

## DESIGNBOARD FIX

### Wall and ceiling lining

DESIGNBOARD 230 CREATIVE

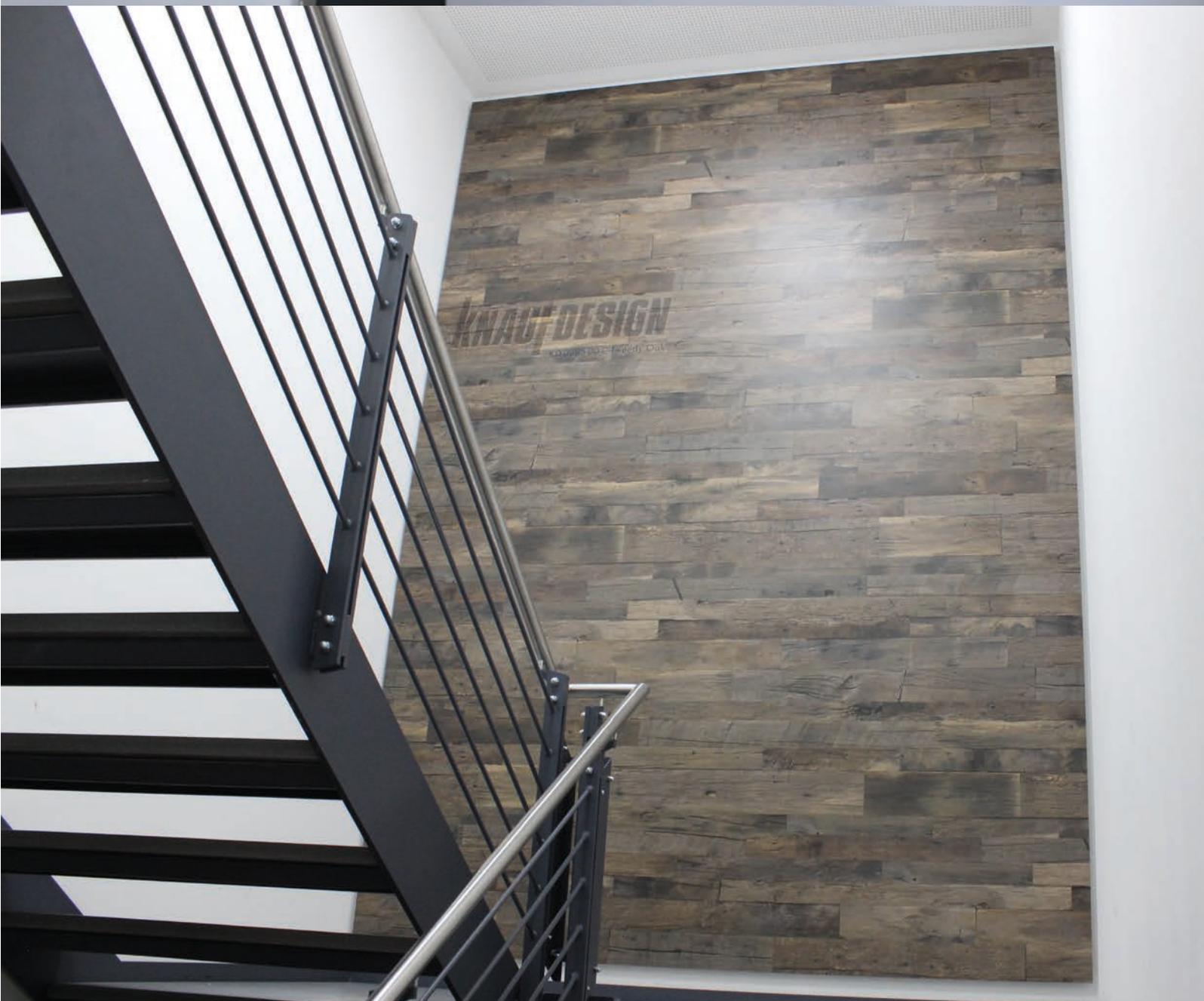
DESIGNBOARD 230 PAINT

DESIGNBOARD 230 LAMINATE

DESIGNBOARD 230 WOOD

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### Usage notes

#### Notes on the document

Knauf Technical Brochures form the basis for planning and execution for planners and specialist contractors in the application of Knauf systems. The information and specifications, design variations, implementation details and listed products are based on the usability certificates (e.g. classification report and/or test report) and standards applicable at the time of their production, unless otherwise stated. In addition, physical (fire safety and sound insulation), design and structural engineering requirements are also taken into account. The implementation details contained here are examples and can be applied similarly for various panelling variations of each system. However, in the case of fire safety and sound insulation requirements, the additional measures and/or restrictions which may be necessary must be taken into account.

#### Safety instructions

This Technical Brochure contains instructions which must be followed for the purpose of personal safety and the avoidance of material damage.

<b>Caution</b>	This denotes a possibly hazardous situation. If this is not avoided it may result in a risk to the safety of the person working with or using the product, or material damage to the product or its environment.
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<b>Note</b>	Provides useful information about the product or the system.
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#### Qualified personnel

The system associated with this Technical Brochure may only be handled by personnel who are qualified for the task in question.

The safety and warning instructions are to be noted and adhered to. On the basis of their training and experience, qualified personnel are capable of recognising risks when dealing with this product and avoiding possible hazards.

#### Reference to other documents

- Technical Brochure Tro171.de Room Acoustics with Knauf Design
- Technical Brochure Tro171.de PROTECT RAIL
- Product Data Sheets K872a.de, K872b.de, K872c.de, K872e.de DESIGNBOARD 230
- Technical Data Sheet W11.de
- System Data Sheet D11.de

#### Symbols in the Technical Brochure

The following symbols are used in this document:

- 1 Suitable attachment materials
- 2 Suitable spacers
- 3 Knauf hangers from load-bearing capacity class 0.25 kN

- [S1] = DESIGNBOARD Fix profile, 8 mm  
 [S2] = DESIGNBOARD Fix profile, 18 mm  
 A = Distance from top edge of FFB to centre of KDPF profile [a]  
 B = Width  
 D = Minimum distance from the ceiling  
 F = Gap width  
 K = Minimum distance from DESIGNBOARD edge to centre of KDPF profile  
 L = Length

- M = Maximum carrying channel centre distance (wall)  
 N = Maximum hanger centre distance (wall)  
 P = DESIGNBOARD insertion gap greater than DESIGNBOARD width  
 R = Maximum carrier profile centre distance (wall)  
 S = Minimum distance from top edge of starting profile to vertical KDPF profile  
 W = Minimum distance from the wall  
 X = Maximum hanger centre distance (ceiling)  
 Y = Maximum carrier profile centre distance (ceiling)  
 Z = Maximum carrying channel centre distance (ceiling)  
 a = Starting profile consisting of [S1] or [S2] is the profile closest to the floor and is always mounted horizontally, whatever the profile arrangement  
 b = KDBF wall decoupling attachment to the KDPF profile

#### Correct use of Knauf systems

Please note the following:

<b>Caution</b>	Knauf systems may only be used for the applications stated in the Knauf documents. If third-party products and third-party components are used, they must have been recommended or approved by Knauf. The proper use of the products/systems requires appropriate transportation, storage, erection, assembly and maintenance.
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#### General notes about the Knauf System

##### Definition of terminology

Knauf DESIGNBOARD FIX is a grid system for the concealed attachment of panelling materials.

##### Area of application

The details in this Technical Brochure apply for internal wall and ceiling linings.

##### Usability certificates

DESIGNBOARD FIX		
Fire safety	A2-s1, d0	EN 13501-1
Structural analysis	ETAG 003	1998
	ETB Directive	1985
	and DIN 4103-1	2015
	DIN EN 13364	2002-03
	DIN EN 13964	2013-03

##### Notes on fire safety

Details marked **plus** offer additional configuration options which are not directly covered by the certificate of usability.

On the basis of our technical assessments, we assume that these configurations can be considered non-essential deviations. We are happy to make the documents on which this assessment is based, such as expert opinions or technical assessments, available to you, together with the certificate of usability. We recommend that the presence of any non-essential deviation should be cleared in advance with the parties responsible for fire safety and/or the local authorities. The design, structural engineering and physical properties of Knauf systems as stated here can only be achieved if exclusively Knauf system components or products expressly recommended by Knauf are used. It is important to ensure that the certificates cited are valid and up to date.

DESIGNBOARD dimensions

Figure 1:

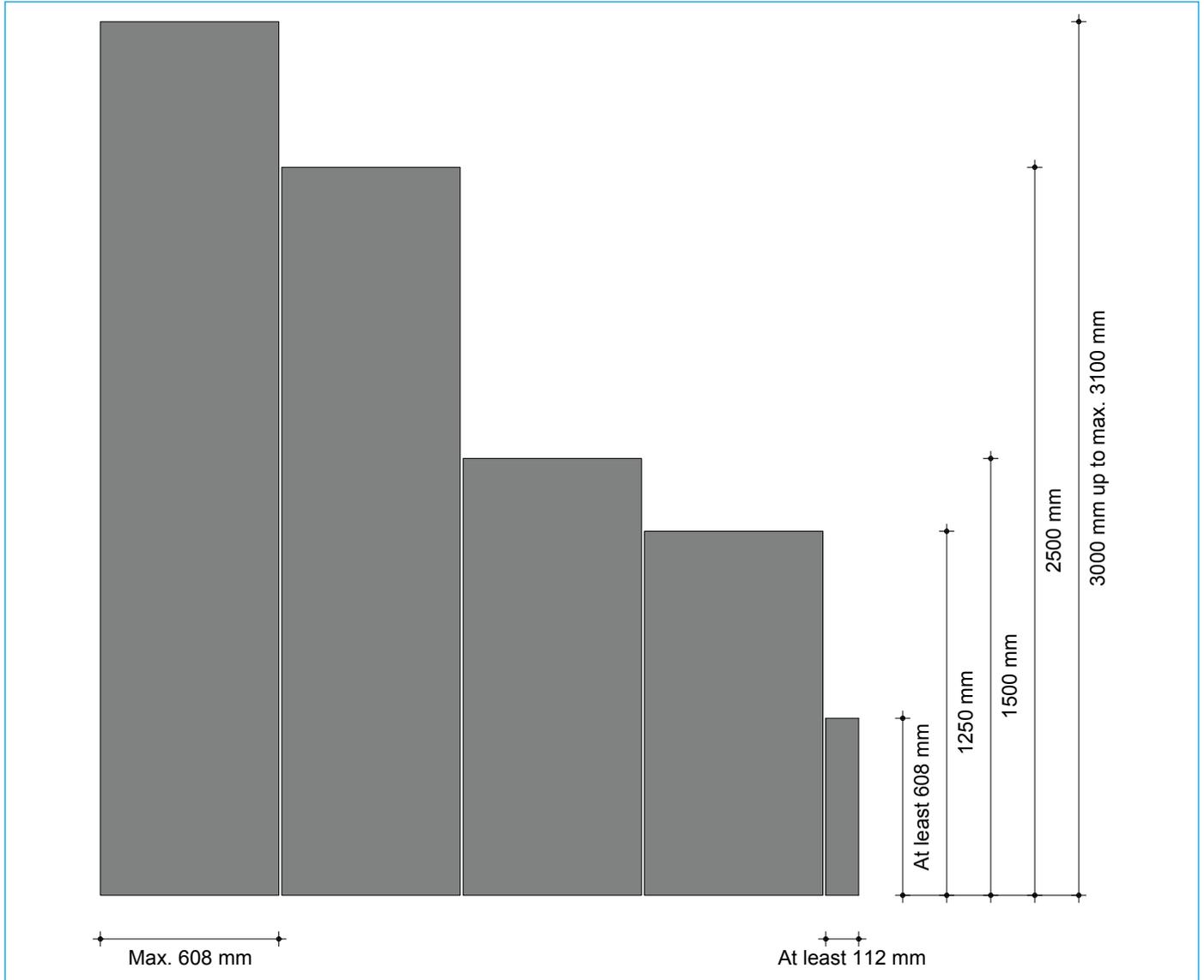


Figure 2:

DESIGNBOARD Wall	Processing	
	DESIGNBOARD 230	DESIGNBOARD 230 acoustics
Approx. density	Min. to max. panel thickness	
1100 kg/m <sup>3</sup>	12 mm - 28 mm	18 mm - 28 mm
1500 kg/m <sup>3</sup>	upon request	upon request

The DESIGNBOARD dimensions can be selected variably within the defined framework conditions (Figures 1 to 3). The DESIGNBOARD can be edged with approved edging systems from KNAUF DESIGN and in combination with these is fire-safety classified according to EN 13501-1, A2-s1, d0. More detailed information on this subject can be found in our Product Data Sheets K872a.de, K872b.de, K872c.de and K872e.de.

<b>Note</b>	<ul style="list-style-type: none"> <li>■ When used for acoustic purposes, the width of the DESIGNBOARD is a multiple of 16 mm.</li> <li>■ Other dimensions are feasible on request</li> </ul>
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Figure 3:

DESIGNBOARD Ceiling	Processing	
	DESIGNBOARD 230	DESIGNBOARD 230 acoustics
Approx. density	Min. to max. panel thickness	
1100 kg/m <sup>3</sup>	12 mm - 18 mm	18 mm

## Wall heights

### Wall heights depend on the existing wall and differ between solid walls and drywalls.

Solid walls will usually take a heavy load. The ability of an existing wall to bear the load of our wall lining is a requirement. A certificate of structural integrity is recommended for this.

<b>Note</b>	Anchorage to the existing wall, e.g. masonry, with suitable attachments (note anchor length).
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### Panelling with DESIGNBOARD elements up to 25kg/m<sup>2</sup>

Use of the standard wall heights according to System Data Sheet W11.de. The details in System Data Sheet W11.de describe the structure of the existing wall which can bear the wall lining.

### Panelling with DESIGNBOARD elements from 25kg/m<sup>2</sup>

Use of the wall heights according to the following tables. The details in following tables describe the structure of the existing wall which can bear the wall lining.

In the case of Knauf drywalls, we recommend the wall heights in the following tables.

