 3.5 x 35 / 2x TN 3.9 x 35
Adjustable Universal Bracket fastened in the circular holes	2x TN 3.5 x 35 / 2x TN 3.9 x 35

- Perimeter spacings of fasteners acc. to DIN EN 1995-1-1
- t_n = rated diameter

Anchoring to the trapezoid sheet metal

Anchoring to the trapezoid sheet metal is undertaken with an approved anchor.

Note	The dampening rubbers may only be slightly compressed when the swing suspenders are anchored.
-------------	---

Suspension

Suspension of the carrying or furring timber battens or carrying or furring channels exclusively with suspenders acc. to [pages 18 to 19](#) observe additional measures if necessary).

Refer to the system tables in the "Data for planning" section [pages 12 to 15](#) for the anchoring spacings on ceilings and profiles/batten spacings.

Connection to wall

- In case of application with Cleaneo Klett Board with fleece lamination on the rear, apply a shadow gap ≥ 10 mm all around.
- In case of application with Cleaneo Klett Board with foil lamination on the rear, apply UD Runner 28/27 or wooden battens all around.
- Anchoring to the construction material with suitable fasteners/anchors, spacing max. 1 m (non-load-bearing) or 625 mm (load-bearing).

Note	For further details on planning and execution see system data sheet Knauf Board Ceilings D11.de .
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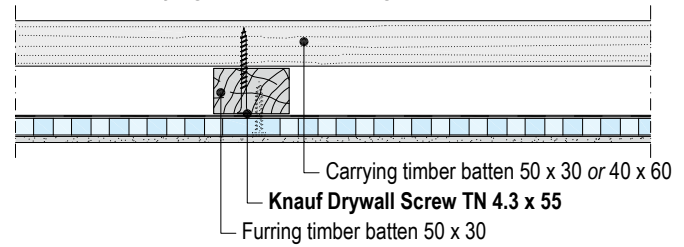
Timber battens/profiles

Carrying timber battens/profiles or furring timber battens/profiles must be connected with suspenders and aligned flush in the required suspension height. Stagger all timber batten or profile joints.

D125K.de Wood frame

Scheme drawings

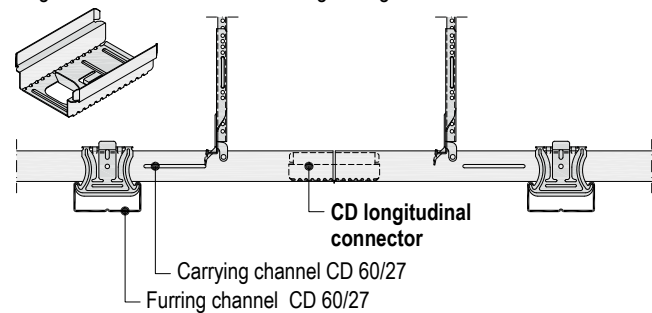
Connection carrying channel and furring channel



D127K.de Metal grid CD channels 60/27

Profile connections

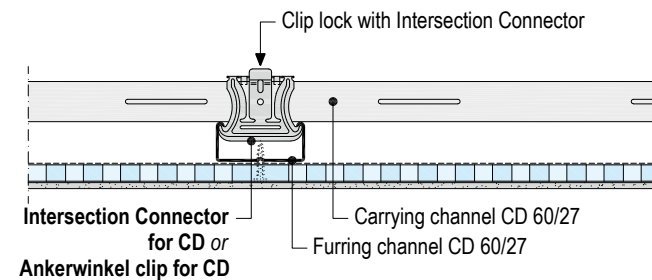
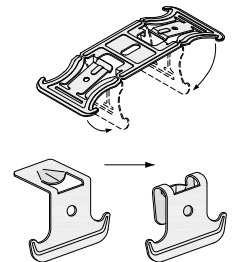
Profile extensions of the carrying channel CD or furring channel CD with CD longitudinal connectors – alternating arrangement.