#### System: W111.de 1x 12.5 mm Wallboard GKB

Figure 4:

Profile type	Wall height in m, depending on profile type and stud centre spacing			
	312.5 mm	417 mm	500 mm	625 mm
CW 50/50/06	2.35	2.85	-	-
CW 75/50/06	4.05	4.00	4.00	3.15
CW 100/50/06	5.45	4.90	4.55	4.15
CW 125/50/06	6.95	6.30	5.90	5.40
CW 150/50/06	8.40	7.70	7.25	6.70

#### System: W112.de 2x 12.5 mm Wallboard GKB

Figure 5:

Profile type	Wall height in m, depending on profile type and stud centre spacing			
	312.5 mm	417 mm	500 mm	625 mm
CW 50/50/06	4.00	3.85	2.20	-
CW 75/50/06	5.25	4.70	4.30	4.00
CW 100/50/06	7.05	6.50	6.10	5.55
CW 125/50/06	8.80	8.25	7.85	7.35
CW 150/50/06	10.05	9.60	9.30	8.95

**System: W113.de 3x 12.5 mm Wallboard GKB**

Figure 6:

Profile type	Wall height in m, depending on profile type and stud centre spacing			
	312.5 mm	417 mm	500 mm	625 mm
CW 50/50/06	5.15	4.65	4.30	4.00
CW 75/50/06	7.20	6.75	6.40	5.90
CW 100/50/06	9.10	8.70	8.40	8.00
CW 125/50/06	11.40	10.05	9.85	9.55
CW 150/50/06	11.65	11.30	11.05	10.80

**System: W111.de 1x 12.5 mm Diamant**

Figure 7:

Profile type	Wall height in m, depending on profile type and stud centre spacing			
	312.5 mm	417 mm	500 mm	625 mm
CW 50/50/06	3.95	3.00	-	
CW 75/50/06	4.85	4.45	-	4.00
CW 100/50/06	6.45	6.00	-	5.35
CW 125/50/06	8.05	7.55	-	6.85
CW 150/50/06	9.40	9.00	-	8.30

**System: W112.de 2x 12.5 mm Diamant**

Figure 8:

Profile type	Wall height in m, depending on profile type and stud centre spacing			
	312.5 mm	417 mm	500 mm	625 mm
CW 50/50/06	4.65	4.25	-	4.00
CW 75/50/06	6.75	6.35	-	5.65
CW 100/50/06	8.70	8.35	-	7.70
CW 125/50/06	10.15	9.85	-	9.40
CW 150/50/06	11.45	11.10	-	10.65

**System: W113.de 3x 12.5 mm Diamant**

Figure 9:

Profile type	Wall height in m, depending on profile type and stud centre spacing			
	312.5 mm	417 mm	500 mm	625 mm
CW 50/50/06	6.95	6.60	-	6.00
CW 75/50/06	9.10	8.85	-	8.35
CW 100/50/06	10.65	10.40	-	10.05
CW 125/50/06	12.00	11.80	-	11.45
CW 150/50/06	12.00	12.00	-	12.00

### Panelling with DESIGNBOARD elements with carrying channel CD 60/27/06 grid and Knauf direct hanger LKL 040 (acoustic structure).

#### Drywall

Use of the standard wall heights according to System Data Sheet W11.de.

#### Maximum permissible wall height 10 m.

The details in System Data Sheet W11.de describe the structure of the existing wall which can bear the wall lining.

#### Other details:

- Carrying channels CD 60/27/06 must stand on the floor.
- Attachment of the direct hangers preferably in CW studs of the metal stud wall.
- In the case of attachment in the panelling, use Knauf Hartmut cavity dowels or as shown in figure 10.
- Alternatively form the wall as set out in W131.de, W118N.de with a layer of 0.5 mm sheet steel. Attachment using multi-purposes screw FN 4.3 x 35/65 mm.

#### Solid wall

Solid walls will usually bear a heavy load. The ability of an existing wall to bear the load of our wall lining is a requirement.

A certificate of structural integrity is recommended for this.

#### Maximum permissible wall height 10 m.

<b>Note</b>	Anchorage to the existing wall, e.g. masonry, with suitable attachments (note anchor length).
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### Attachments

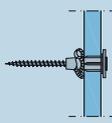
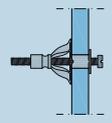
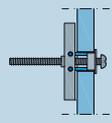
Attachments for KDPF profile and Knauf direct hanger

- Attachment in the profile or in structure as set out in W118.de WK2 with a layer of sheet steel between the panels, with Knauf multi-purpose screw FN 4.3 x 35/65 mm  $F_{max} = 0.35$  kN or suitable attachment screws. In the case of attachment in the panelling with cavity dowels - preferably Knauf Hartmut:

#### Up to 65 kg – cavity dowels

For the anchorage of bracket loads up to 0.4 kN/m or 0.7 kN/m

Figure 10:

Panelling thickness mm	Maximum dowel load capacity					
	Plastic cavity dowel, 8 mm or 10 mm diameter 1)		Metal cavity dowel, M5 or M6 screw 1)		Knauf Hartmut cavity dowel, M5 screw	
				Knauf boards kg	Diamant kg	Knauf boards kg
12.5	25	30	30	35	35	40
15 / 18	30	35	35	40	40	45
2x 12.5	40	45	50	55	55	60
≥ 2x 15	45	50	55	60	60	65

1) e.g. Tox Multi-purpose, Fischer Multi-purpose, Molly bolt anchors or equivalent

### Wall lining structure

Figure 11: Wall lining structure - smooth, level surface

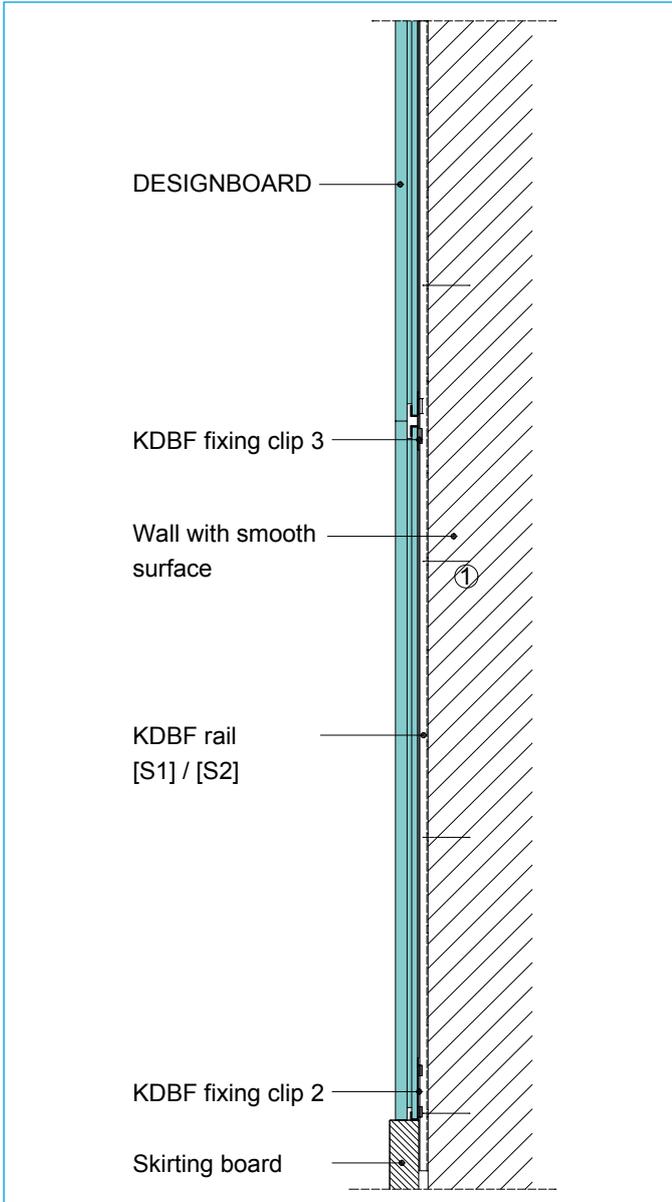
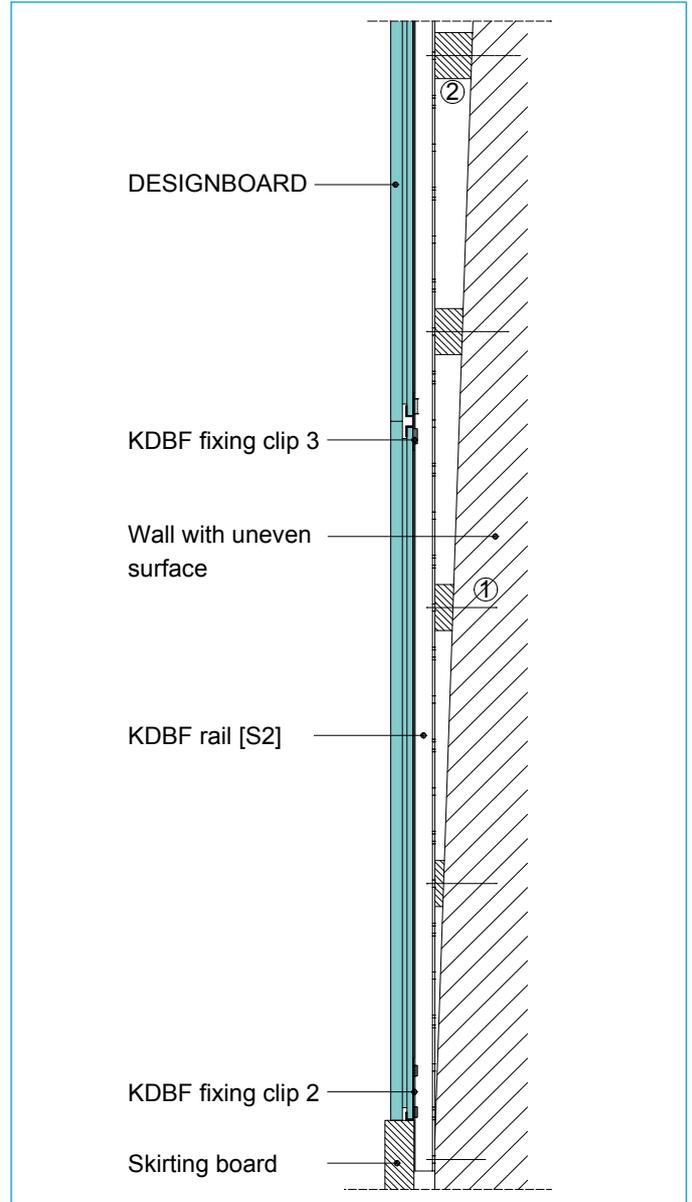


Figure 12: Wall lining structure - uneven surface



Both KDPF profiles can be used on a smooth, level surface. [S1] has a height of 8mm (Figure 11) and [S2] has a height of 18 mm (Figure 12). The KDPF profiles are attached to the surface using suitable means of attachment ①.

In the case of uneven surfaces or if cavities are to be created behind the wall lining, only [S2] is to be used (Figure 12). Its height is 18 mm. Suitable spacers ② are required to compensate for height differences between an uneven wall surface and the KDPF profiles. The KDPF profiles are attached to the uneven wall surface with the suitable spacers ② and attachments ①.

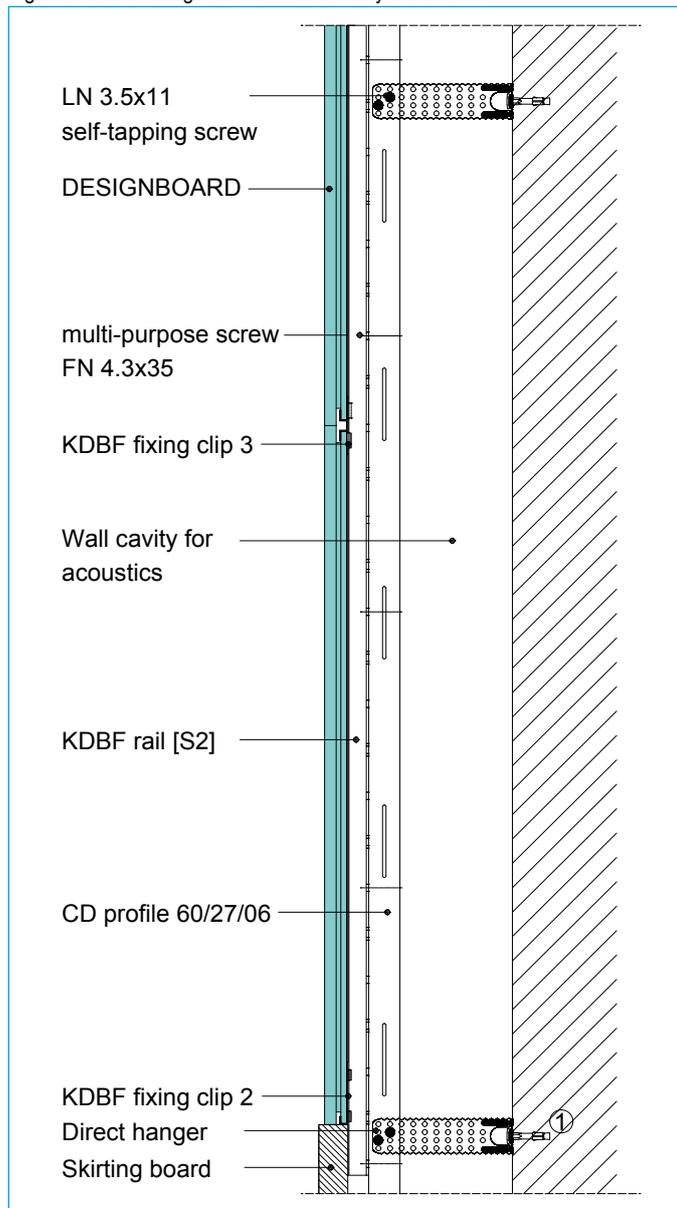
#### Caution

The distance between the attachment screws fixing the KDPF profile to the wall must be no more than 240 mm.

# 1. DESIGNBOARD FIX Wall

## Data for planning

Figure 13: Wall lining structure - with cavity for acoustics



For an acoustically effective wall structure, a construction depth of 65 mm or more is required. The height/depth is made up of 18 mm DESIGNBOARD, 18 mm KDPF profile, 27 mm CD 60/27 profile and Knauf direct hangers. The direct hangers are attached to the wall surface with the suitable attachments.

### Metal grid

The DESIGNBOARD FIX WALL SYSTEM is comprised of a profile and claw system, which is attached to an existing wall. The numerous requirements arising from the applications are covered by a wide variety of options. Our system has been tested as far as the KDPF profile. Suitable attachment materials are required to attach our grid to the wall. It is entirely possible to pre-assemble the grid without DESIGNBOARD elements. With a wall panelling height of 3100 mm or more, an additional starting profile [a] is required to carry the load.

### DESIGNBOARD FIX with “flying butt joint”

This form of assembly is suitable when no special configurations arise on the wall. For the DESIGNBOARD to have a vertical alignment, the profiles have to be arranged horizontally. For the DESIGNBOARD to have a horizontal alignment, the profiles have to be arranged vertically (Figure 15). In the case of the “flying butt joint” version, the grid is mounted at distance [R], without taking account of the butt joints of the DESIGNBOARD elements. As larger gaps due to suspension can arise, the use of tongue-in-groove joints is required, or they can be bridged with additional KDPF profiles. The starting profile [a] is always horizontally aligned and is to be mounted at distance [A] from the floor. Following installation of the DESIGNBOARD, its bottom edge is to be at the same height as the top edge of the FFB. Then in order to achieve a gap from the floor, the required dimension is to be added to distance [A]. Depending on the joint gap [F], this distance [A] is changed (Figure 16).

Figure 14: Vertical DESIGNBOARD alignment

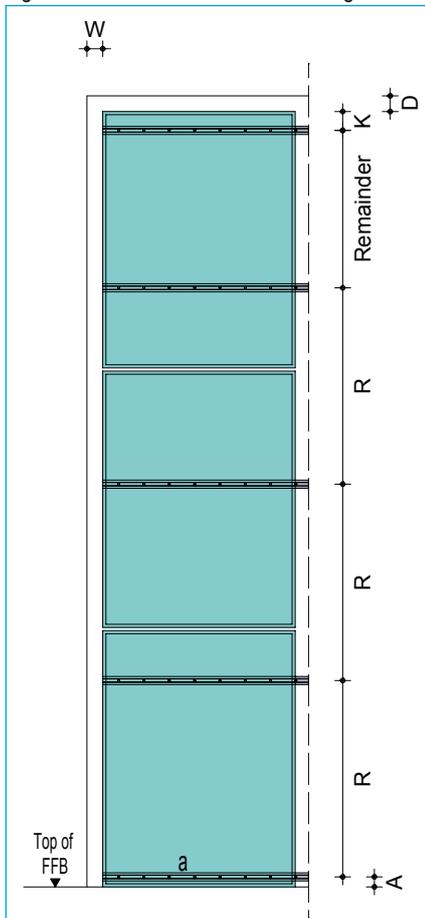


Figure 15: Horizontal DESIGNBOARD alignment

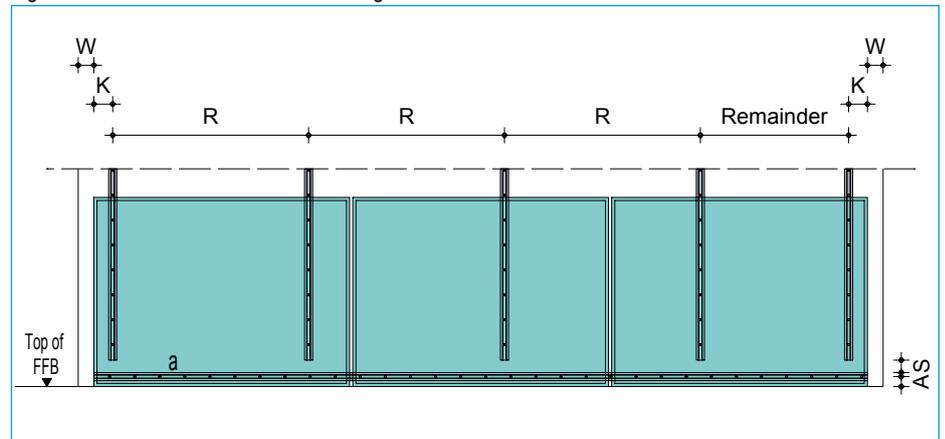


Figure 16:

Symbol	A	D	F	K	R	S	W
Alignment	mm	mm	mm	mm	mm	mm	mm
Horizontal	37	10	0	60	625	40	10
	34.5		5				
	32		10				
Vertical	37	10	0	60	625	-	10
	34.5		5				
	32		10				

### Caution

- In the case of the “flying butt joint”, the DESIGNBOARD elements must be connected by means of tongue-in-groove joints or bridged by additional KDPF profiles.

## Data for planning

### DESIGNBOARD FIX with “backed butt joint”

This form of assembly is suitable when special configurations arise on the wall. For the DESIGNBOARD to have a vertical alignment, the profiles have to be arranged horizontally (Figure 17). For the DESIGNBOARD to have a horizontal alignment, the profiles have to be arranged vertically (Figure 18). In the case of the backed butt joint version, each DESIGNBOARD is given KDPF profiles, which are mounted at spacings [K] or [A] from the edge of the DESIGNBOARD. Various special configurations can also be applied without subsequent cost. Adherence to the minimum spacings [D] and [W] enables the DESIGNBOARD elements to be unhooked at a later date. The starting profile [a] is always horizontally aligned and is to be mounted at distance [A] from the floor. Following installation of the DESIGNBOARD, its bottom edge is to be at the same height as the top edge of the FFB. Then in order to achieve a gap from the floor, the required dimension is to be added to distance [A]. Depending on the joint gap [F], this distance [A] is changed (Figures 19 and 20).

Figure 17: Vertical DESIGNBOARD alignment

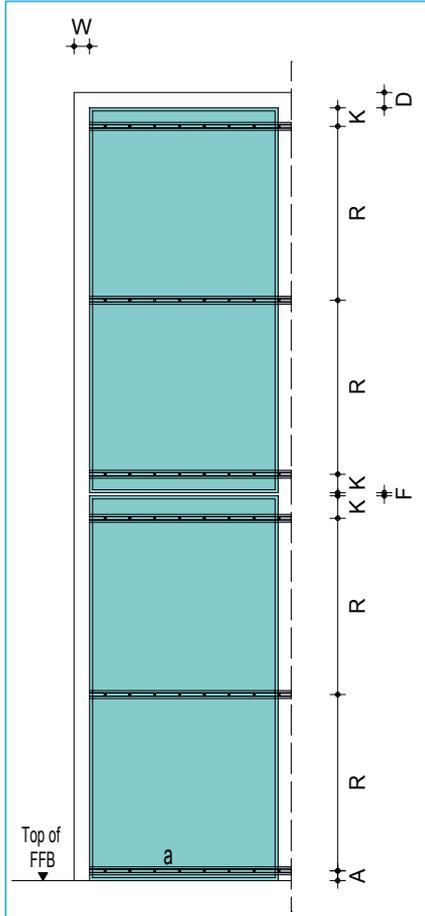


Figure 18: Horizontal DESIGNBOARD alignment

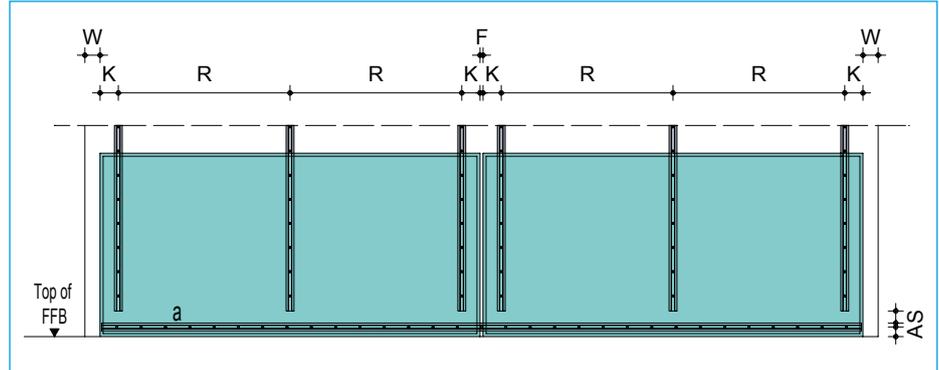


Figure 19:

Symbol	A	D	F	K	R	S	W
Alignment	mm	mm	mm	mm	mm	mm	mm
Horizontal	37	10	0	60	variable - depending on figure 20	40	10
	34.5		5				
	32		10				
Vertical	37	10	0	60	variable - depending on figure 20	-	-
	34.5		5				
	32		10				

Figure 20:

DESIGNBOARD dimensions in mm		KDPF profile [R] carrier profiles
Width [B]:	Length: [L]	Items
112 - 608	608	2
	1250	4
	1500	4
	2500	6
	3100	7

### DESIGNBOARD FIX with “flying butt joint and cavity for acoustics”

This form of assembly is suitable if an acoustically effective wall lining is required, in which no special wall configurations arise. For the DESIGNBOARD to have a vertical alignment, the profiles have to be arranged horizontally (see figure 21). For the DESIGNBOARD to have a horizontal alignment, the profiles have to be arranged vertically (see figure 22).

The carrying channels [M] CD 60/27/06 run vertically for both DESIGNBOARD orientations and have to stand on the floor. In the case of the “flying butt joint” version, the grid is mounted at distance [R], without taking account of the butt joints of the DESIGNBOARD elements. As larger, free-floating gaps can arise, the use of tongue-in-groove joints is required, or they can be bridged with additional KDPF profiles. The starting profile [a] is always horizontally aligned and is to be mounted at distance [A] from the floor. Following installation of the DESIGNBOARD, its bottom edge is to be at the same height as the top edge of the FFB. Then in order to achieve a gap from the floor, the required dimension is to be added to distance [A]. Depending on the joint gap [F], this distance [A] is changed (Figure 23).

Figure 21: Vertical DESIGNBOARD alignment

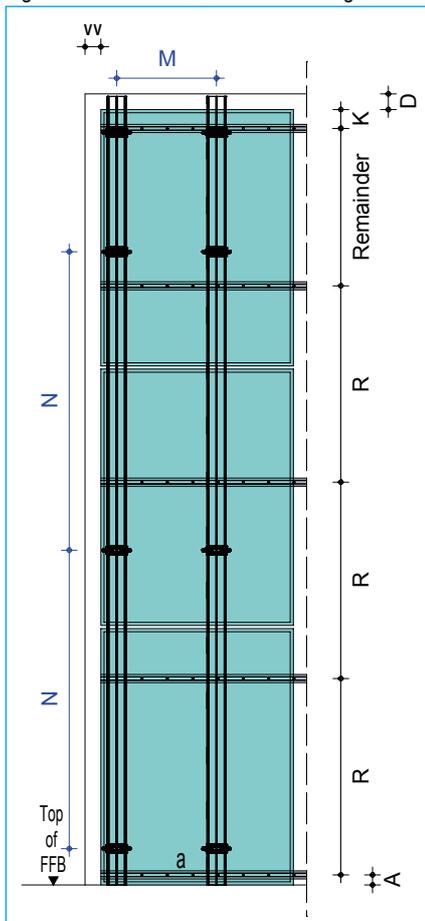


Figure 22: Horizontal DESIGNBOARD alignment

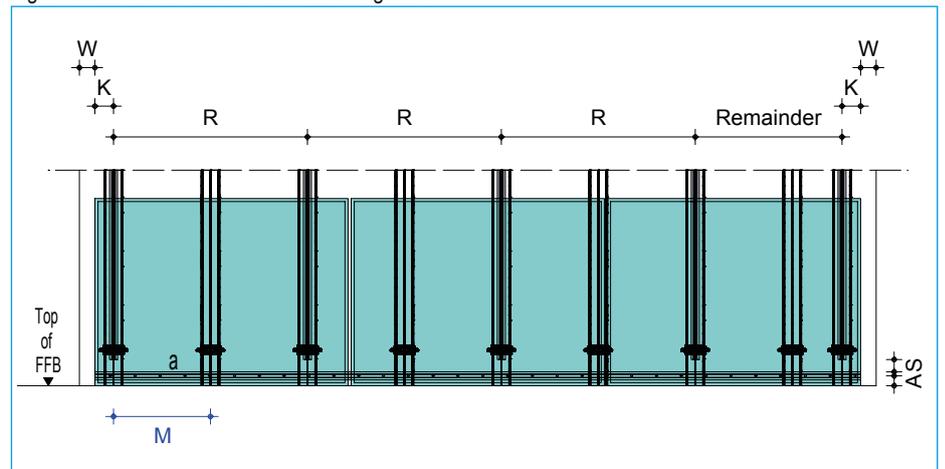


Figure 23:

Symbol	A	D	F	K	M	N	R	S	W
Alignment	mm	mm	mm	mm	mm	mm	mm	mm	mm
Horizontal	37	10	0	60	312.5	950	625	40	10
	34.5		5						
	32		10						
Vertical	37	10	0	60	312.5	950	625	-	10
	34.5		5						
	32		10						

#### Caution

- In the case of the “flying butt joint”, the DESIGNBOARD elements must be connected by means of tongue-in-groove joints or bridged by additional KDPF profiles.

## Data for planning

### DESIGNBOARD FIX with “backed butt joint and cavity for acoustics”

This form of assembly is suitable if an acoustically effective wall lining is required and special wall configurations arise. For the DESIGNBOARD to have a vertical alignment, the profiles have to be arranged horizontally (Figure 24). For the DESIGNBOARD to have a horizontal alignment, the profiles have to be arranged vertically (Figure 25).

The carrying channels CD 60/27/06 run vertically for both DESIGNBOARD orientations and have to stand on the floor. In the case of the backed butt joint version, each DESIGNBOARD is given KDPF profiles, which are mounted at spacings [K] or [A] from the edge of the DESIGNBOARD. Various special configurations can also be applied without subsequent cost. Adherence to the minimum spacings [D] and [W] enables the DESIGNBOARD elements to be unhooked at a later date. The starting profile [a] is always horizontally aligned and is to be mounted at distance [A] from the floor. Following installation of the DESIGNBOARD, its bottom edge is to be at the same height as the top edge of the FFB. Then in order to achieve a gap from the floor, the required dimension is to be added to distance [A]. Depending on the joint gap [F], this distance [A] is changed.