Connection carrying channel CD and furring channel CD

With a double layer profile grid, the connection of the carrying and furring channels in the intersections is undertaken with:

- Intersection connectors for CD 60/27:
Before the installation, bend to 90° and after installation close the clip lock to ensure a secure hold.
- 2x Ankerwinkel clips for CD 60/27 (alternative)
Bend with assembly.



Installation of the grid – free-spanning CW profiles

Carrying channel Scheme drawings | Dimensions in mm
Carrying channel made of Knauf CW profiles as a single or double stud frame. Double profiles: Screw fastening with metal screws LN 3.5 x 11 at spacings of ≤ 750 mm.

Load-bearing connection to wall

Apply a load-bearing perimeter connection made of UW profiles. Anchoring acc. to table right.

Connect CW profiles as double profiles at the web with metal screws LN 3.5 x 11 at a spacing of 750 mm.

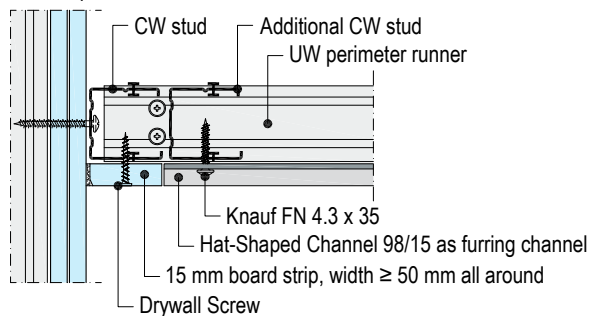
Support of the CW profiles in the UW runners ≥ 30 mm. Connect the upper and lower flanges of the UW runner / CW profiles (with double profiles both flanges) by riveting, screw fixing or crimping.

Structural connection to wall

Apply a structural perimeter connection made of UW runners or CW profiles. Distance between fastener centres maximum 625 mm. Fasten to solid walls with Knauf Nailable Plugs, on lightweight partitions with Knauf multi-purpose screws FN 4.3 x 65 in every stud of the partition.

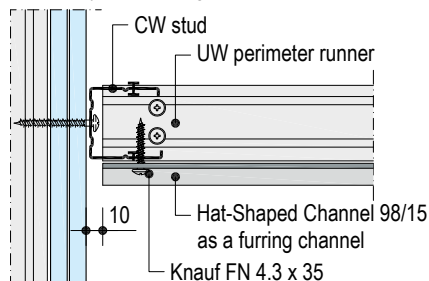
Connection to wall with backing (foil lamination)

When using Cleaneo Klett Board with foil lamination on the rear, screw fasten a ≥ 50 mm wide, 15 mm thick board strip to the UW or CW perimeter connection profile from below using Drywall Screws. An additional CW stud must be inserted at the structural perimeter connection in order to fasten the Hat-Shaped Channel.



Wall connection with shadow gap (fleece lamination)

In case of application with Cleaneo Klett Board with fleece lamination on the rear, apply a shadow gap of approx. 10 mm all around.



Recommendation: Paint the CW stud and UW perimeter runner in the desired colour when applied with shadow gap.

Furring channel

Fasten the Hat-Shaped Channel as a furring channel laterally to the free-spanning carrying channels CW at the necessary axial spacing of 400 mm using 2 diagonally offset multi-purpose screws FN 4.3 x 35 at every junction point.

(In case of Carrying Channel UA use metal screws LB 3.5 x 9.5).

Adjust the length of the Hat-Shaped Channels according to the flanking construction with/without shadow gap.