Figure 24: Vertical DESIGNBOARD alignment

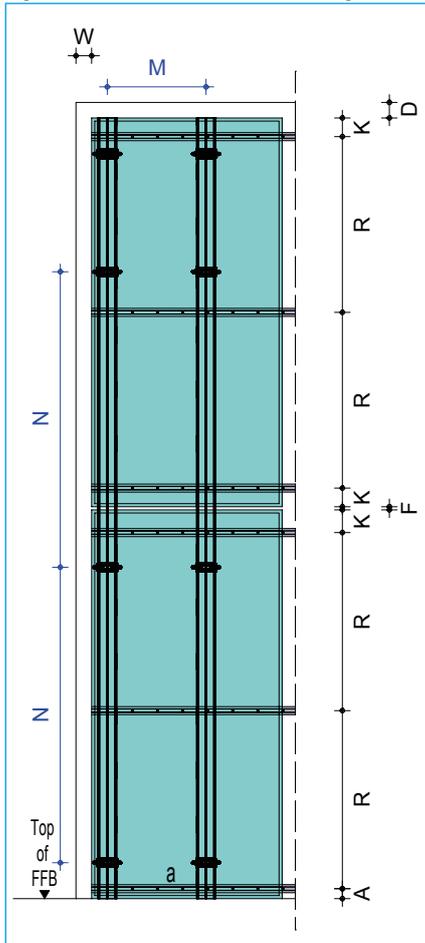


Figure 25: Horizontal DESIGNBOARD alignment

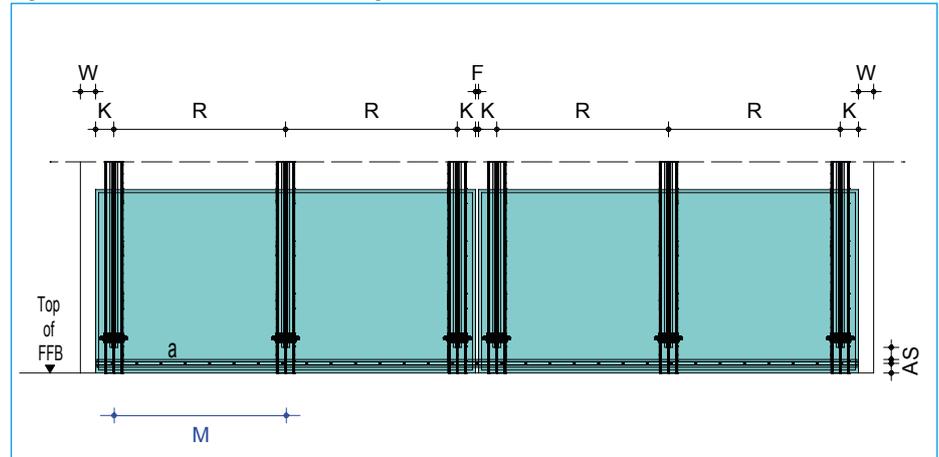


Figure 26:

Symbol	A	D	F	K	M	N	R	S	W
Alignment	mm	mm	mm	mm	mm	mm	mm	mm	mm
Horizontal <sup>1)</sup>	37	10	0	60	is the same as R	950	variable - depending on figure 27	40	10
	34.5		5						
	32		10						
Vertical	37	10	0	60	312.5	950	-	-	10
	34.5		5						
			10						

1) up to 19.2 mm max. panel thickness possible

Figure 27:

DESIGNBOARD dimensions in mm		KDPF profile [R] carrier profiles
Width [B]:	Length: [L]	Items
112 - 608	608	2
	1250	4
	1500	4
	2500	6
	3100	7

### Joint planning

The DESIGNBOARD FIX wall can be configured with various joint gaps. Possibilities include on the one hand the zero gap and on the other the shadow gap, which is available in a choice of 5 mm and 10 mm dimensions. To close the shadow gaps, a tongue-in-groove joint is used, either a KDBF insulating joint or a tongue made of gypsum fibreboard.

#### Zero-joint version (butt jointed)

A zero gap forms a press-together butt joint from one DESIGNBOARD to the next. In this case it is possible to create an impression with no breaks (Figures 28 and 29).

Figure 28:

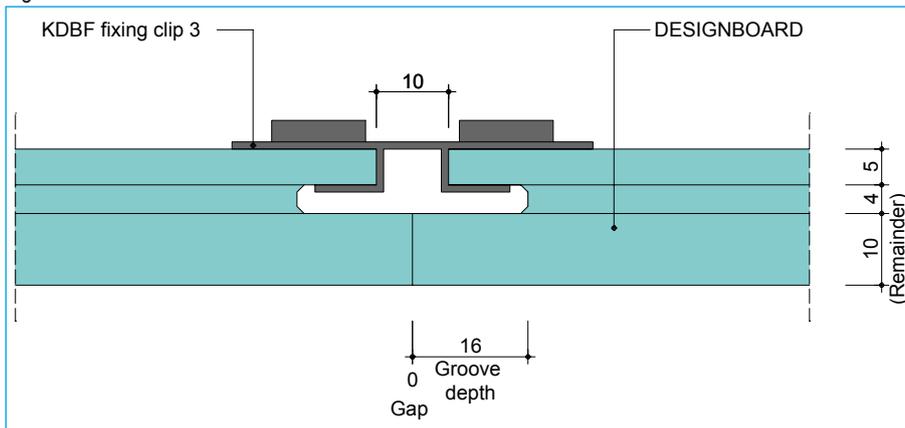


Figure 29:



#### Shadow gap version, 5 mm

A shadow gap is chosen to create design highlights and to conceal any tolerance variations (Figures 30 and 31).

Figure 30:

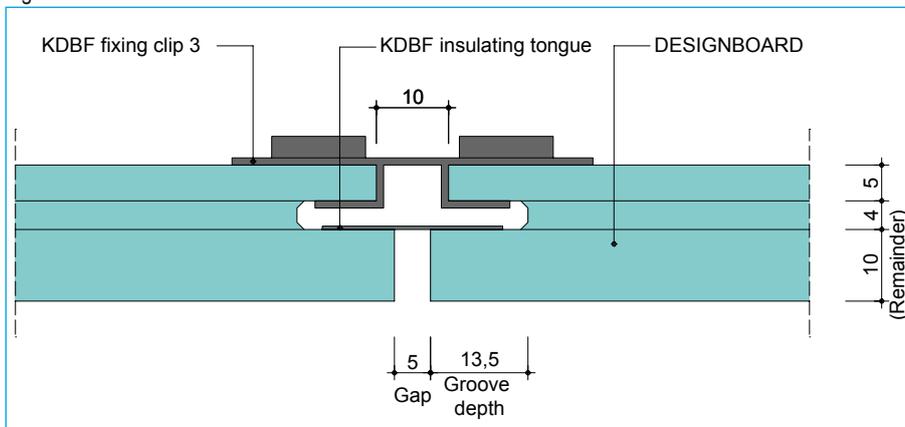


Figure 31:



#### Shadow gap version, 10 mm

A shadow gap is chosen to create design highlights and to conceal any tolerance variations (Figures 32 and 33).

Figure 32:

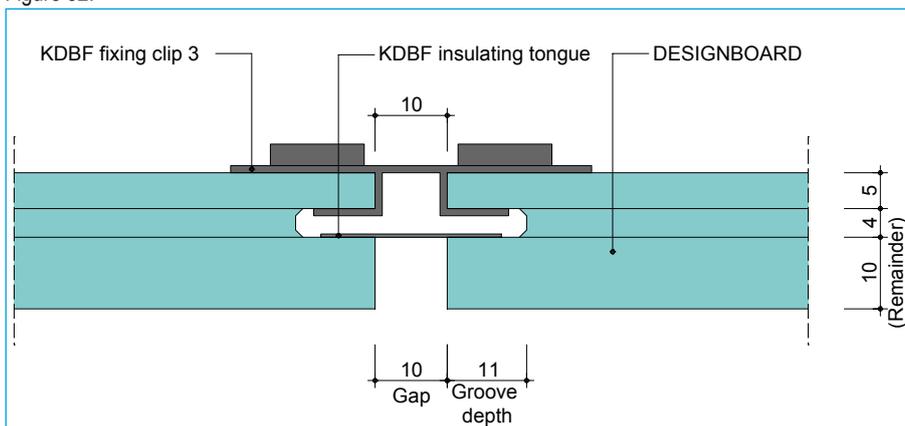


Figure 33:



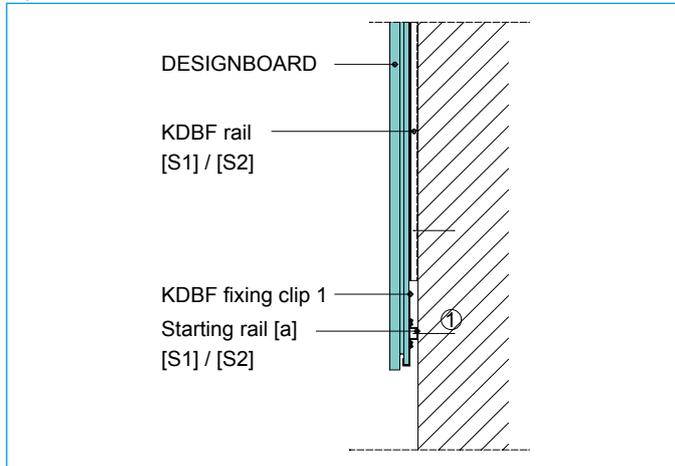
## Special configurations

### Skirting versions A, B and C

#### Version A:

In this version, no skirting board is used. The wall lining is suspended and appears to float. The load is borne through the starting profile [a].

Figure 34:



#### Version B:

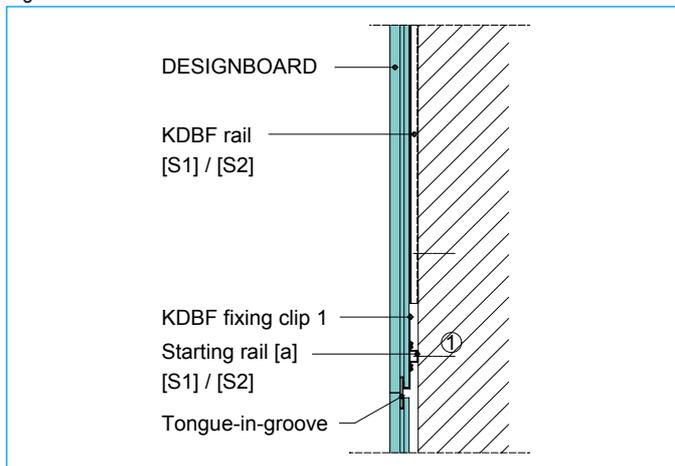
In this version (Figure 35) a skirting board is used, which is connected with the DESIGNBOARD above by means of a tongue-and-groove joint.

A smooth transition is created from the latter to the skirting board. This transition can also take the form of a shadow gap. The skirting board plays merely a cosmetic role and does not contribute to the load bearing. Other skirting board configurations are possible by agreement.

#### Note

During assembly the skirting board is to be integrated before the panelling.

Figure 35:



#### Version C:

In this version (not shown) the load can be borne by means of a variable, stable and smooth surface (floor). The bottom edge of the DESIGNBOARD sits fully on the floor. In this case there is no need for the starting profile.

#### Caution

The surface must have at least the appropriate minimum load-bearing capacity for the required loads when installing the system. The surface should be entirely smooth and level or equalised by means of compensating layers or the use of appropriate adhesives. Any contact points to oily or greased surfaces are to be securely sealed against penetration into the DESIGNBOARD. Damp surfaces are also unsuitable.

Wall decoupling

plus

Wall decoupling reduces acoustic bridges and hence sound transmission (Figures 36 and 37).

Figure 36:



Figure 37:

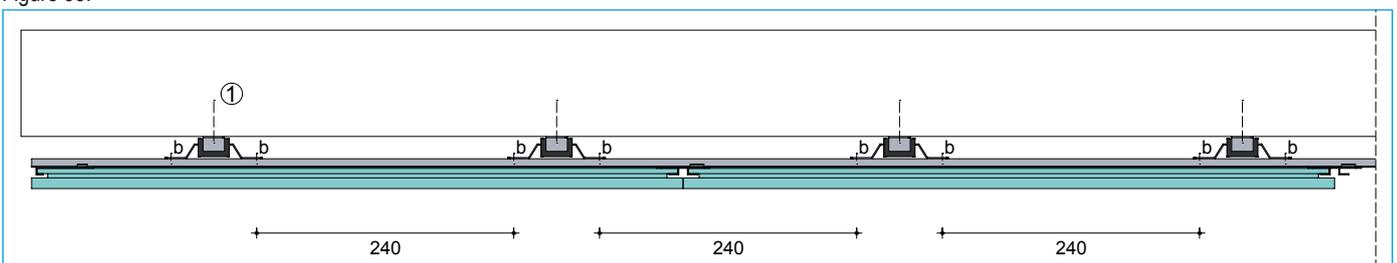


Caution

The KDBF wall decoupling component is attached to the rear of the KDPF profile at a maximum distance of 240 mm by means of a nut and bolt [b] and mounted on the wall with suitable attachment materials (Figure 38). Skirting board version C must also be used.

Item name	Item no.	Material requirements
KDBF wall decoupling	342894	8 x per 2.5 m profile
[b] Bolt	607220	16 bolts plus
Nut	607222	16 nuts per 2.5 m profile

Figure 38:



## Special configurations

### Inspection aperture

The inspection aperture makes it possible to remove the DESIGNBOARD which has previously been firmly fixed to the wall, in order to get to (installation) elements behind the wall lining (Figure 39).

<b>Note</b>	Inspection aperture only partially possible with an acoustically prepared DESIGNBOARD. Configuration only possible by agreement.
-------------	--

Figure 39:



If the DESIGNBOARD which can be removed for inspection is followed by another DESIGNBOARD above it, this is to be secured by another starting profile [a] (Figure 41).

The profile must be fitted at a suitable height. Sample calculation:  
 $[K+F+A]$  = distance to the next profile.

Figure 40:

Symbol	A	F	K
Alignment	mm	mm	mm
Horizontal	37	0	60
	34.5	5	
	32	10	
Vertical	37	0	60
	34.5	5	
	32	10	

KDBF AER clips, which are used for attachment purposes, are fitted on the rear of the DESIGNBOARD which can be removed for inspection. The DESIGNBOARD is clipped onto the KDPF profile by means of the KDBF AER clips previously bolted on. The application can be found in the Assembly section, under the heading KDBF AER clip assembly.

Figure 41:



Item name	Item no.	Material requirements
KDBF fixing clip 1	342891	1 per 100 mm DESIGNBOARD width or length
KDBF fixing clip 2	342892	Minimum 2 per profile on which the DESIGNBOARD element rests, plus 2
KDBF AER clip	342893	Minimum 2 per profile on which the DESIGNBOARD element rests, plus 2 per 100 mm DESIGNBOARD width or length

### Wall end

This version enables a DESIGNBOARD which has been adapted on site and no longer has a groove running round it to be fitted to the wall using KDBF AER clips (Figures 42 and 43).

Figure 42:

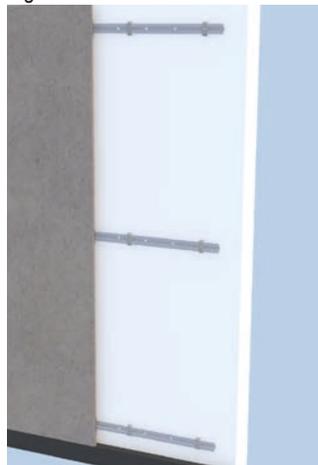


Figure 43:



Item name	Item no.	Material requirements
KDBF AER clip	342893	Minimum 2 per profile on which the DESIGNBOARD element rests

### End and connecting profiles from the PROTECT RAIL range



This configuration enables the edge of the wall lining to be protected by means of the end and connecting profiles P1 to P5 (Figures 44 to 50). Both outer and inner corners can be formed in this way. More detailed information on this subject can be found in our Technical Brochure Tro175.de.

#### Note

- As the end profile or connecting profile extends beyond the edge of the panel, it is not possible to use the attachment option with the KDBF fixing clip or the groove. In this case, the special "wall end" configuration using the KDBF AER clips is applied.
- If the DESIGNBOARD elements of the wall lining are to remain removable and assembled without limitation, the end profiles are to be cut accordingly to the width or length of the DESIGNBOARD and fitted to the rear of the DESIGNBOARD elements before panelling.
- The end profile or connecting profile can also be glued onto the edge later, after the wall lining has been fitted. In this way, a continuous profile is achieved. Subsequent removal is however prevented or only achieved with possible damage.
- It should be noted that this configuration is only possible if the profiles are set back at the edge and have been planned according to the "wall end" process.

Figure 44:

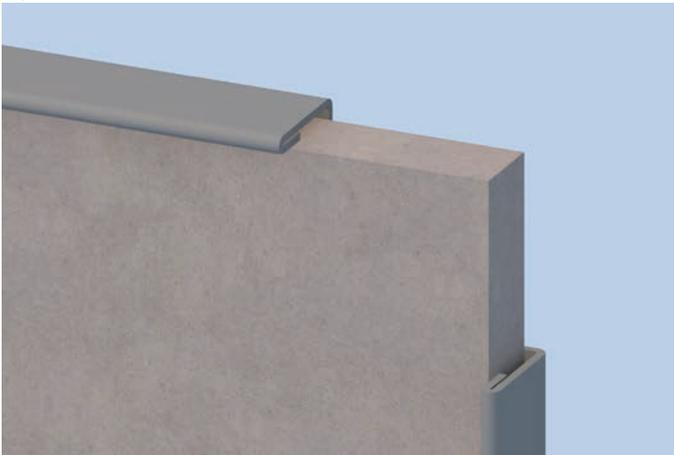


Figure 45:

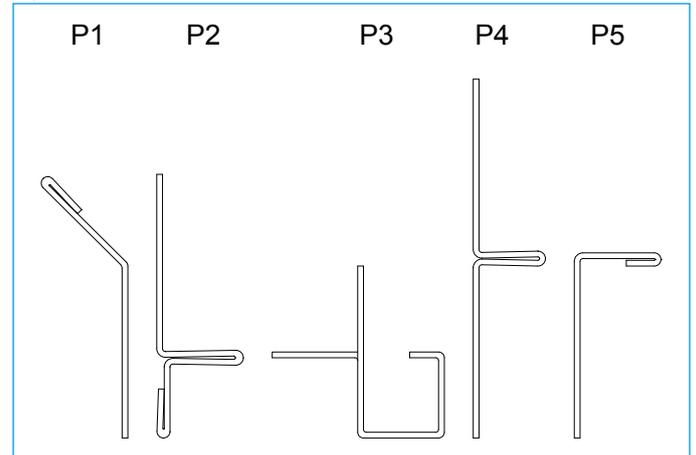


Figure 46: P1 45° Mitre profile



Figure 47: P2 Star profile



Figure 48: P3 Rectangular profile

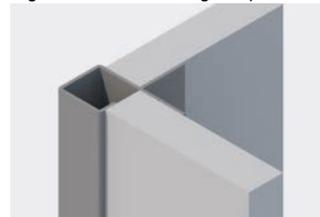


Figure 49: P4 Connecting profile



Figure 50: P5 End profile



## Assembly

### Components and panelling: Grid assembly for acoustic cavity

Set up the vertically aligned CD profiles 60/27/06 on the floor and align them with suitable spacing. Attachment of the CD profiles on the existing wall with Knauf direct hangers and suitable attachments. Attachment on the CD profile with 2x LN 3.5x11 mm. The necessary information about the spacing can be found in the section DESIGNBOARD FIX Wall - Data for planning - Figure 23 or 26.

Figure 51a:



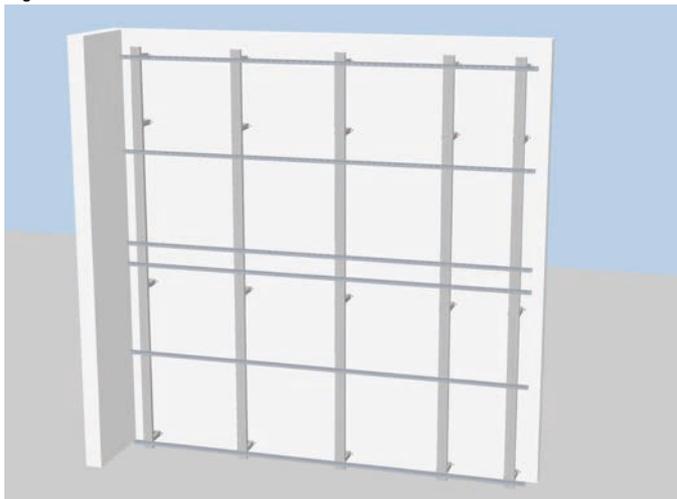
Up to this point the following components are required:

- Knauf CD 60/27 profile
- Knauf direct hangers
- Suitable attachment materials

### Components and panelling, flying or backed butt joint

Align the starting profile [a], through which the weight of the wall lining is borne, horizontally on the wall or grid, press on and fix in place with suitable attachment materials. If the wall is uneven, adequate spacer material should be applied to the wall between the KDPF profile and the wall. This procedure is also applied for the other KDPF profiles. The necessary information about the spacing can be found in the section DESIGNBOARD FIX Wall - Data for planning - Figures 16, 19, 23 and 26.

Figure 51b:



Up to this point the following components are required:

- KDPF profile [S1] or [S2]
- Suitable spacers
- Suitable attachment materials
- Spirit level and other assembly aids

**Note** If a special configuration has been chosen for the skirting board, the skirting board must first be aligned and fixed in place before assembly.

### Components and panelling: Fixing clip and panelling

#### Using the example of the vertical DESIGNBOARD alignment with backed butt joint.

When fitting the components and the panelling of the DESIGNBOARD elements onto the KDPF profiles, it should be mentioned that the wall can also be panelled from right to left and not only as shown in the following description. The DESIGNBOARD can be suspended without tools. Assembly is completed using vertical DESIGNBOARD alignment and horizontal profile alignment. The configuration of a horizontal DESIGNBOARD alignment and a vertical profile alignment is similar apart from a few differences. In this case the KDPF profiles, with the exception of the starting profile, are rotated through 90°. Then a fixing clip 2 is also fitted on the ceiling end of the KDPF profiles only. More information on that to follow.

KDBF fixing clip 1 is fitted to the starting profile [a], with KDBF AER clips beside it to the right and left. The KDBF AER clips serve to stiffen the KDPF profile and assist in bearing the load. The procedure is repeated every 100 mm for the full length of the starting profile [a]. Figure 52 illustrates the wall and its components. The spacings are shown in figure 53. Figure 54 serves as a brief guide on how to mount the KDBF fixing clips (KDBF fixing clip 3 has been used as an example in the figure).

Figure 52:



Figure 53:

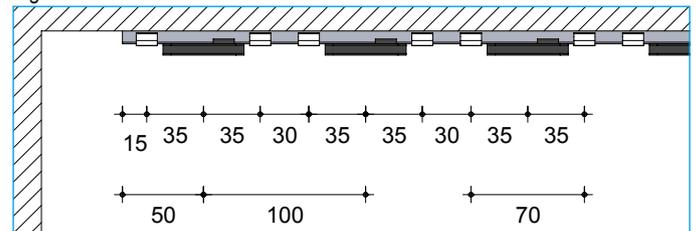
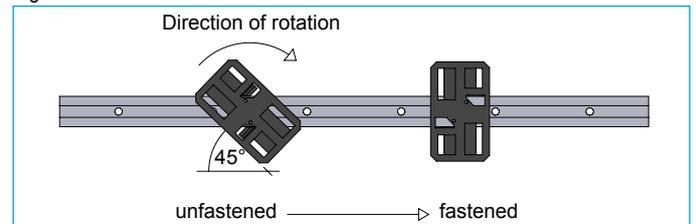


Figure 54:



Then the KDPF profiles which are above the starting profile are fitted with KDBF fixing clip 2. The minimum distance [W] from the wall is to be maintained. These KDBF Fixing clips 2 form a straight line at the left-hand end of the KDPF profiles, at 90° to the horizontal starting profile [a]. Then the KDBF fixing clips 3 can be provisionally fitted to the same KDPF profiles. Note distance [P], which should be at least greater than the width of the DESIGNBOARD. This procedure is repeated until all the necessary KDBF fixing clips 3 have been fitted. The KDBF fixing clip 2 which will later fix the DESIGNBOARD elements to the wall is fitted at the right-hand end of the KDPF profiles. Figure 55 illustrates the wall and its components. The references for the spacings are shown in figure 56.

Figure 55:

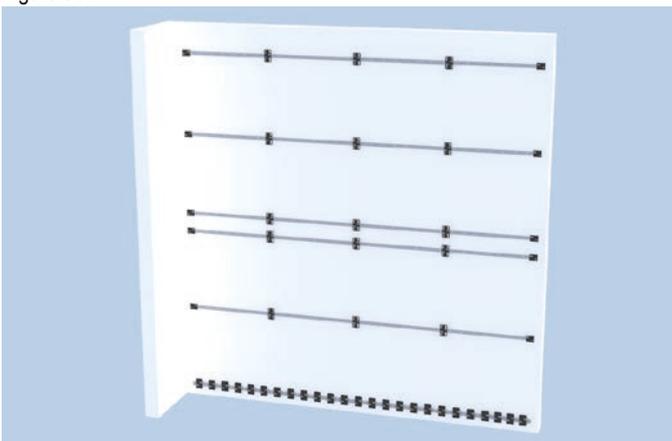
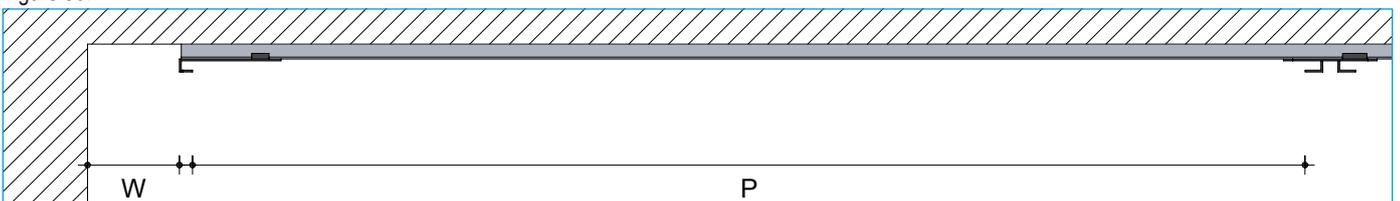


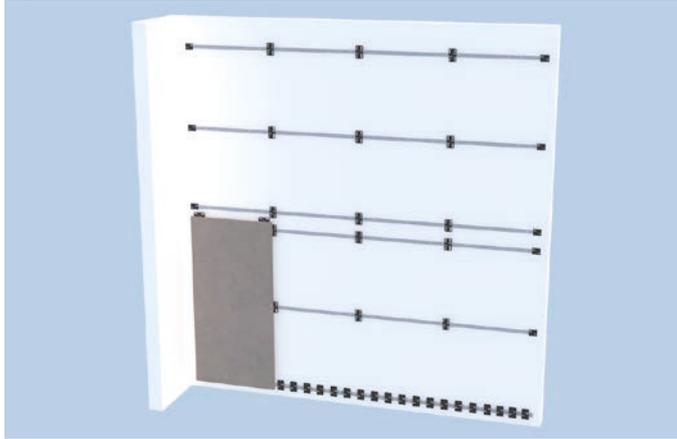
Figure 56:



## Assembly

The next step is to hang the DESIGNBOARD elements. The first DESIGNBOARD is pressed against the KDPF profiles between KDBF fixing clips 2 and 3 and slowly brought together with the starting profile [a] fitted with the components, according to the tongue-and-groove principle. Then the DESIGNBOARD is pushed to the left into the grooves of the KDBF fixing clip 2 components and fixed in place with the KDBF fixing clip 3 components. Fixing takes place by sliding the KDBF fixing clips 3 along the KDPF profiles in the direction of the DESIGNBOARD and once again bringing them together according to the tongue-and-groove principle. This procedure is repeated with all the other elements and available KDBF fixing clips. Figure 57 illustrates the wall and its components.

Figure 57:



### Note

- The order in which the panelling is carried out is left to the installer. With profiles laid horizontally we recommend fitting the panels column by column and with profiles laid vertically we recommend working row by row. This recommendation does not exclude the possibility of creating an offset gap alignment.
- With a vertical profile alignment, the alignment of the components is turned through 90° to the right. In this case the left-hand row of KDBF fixing clips 2 is no longer at the left-hand side of the wall but at the ceiling and the right-hand row of KDBF fixing clips 2 is omitted, as it is replaced by the starting profile.

If a shadow gap is planned, the appropriate KDBF fixing clips are slotted onto the tongues of the front of the DESIGNBOARD before the next DESIGNBOARD element is fitted. These KDBF fixing clips are not attached to a KDPF profile and serve as spacers. The minimum distance from the KDBF fixing clip to the edge of the DESIGNBOARD is [K] (Figure 58).

Figure 58:



Before the next DESIGNBOARD element is suspended, the separate tongue or the KDBF insulating tongue is to be inserted (Figure 59). The KDBF insulating tongue can also be inserted after the shadow gap has been created.

Figure 59:



### Caution

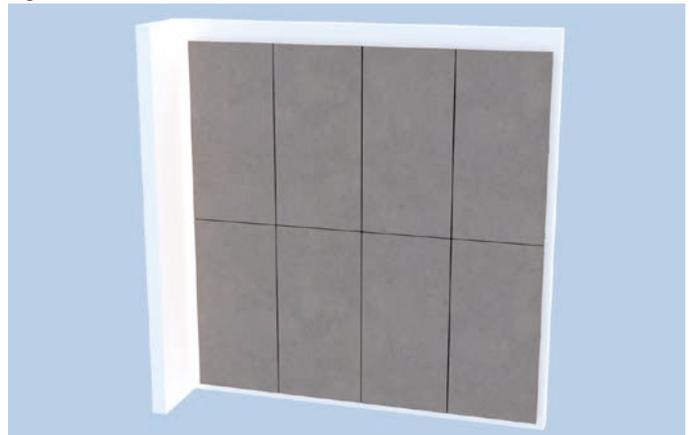
In the case of the "flying butt joint" configuration, a separate tongue has to be inserted or the joint has to be bridged by additional KDPF profiles.