Anchoring of the supporting UW perimeter runners with CW carrying channels

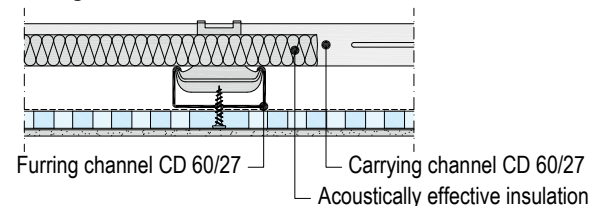
Anchoring substrate	Fastener	Max. fastener spacing mm
Metal stud partitions (anchoring in metal studs or Flex Profiles)	2x Knauf Multi-Purpose Screws FN 4.3 x 35 Cladding thickness ≤ 20 mm	625
	2x Knauf Multi-Purpose Screws FN 4.3 x 65 Cladding thickness > 20 mm	
Reinforced concrete wall	Knauf Ceiling Steel Dowels	300
	Knauf Nailable Plug L 8/80	
Stable masonry without cavities or light concrete (density ≥ 1000 kg/m³)	Knauf Nailable Plug L 8/80	300
	Fasteners and anchors suitable for the substrate	
Other substrate	Fasteners and anchors suitable for the substrate	300 ¹⁾

1) Minimum load-bearing capacity: Shear 0.35 kN.

Note Application and connection of the grid with free-spanning UA profiles in acc. with [system data sheet D13.de](http://system.data.sheet.D13.de) Knauf Free-Spanning Ceilings.

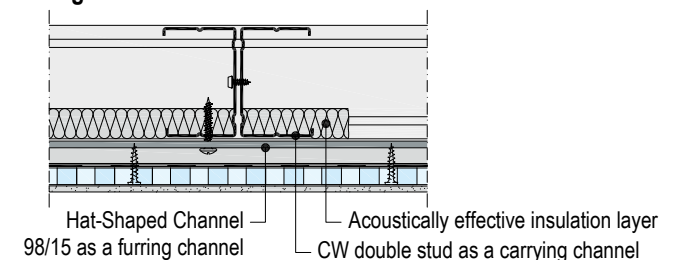
Arrangement of the insulation layer

Configuration D125K.de / D127K.de



Acoustically effective insulation layer: Lay the insulation layer on the furring channels or furring timber battens.

Configuration D137K.de



Acoustically effective insulation layer: Apply the insulation layer between the CW single studs/CW double studs (carrying channels).

Required insulation layer see also [page 43](#).

Cleaneo Klett Board installation

Scheme drawings

Lay Cleaneo Klett Board laterally to the furring timber battens or furring channels.

Design with fibre fleece lining

If the Cleaneo Klett Board with fleece lamination on the rear is used, a shadow gap all around on the ceiling of at least 10 mm for back ventilation of the system is necessary. The application is joint on joint **without** filling the joints.

Note	A Connection Angle (e.g. 20 x 30 x 2 mm) is required on site for the subsequent professional and clean installation of the Cleaneo Klett Surface.	
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Design with foil

In case the Cleaneo Klett Board with foil lamination on the rear is used, ensure that the perimeter connections are tightly backed all round. The application is joint on joint and all board joints of the Cleaneo Klett Board must be applied **with** acrylate.

Note	In case of a cut edge on the Cleaneo Klett Boards, the foil must be re-glued.
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Fastening of the cladding

Fastening with screws	Fasteners – screw spacing 170 mm
Board edge 	Screw fastening board edge: Diamant Screws XTN 3.9 x 23 in case of metal grid or XTN 3. x 33 in case of a metal frame
Non-perforated area 	Screw fastening non-perforated area: Diamant Screws XTN 3.9 x 23 in case of metal grid or XTN 3. x 33 in case of a metal frame
Perforated area 	Screw fastening perforated area: Cleaneo-Cap 12R If it is not possible to screw the non-performed lap and edge area with Diamant Screws (e.g. cut edge perimeter area), the screw fastening can be applied with Cleaneo-Cap 12R.
Perforated area with board strip backing 	Screw fastening with board strip backing: Cleaneo Cap 12R with Diamant Screw XTN When screw fastening Cleaneo Klett Board with board strip backing, use Diamant Screw XTN in the appropriate length.

■ See also [product data sheet Knauf Cleaneo-Caps K533.de](#).

Note	Further details on installation can be found in the Installation Instructions Cleaneo Klett Board K7301_AI.de .
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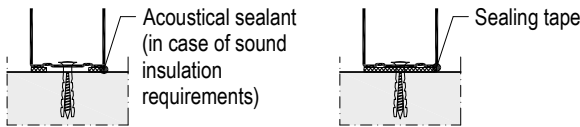
Cleaneo Klett Surface

Arrange Klett Surface for the required pattern and use the attach to the Cleaneo Klett Board base board.

Note	Further details on application can be found in the Installation Instructions Cleaneo Klett Surface E3101_AI.de .
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Installation of the grid

Apply a suitable sealant to the rear side of runners for the connection to flanking constructional components.



Maximum UD profile fastener spacing 1000 mm.

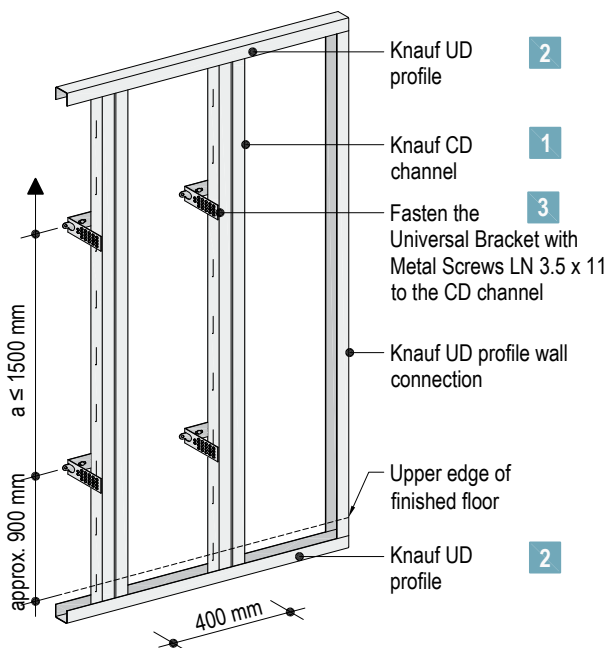
Fasteners for solid flanking constructional components:

Knauf Drehstiftdübel nailable plug, Knauf Deckennagel ceiling steel dowel or Knauf multi-purpose screw FN with wooden substrates / other substrates: Anchors specially suited to the building material.

Install cut-to-length CD channels **1** into the UD runners **2** and align at axial spacings of 400 mm. Anchor the CD channels on the existing partition with Universal Brackets **3** and suitable fasteners.

- Spacing of first Universal Bracket from upper edge of finished floor approx. 900 mm
- Axial spacing of further Universal Brackets to one another ≤ 1500 mm

Fastening of brackets on CD channels with Metal Screws LN 3.5x11. Maximum permissible wall cavity 127 mm.

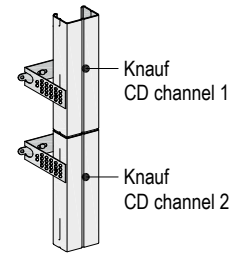


Back board transitions of non-perforated to perforated area with CD Channel; for application see detail "[W623K.de-VM2 Board transition](#)" on page 29.

Scheme drawings

Vertical profile extensions CD channel

2 CD Channels butt jointed, connected with additional CD longitudinal connectors.



- Fasten one Universal Bracket each onto the existing wall per profile end / start.
- Stagger the heights of the profile joints (alternating upper and lower wall half).

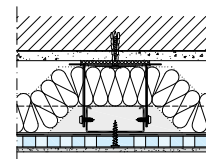
Arrangement of the insulation layer

General

Depending on the requirements for sound insulation or thermal insulation, arrange the insulation material between the wall lining and the existing wall. Apply the insulation material tightly and secure it against sliding out.

CD Channel with Universal Bracket

W623K.de



Insulation layer required for sound insulation layer see [page 43](#).