In figure 60, the second DESIGNBOARD is fixed in place. The KDBF insulating tongue can now be inserted in the shadow gap that has been created, if this has not already been done in advance. Figure 61 shows a fully assembled DESIGNBOARD FIX wall with shadow gaps.

Figure 60:



Figure 61:



### Fitting the KDBF AER clip

If there is to be an inspection aperture, or an end profile or a wall end is to be used, the KDBF AER clips must be fitted to the rear of the DESIGNBOARD. The KDBF AER clips are fitted to the necessary points on the KDPF profile, which is also to carry the DESIGNBOARD later.

The KDBF AER clips are now marked on the top with a suitable agent (aerosol). The agent used must be able to leave a mark. The DESIGNBOARD is now moved into its final position. The DESIGNBOARD is pushed between or up to the adjacent DESIGNBOARD elements and pressed against the KDBF AER clips. This should create marks on the rear, imitating the spacings between the clips. After removing the DESIGNBOARD, the KDBF AER clips can then be screwed on with suitable attachment materials at the marks that have been created. Figure 62 serves as a brief description. Figure 63 serves as a brief graphic guide to the fitting of the KDBF AER clips.

Figure 62:

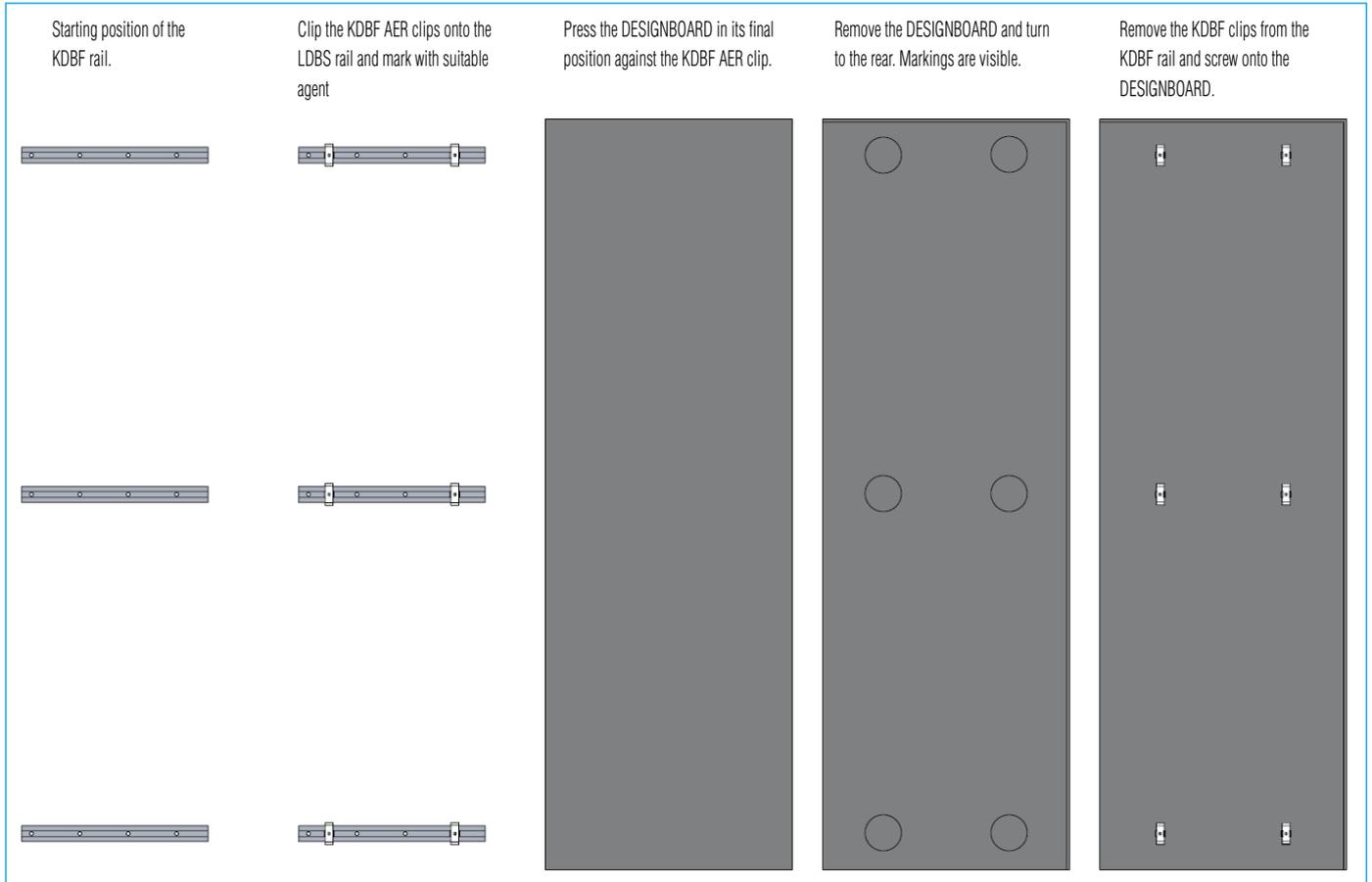
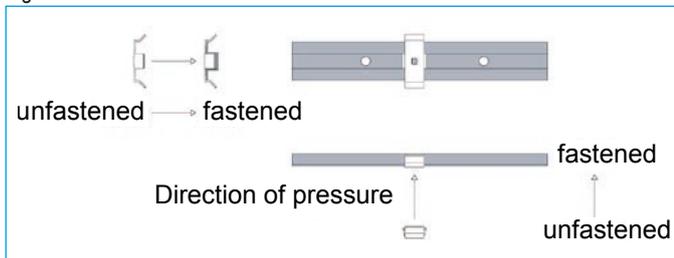


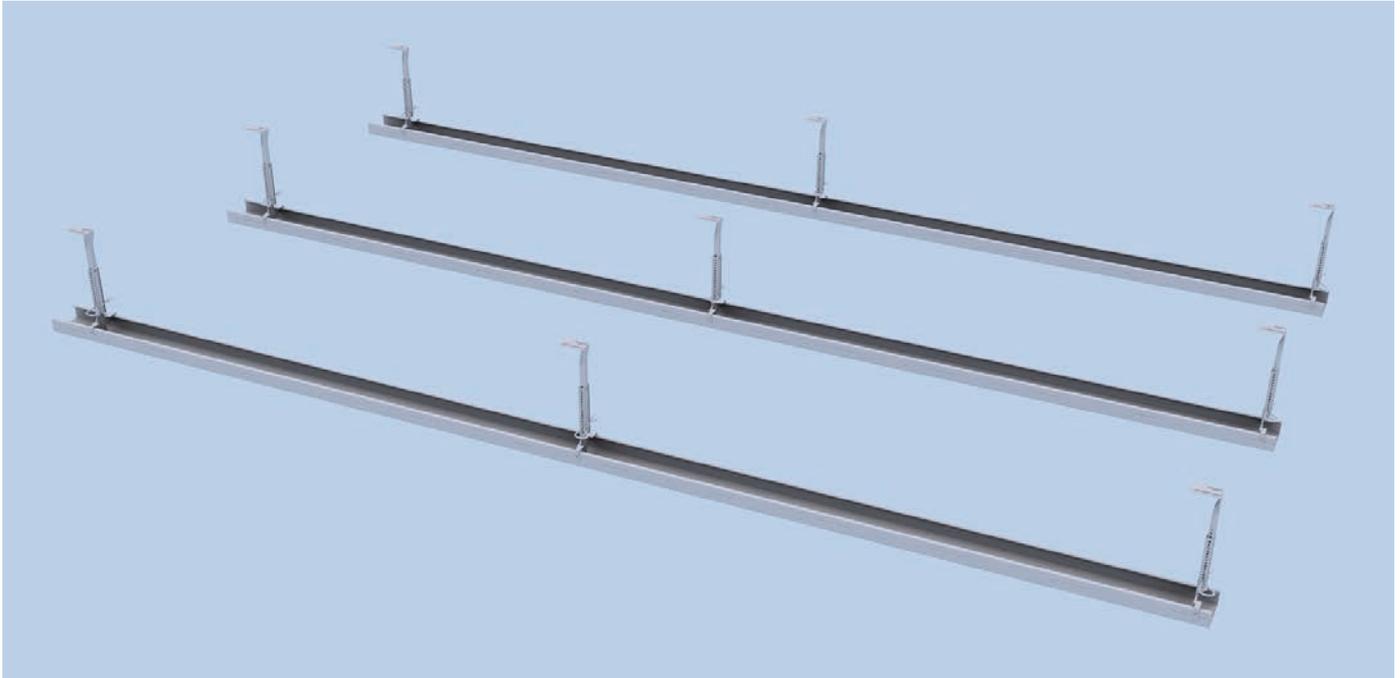
Figure 63:



#### Ceiling lining structure

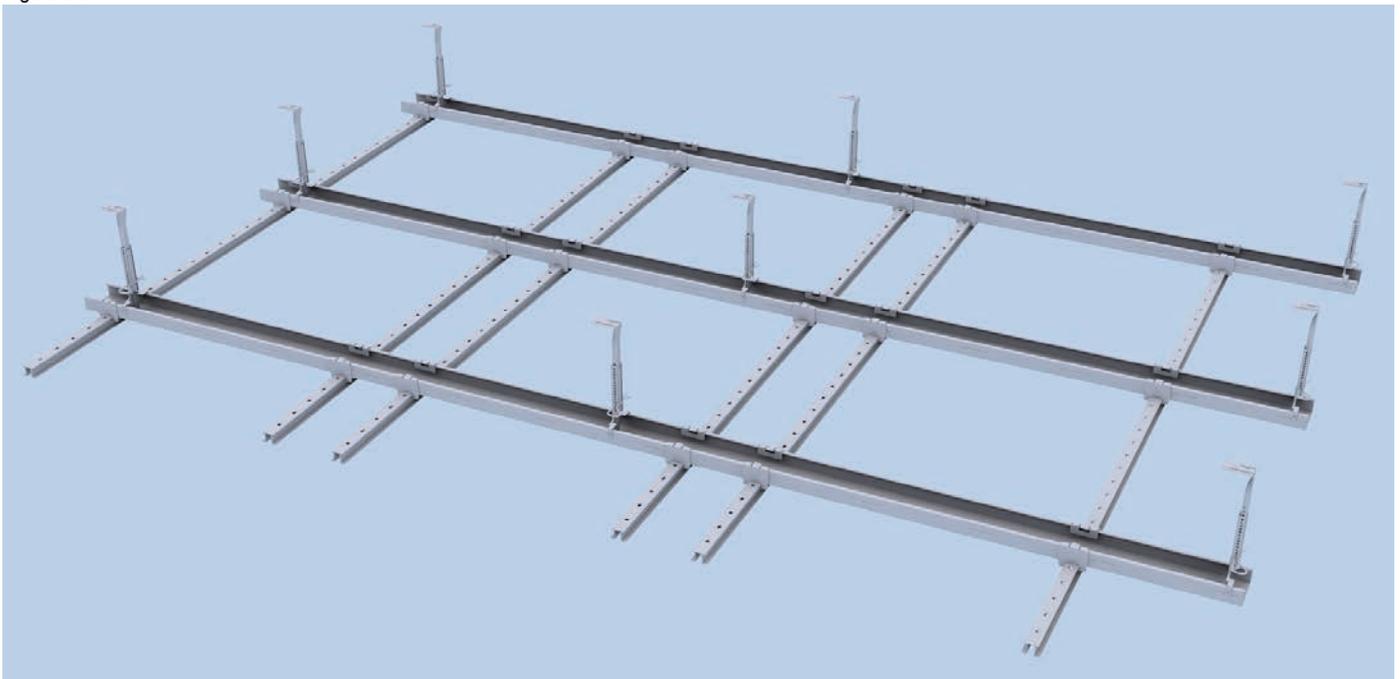
The DESIGNBOARD FIX ceiling for DESIGNBOARD 230 is comprised of a profile and claw system, which is coupled to the KNAUF drywall system. Our system has been tested as far as the connection with the sheet metal profile CD 60/27/06. For additional information on the ceiling lining structure, such as for example any components necessary for creating the metal grid and fixing it to the basic ceiling, we refer you to the System Data Sheet D11.de from KNAUF. It is entirely possible to pre-assemble the metal grid without DESIGNBOARD 230 elements. The CD 60/27/06 carrying channels are attached to the basic ceiling with hangers (Figure 64).

Figure 64:



The KDPF profile [Y] carrier profiles are suspended by means of KDBF ceiling clips or screwed onto the metal grid made of carrying channels (simple profile grid), which is comprised of sheet metal profiles CD 60/27/06.

Figure 65:



#### Metal grid

Figure 66:

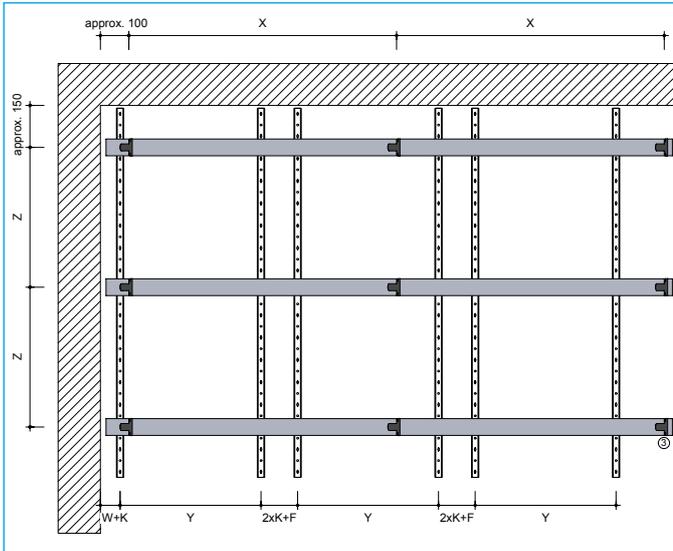


Figure 67:

Hanger centre distance	Carrier profile centre spacings	Carrying channel centre spacings	Gap distance	Wall distance
X	Y	Z	F	W
mm	mm	mm	mm	mm
1100	variable - depending on figure 69	500	0 / 5 / 10	10
1050		600		
1000		700		
950		800		
900		900		

#### Profile arrangement

##### Caution

The table in figure 69 specifies the number of profiles which are to be used for a certain width [B] and length [L] of the DESIGNBOARD element. The distance between the centres of the KDPF profiles is to be no more than 500 mm. In figure 68 you will find the references.