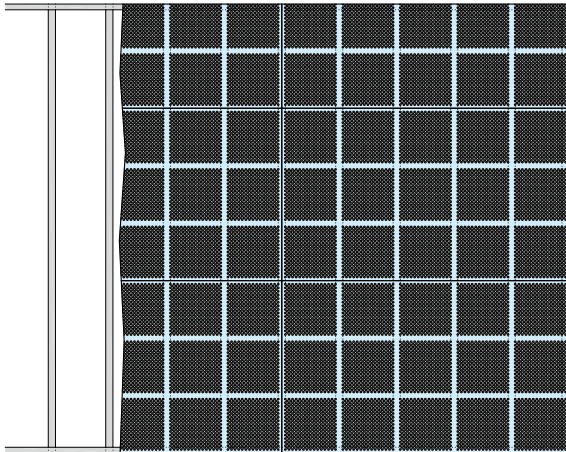
Installation schemes

Note Recommendation: Apply the entire Cleaneo Klett Board or divide the share of perforated areas so that boards are only cut in the non-perforated area between the blocks.

W623K.de 100 % Cleaneo Klett Board

Cleaneo Klett Board horizontal

- Board width: 1200 mm
- Stud spacing: 400 mm



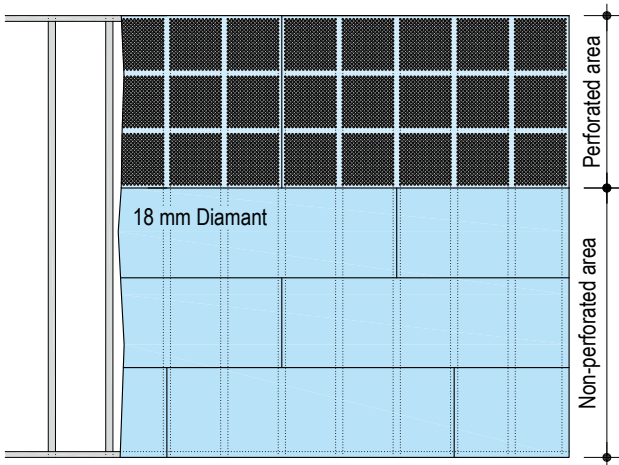
W623K.de Combined cladding

Diamant: Horizontal board layer

- Board width: 625 mm
- Stud spacing: 400 mm

Cleaneo Klett Board horizontal

- Board width: 1200 mm
- Stud spacing: 400 mm



Diamant (non-perforated area)

- Recommendation: Board length 2000 mm
- Front edge joints must be staggered by at least one stud spacing.

Cleaneo Klett Board installation

Cleaneo Klett Board horizontal application.

Application with foil lamination

In case of Cleaneo Klett Board with foil lamination on the rear, ensure that the perimeter connections are tightly backed all round. The application is joint on joint and all board joints of the Cleaneo Klett Board must be applied with acrylate.

Notes In case of a cut edge on the Cleaneo Klett Boards, the foil must be re-glued.
Further details on installation can be found in the [Installation Instructions Cleaneo Klett Board K7301_AI.de](#).

Fastening of the cladding

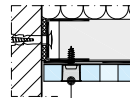
Dimensions in mm

Fasteners to be used

Cladding	Metal stud frame (Penetration ≥ 10 mm)
Thickness mm	Metal gauge $s \leq 0.7$ mm Diamant screws XTN
12.5	XTN 3.9 x 23
18	XTN 3.9 x 33

Screw fastening of Cleaneo Klett Board is on the non-perforated lap and on the perimeter area with Diamant Screws acc. to the table above.

If it is not possible to screw the non-perforated lap and edge area with Diamant Screws (e.g. cut edge perimeter area, corner, etc.), the screw fastening can be applied with Cleaneo-Cap 12R.



Cleaneo-Cap 12R with included Metal Screw LN 3.5 x 11

See also [product data sheet Knauf Cleaneo-Caps K533.de](#).

Maximum fastener spacings, all board layers fastened to frame with screws

Cladding	Diamant Horizontal Board width 625	Cleaneo Klett Board Horizontal Board width 1200
1-layer	200	170

Note For details on jointing as well as coating and claddings on the non-perforated cladding, see brochure [Knauf Jointing Competence Tro89.de](#).

Cleaneo Klett Surface

Arrange Klett Surface for the required pattern and use the attach to the Cleaneo Klett Board base board.

Note Further details on installation can be found in the [Installation Instructions Cleaneo Klett Surface E3101_AI.de](#).



Usage instructions

Dimensioning principles

To read off the required spacings for the grid, it is first of all necessary to determine the load class taking into consideration the self-weight of the selected system variant including any existing or planned additional loads.

Example: D127K.de – Cleaneo acoustic board ceilings with Klett surface with metal grid, without fire resistance

Step 1:

Determination of the rated weight

The rated weight (cladding with grid) of the suspended ceiling/ceiling lining can be read off from the Knauf system tables in dependence on the selected cladding thickness (system variants).

Fire resistance class		Cladding		Rated weight	Furring channel
From below	From above	Cleaneo Klett Board	Cleaneo Klett Surface		
For fire exposure		•	Thickness	Without insulation layer	Maximum axial spacing
			mm	kg/m ²	mm
D127K.de Cleaneo acoustic board ceilings with Klett surface.....					
-	-	•	12.5	14.1	400
		•	6.5		

Note Rated weights with larger board thicknesses and/or other board types on request.

Step 2:

Consideration of additional loads

Additional loads, e.g. consisting of fire resistance necessary and unnecessary insulation materials, as well as planned anchoring loads (see [Technical Information - Fastening of loads to Knauf Wall and Ceiling Systems VT03.de](#)) increase the total area weight of the ceiling lining / suspended ceiling and must be considered with the rating of the load class. (Rated weight + weight of additional loads = total area weight)

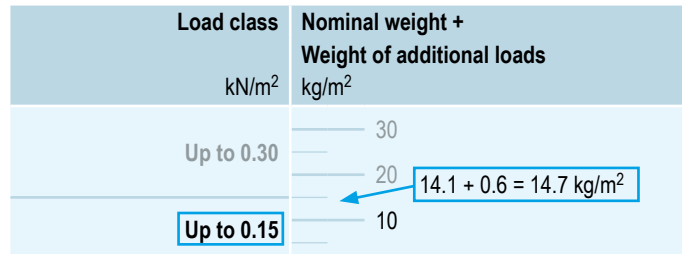
Example additional load: 20 mm insulation material = 0.6 kg/m²

Step 3:

Determination of the load class

Based on the resulting total area load of the ceiling lining / suspended ceilings, the corresponding load class (kN/m²) can be determined from the load class diagram.

Determination of the load class



The self-weight of the ceiling may not exceed 0.50 kN/m². The load class up to 0.65 kN/m² may only be used in combination with additional loads, e.g. multi-level ceiling system. Rated acc. to DIN 18168-1.

Step 4:

Dimensioning of the grid

Using the determined load class, the maximum permissible spacings of the suspenders (a) as well as the profiles (b) and (c) can be read off in the tables "System variants" and "Maximum grid spacing" of the systems in dependence on the fire resistance requirements and selected grid.

Dimensions in mm

Axial spacings Carrying channel (c)	Suspender spacings (a)		Axial spacing Furring channel (b)
	Load class in kN/m ²		
	up to 0.15	up to 0.30	
500	1200	950	400
600	1150	900	
700	1100	850	

Attachment of loads to Cleaneo Acoustic Board Ceilings

For every anchoring point the following weights of components attached to the acoustic board ceilings may not be exceeded:

	Permissible weight per anchoring point in kg
	Without fire resistance
Suspended Cleaneo acoustic board ceilings with Klett surface	
Fastening to the grid	10
Free-spanning Cleaneo acoustic board ceilings with Klett surface	
Fastening to the grid	3

Notes For Cleaneo Acoustic Board fastening in the cladding is not permissible.
Further details for application and planning see [Technical Information Fastening of loads to Knauf Wall and Ceiling Systems VT03_TI.de](#)

Notes on the document

Knauf technical brochures are the information documents on special topics as well as on the specialist competence from Knauf. The contained information and specifications, constructions, details and stated products are based, unless otherwise stated, on the Proofs of Usability (e.g. National Technical Test Certificate (abP) valid at the date they are published as well as on the applicable standards. Additionally, design and structural requirements and those relating to building physics (fire resistance and sound insulation) are considered.