Figure 68:

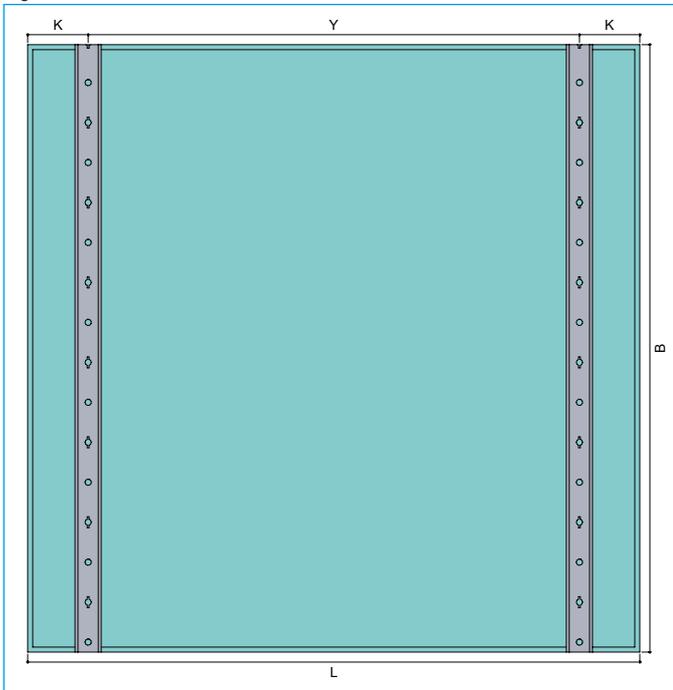


Figure 69:

DESIGNBOARD dimensions in mm		KDPF profile	K
Width [B]:	Length: [L]	Items	mm
112 - 608	608	2	60
	1250	4	
	1500	4	
	2500	6	
	3100	7	

### Data for planning

#### Joint planning

The DESIGNBOARD FIX ceiling can be configured with various joint gaps. Possibilities include on the one hand the zero gap and on the other the shadow gap, which is available in a choice of 5 mm and 10 mm dimensions. To close the shadow gaps, a tongue-in-groove joint is used, either a KDBF insulating joint or a tongue made of gypsum fibreboard.

#### Zero-joint version (butt jointed)

A zero gap forms a press-together butt joint from one DESIGNBOARD to the next. In this case it is possible to create a pattern with no breaks. See figures 70 and 71.

Figure 70:

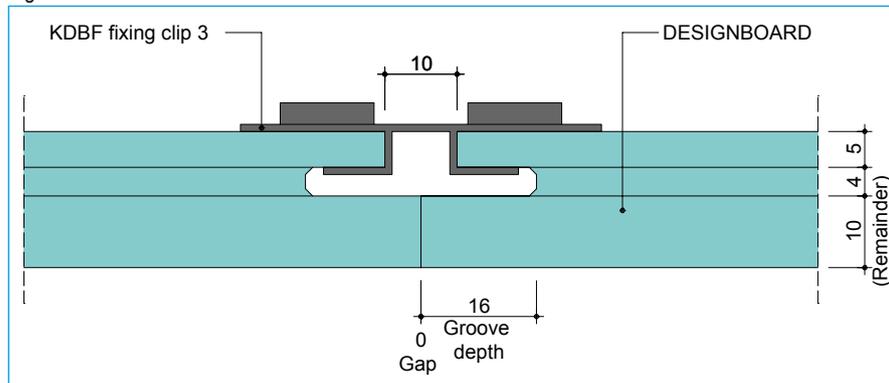
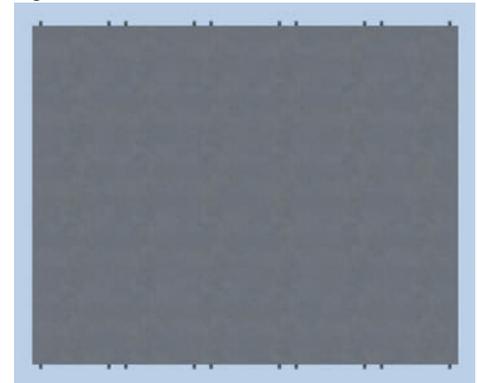


Figure 71:



#### Shadow gap version, 5 mm

A shadow gap is chosen to create design highlights and to conceal any tolerance variations. See figures 72 and 73.

Figure 72:

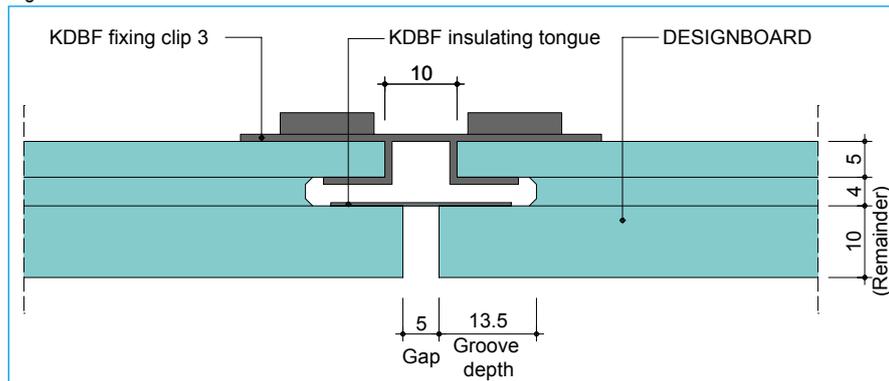
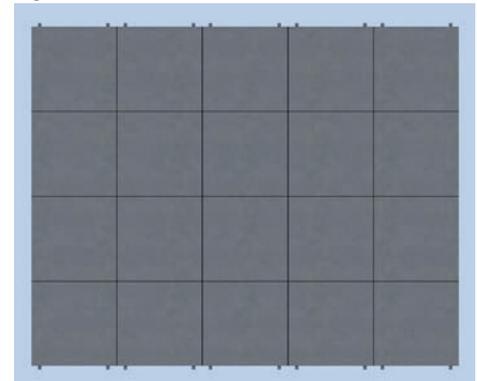


Figure 73:



#### Shadow gap version, 10 mm

A shadow gap is chosen to create design highlights and to conceal any tolerance variations. See figures 74 and 75.

Figure 74:

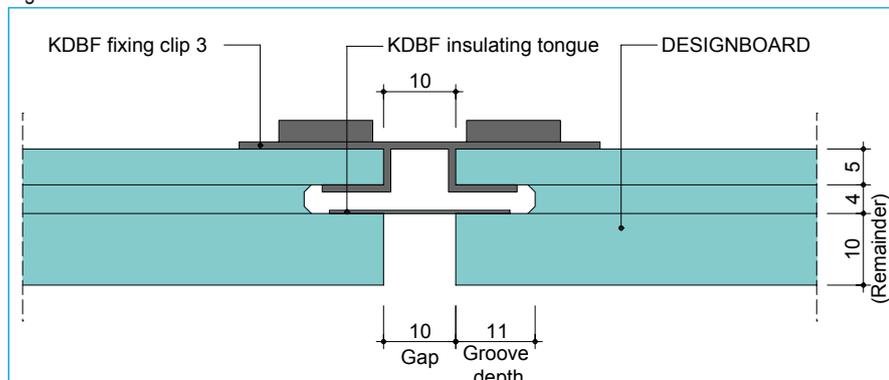
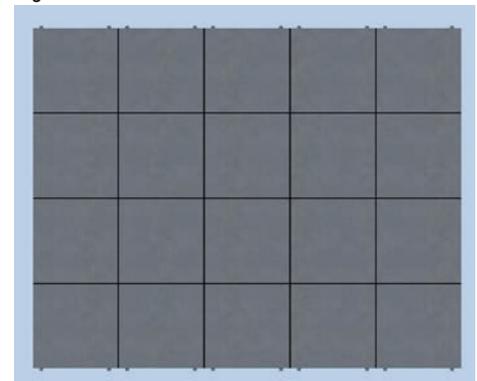


Figure 75:



### Components and panelling

When assembling the components and fitting the DESIGNBOARD 230 elements onto the KDPF profiles, it should be mentioned that the ceiling can also be panelled from right to left and not only as shown in the following description. The DESIGNBOARD can be suspended without tools.

Before the KNAUF metal grid is installed, the DESIGNBOARD alignment must be known. However, as our KDPF profile runs at 90° to the length of the DESIGNBOARD, the carrying channel CD 60/27/06 above it must be aligned and installed in line with the length.

After the metal grid of the KNAUF panel ceiling system D11.de has been installed (Figure 64), our KDPF profiles can be coupled to DESIGNBOARD FIX ceiling, as shown in figures 65 and 76. For that purpose, the KDBF ceiling clip component is clipped onto the 18 mm KDPF profiles and pushed in the direction of the CD 60/27/06 sheet metal profile. As soon as this sits in place (Figure 77, left), the flexible end of the ceiling clip can be bent over (Figure 77, right). This marks the end of the attachment procedure. The spacing of the KDPF profiles which must be complied with can be found in the "Profile arrangement" section.

Alternatively, the 18 mm KDPF profile can also be screwed onto the CD 60/27/06 sheet metal profile with Knauf self-tapping screws, LN 3.5 x 11 mm. One screw is adequate for attachment at the intersection between the KDPF profile and the CD 60/27/06 sheet metal profile.

Figure 76:

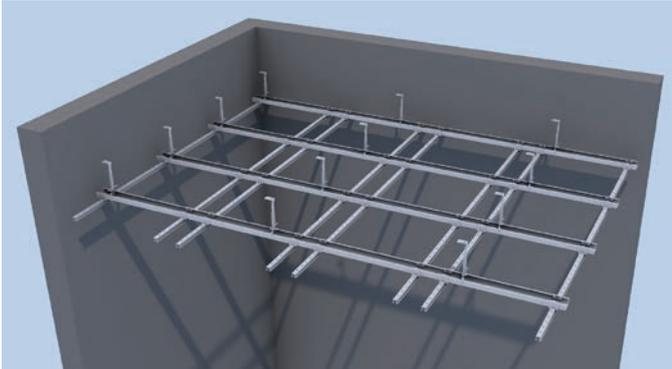
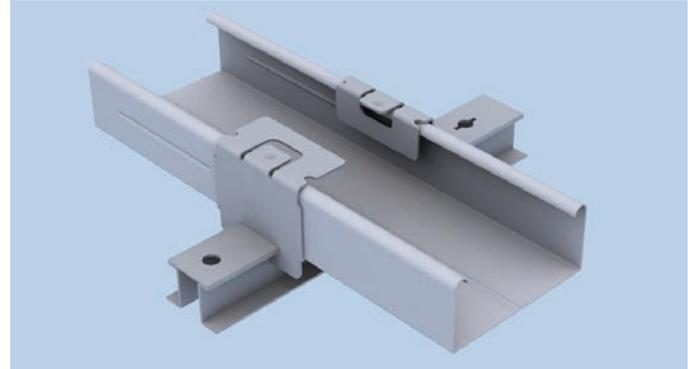


Figure 77:



In the next step, a KDBF fixing clip 2 is fitted at the start of each KDPF profile. The minimum distance [W] from the wall is to be maintained. These fixing clips form a single line. A hand riveter can also be used to fix these in place. Next, the KDBF fixing clips 3 are provisionally fitted to the same KDPF profiles. Ensure that the distance [P] > 608 mm (Figure 79). This procedure is repeated until all the necessary KDBF fixing clips 3 components have been fitted. The KDBF fixing clip 2 which will later fix the DESIGNBOARD elements to the wall is again fitted at the other end of the KDPF profiles on the opposite side of the wall. Figure 78 illustrates the ceiling and its components. The spacings [W] 10 mm and [P] > 608 mm are shown in figure 79. Figure 80 serves as a brief guide on how to mount the KDBF fixing clips (KDBF fixing clip 3 has been used as an example in figure 80).

Figure 78:

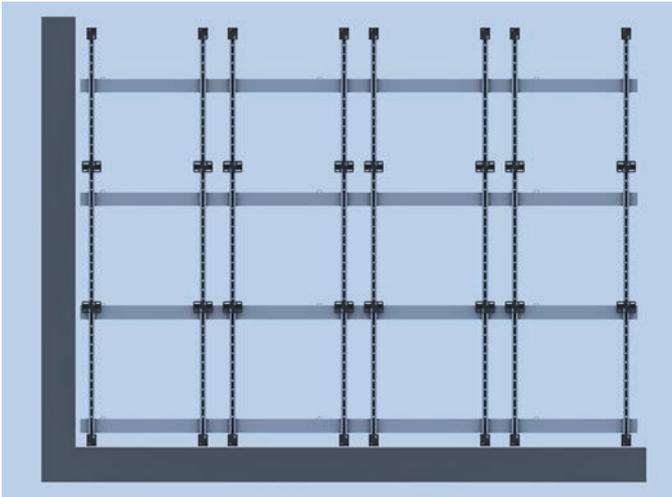


Figure 79:

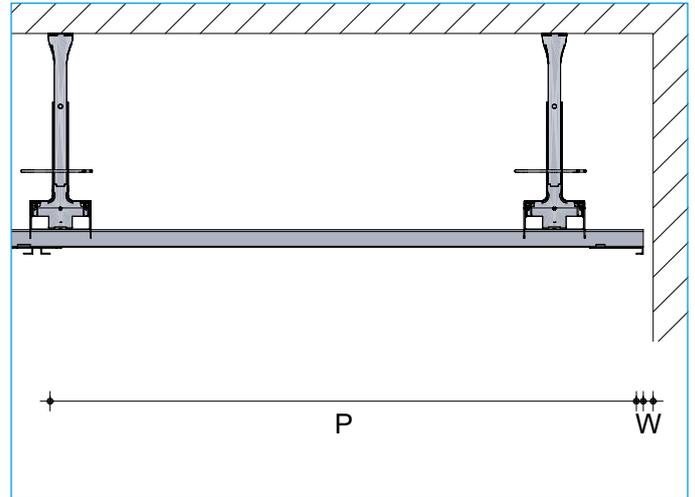
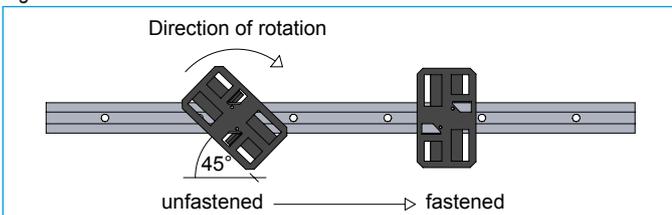


Figure 80:

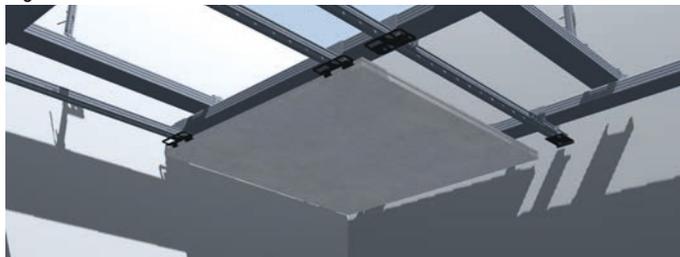


## 2. DESIGNBOARD FIX Ceiling

### Assembly

Next, the DESIGNBOARD 230 elements can be suspended. The first element is pressed against the KDPF profiles between the KDBF fixing clip 2 and 3 components, and then slowly moved in the direction of the KDBF fixing clip 2 components and brought together according to the tongue-and-groove principle. Then the DESIGNBOARD is fixed in place with the adjacent KDBF fixing clip 3 components. Fixing takes place by sliding the KDBF fixing clips 3 along the KDPF profiles in the direction of the DESIGNBOARD and once again bringing them together according to the tongue-and-groove principle. This procedure is repeated with all the other DESIGNBOARD elements and available KDBF fixing clips. Figure 81 illustrates this.