The contained construction details are examples and can be used in a similar way for various cladding variants of the respective system. At the same time, the demands made on fire resistance and/or sound insulation as well as any necessary additional measures and/or limitations must be observed.

References to other documents

System data sheets

- [Knauf Cleaneo Acoustic Board Ceilings D12_DSS.de](#)
- [Knauf Furring and Lining W61.de](#)
- [Knauf Cleaneo Acoustic Plank Ceilings D14_DSS.de](#)

Technical brochures

- [Knauf Cleaneo Acoustic Wall Systems AK04.de](#)
- [Knauf Jointing Competence Tro89.de](#)

Technical information

- [Fastening of Loads to Knauf Wall and Ceiling Systems VT03.de](#)

Folders

- [Sound insulation and room acoustics with Knauf \(only sections in English\)](#)

Installation Instructions

- [Cleaneo Klett Board K7301_AI.de](#)
- [Cleaneo Klett Surface E3101_AI.de](#)

Product data sheets

- Observe the product data sheets of the individual Knauf system components.

Symbols in this document

The following symbols are used in this document:

Spacings of ceiling grid

- a** Spacing of suspenders/anchors
- b** Axial spacing furring timber batten/furring channel/hat-shaped channel (cladding span width)
- c** Axial spacing carrying timber batten/carrying channel (spacing furring timber batten/furring channel)

Legend symbols

- 1** Legend number that will be explained when used

Intended Use of Knauf systems

Please observe the following:

Caution

Knauf systems may only be used in the applications as described in the Knauf documents. In case third-party products or components are used, they must be recommended or approved by Knauf. Flawless application of products / systems assumes proper transport, storage, assembly, installation and maintenance.

General instructions

Term definitions

Knauf board ceilings can be applied as ceiling linings or suspended ceilings. The following definition applied acc. to DIN 18168:

Ceiling linings and suspended ceilings are: "... ceilings of even or other design with smooth, perforated or jointed surface consisting of a substructure and a surface layer forming the area. In the case of ceiling linings, the substructure is anchored directly to the load-bearing building component; in the case of suspended ceilings the substructure is suspended. ...".

Field of application

The specifications in this technical information document only apply for the application of the systems in interiors.

Note

After wallpapering or after application of plasters, quick drying must be ensured through adequate airing.

Installation zones acc. to DIN 4103-1

Installation zone 1

Partitions in rooms where low numbers of persons gather, e.g. dwellings, hotels, office and hospital rooms including corridors and halls or similar.

Installation zone 2

Partitions in rooms where large numbers of persons gather, e.g. meeting halls, school classrooms, auditoria, exhibition halls and sales rooms as well as rooms with a similar use.

Unless otherwise stated, the value in the table is the maximum permissible partition height for installation zone 2 is considered.

Construction notes

Movement joints

Movement joints of the main structure should be integrated into the Cleaneo Klett system. Movement joints are to be installed approx. every 15 m on continuous Cleaneo Klett systems.

Proofs of Usability

Knauf system	Sound absorption
Cleaneo Ceiling systems with Klett surface	
D125K.de	A 022-11.25
D127K.de	
D137K.de	
Cleaneo wall lining system with Klett surface	
W623K.de	A 022-11.25

The stated constructional and structural properties, and characteristic building physics of Knauf systems can solely be ensured with the exclusive use of Knauf system components, or other products expressly recommended by Knauf. The validity and up-to-datedness of the stated proofs have to be considered.

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