Figure 81:



#### Note

The order in which the panelling is carried out is left to the installer. As the KDPF profiles are aligned at 90° to the length of the DESIGNBOARD element, we recommend applying the panels row by row (i.e. in the direction of the length of the DESIGNBOARD).

If a shadow gap is planned, the appropriate KDBF fixing clips are slotted onto the tongues of the front of the DESIGNBOARD before the next DESIGNBOARD element is fitted. These fixing clips are not attached to a KDPF profile and serve as spacers. The minimum distance from the KDBF fixing clip to the edge of the DESIGNBOARD is [K] (see figure 82).

Figure 82:



Before the next DESIGNBOARD element is suspended, the separate tongue or the KDBF insulating tongue is to be inserted (Figure 83). The KDBF insulating tongue can also be inserted after the shadow gap has been created.

Figure 83:

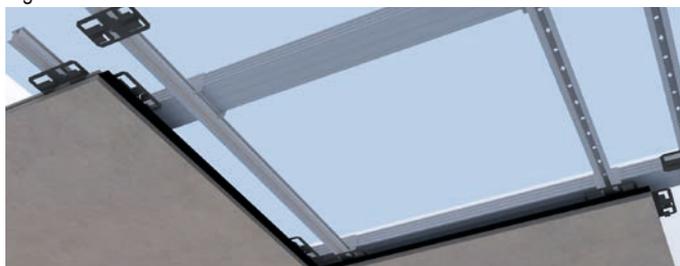
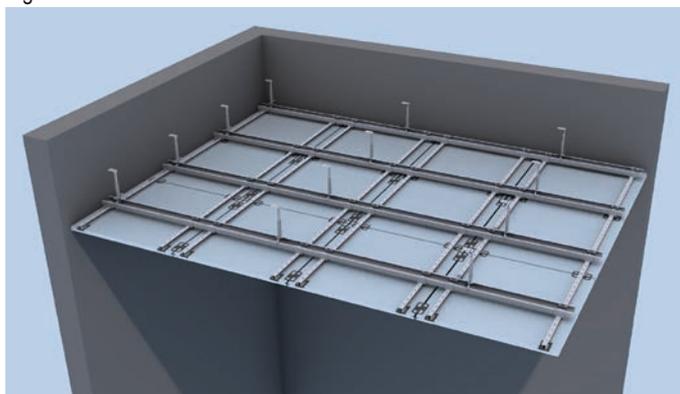


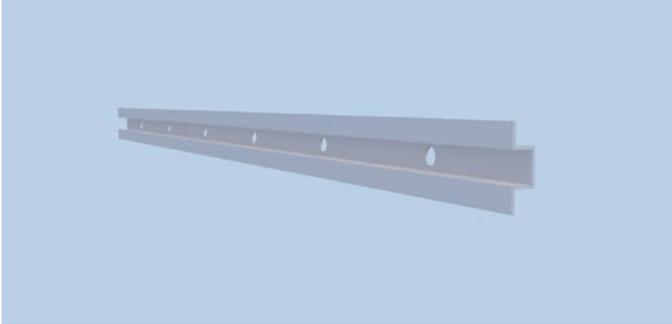
Figure 84 shows a fully assembled DESIGNBOARD FIX ceiling, with the metal grid from Knaufl.

Figure 84:



**KDPF profile 8 mm**

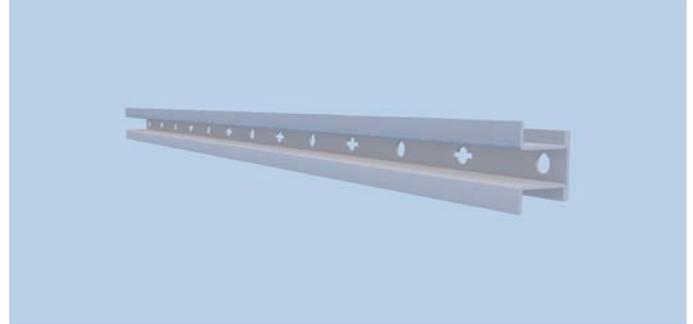
Figure 85:



Item number:	540798
L x W x H:	2500 mm x 26 mm x 8 mm
Code designation in the documentation	[S1]

**KDPF profile 18 mm**

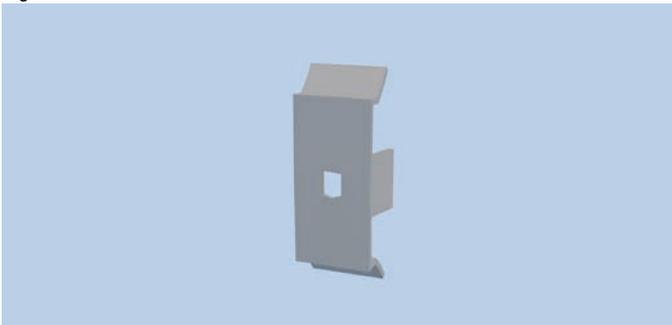
Figure 86:



Item number:	540796
L x W x H:	2500 mm x 26 mm x 18 mm
Code designation in the documentation	[S2]

**KDBF AER clip**

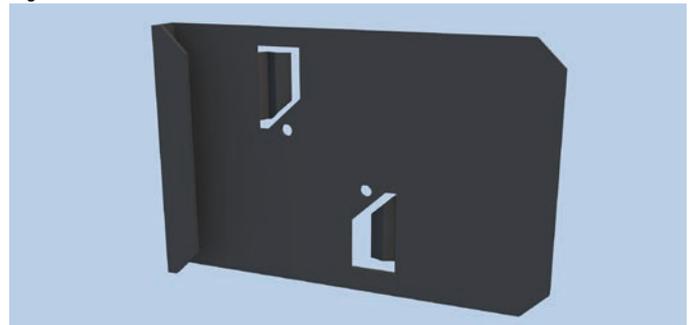
Figure 87:



Item number:	342893
Format:	29 mm x 14 mm

**KDBF fixing clip 1**

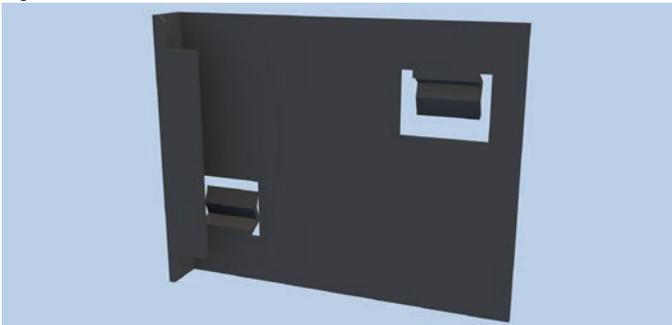
Figure 88:



Item number:	342891
Format:	71 mm x 50 mm
Groove lip:	5 mm
Groove depth:	6 mm

**KDBF fixing clip 2**

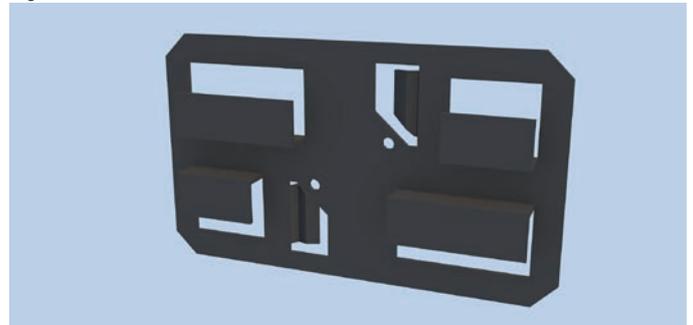
Figure 89:



Item number:	342892
Format:	54 mm x 43.5 mm
Groove lip:	5 mm
Groove depth:	6 mm

**KDBF fixing clip 3**

Figure 90:

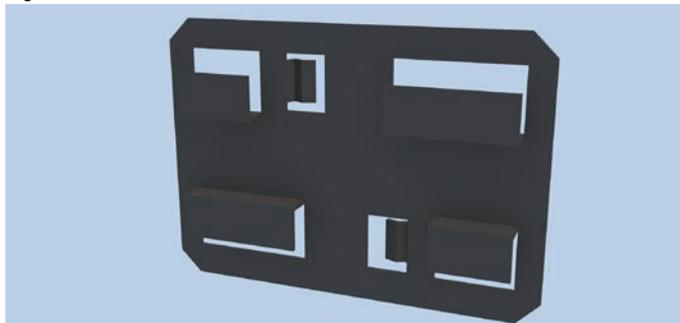


Item number:	583733
Format:	85 mm x 50 mm
Joint gap:	10 mm
Groove lip:	~ 5 mm
Groove depth:	8.5 mm

## Components

### KDBF fixing clip 4

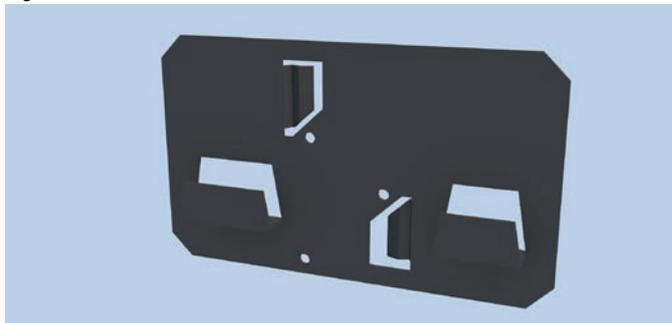
Figure 91:



Item number:	342889
Format:	85 mm x 60 mm
Joint gap:	20 mm
Groove lip:	~ 5 mm
Groove depth:	9 mm

### KDBF fixing clip 5

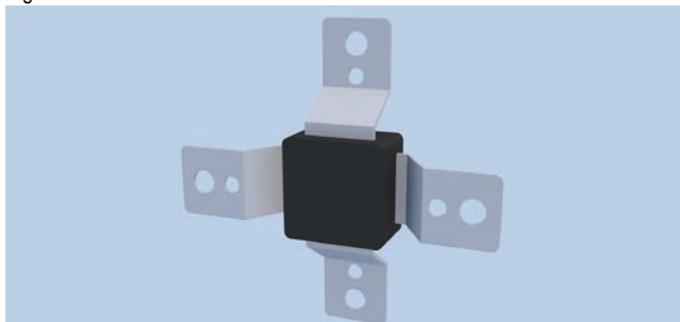
Figure 92:



Item number:	342890
Format:	85 mm x 50 mm
Groove lip:	5 mm
Groove depth:	7.7 mm
Side protrusion:	11.7 mm

### KDBF wall decoupling

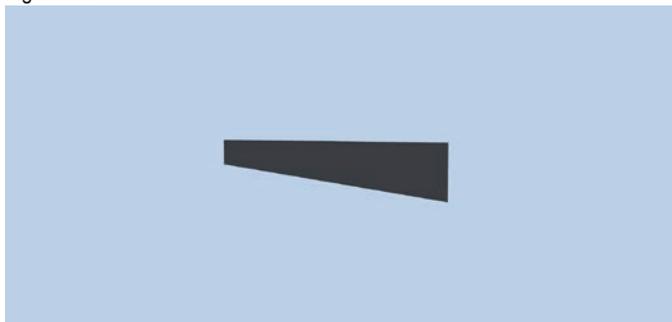
Figure 93:



Item number:	342894
L x W x H:	91 mm x 91 mm x 21 mm

### KDBF insulating tongue

Figure 94:



Item number:	587787
Format:	25 mm x 0.45 mm

### KDBF ceiling clip

Figure 95:



Item number:	589011
L x W x H:	43 mm x 22 mm x 37 mm

<b>Note</b>	<ul style="list-style-type: none"> <li>■ KDBF fixing clip 3 (see figure 90) is suitable for shadow gaps from 0 mm to 10 mm. This type of joint is A2-s1, d0 compliant in this configuration.</li> </ul>
	<ul style="list-style-type: none"> <li>■ <b>plus</b> The KDBF fixing clip 4 (see figure 91) is suitable for shadow gaps from 11 mm to 20 mm.</li> </ul>

### Material requirements, wall

Material requirements per m<sup>2</sup> of panelled wall area

Wall structure	Joint planning	Zero gap (0 mm)		Shadow gap 5 mm		Shadow gap 10 mm	
	Profile arrangement	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical
<b>Components</b>	<b>Unit</b>						
Number of DESIGNBOARD elements	items	1.32	1.32	1.32	1.32	1.32	1.32
KDPF profile 8 mm / 18 mm	rm	2.47	2.78	2.50	2.81	2.52	2.84
KDBF AER clip	items	8.06	8.22	8.06	8.22	8.06	8.22
KDBF fixing clip 1	items	4.03	4.11	4.03	4.11	4.03	4.11
KDBF fixing clip 2	items	0.49	0.99	0.49	0.99	0.49	0.99
KDBF fixing clip 3	items	3.70	2.96	5.02	5.26	5.02	5.26
Alternatively							
KDBF fixing clip 4	items	-	-	-	-	-	-
KDBF fixing clip 5	items	-	-	-	-	-	-
KDBF insulating tongue	rm	-	-	1.95	1.94	1.96	1.95
Tongue-in-groove	rm	1.94	1.94	1.95	1.94	1.96	1.95
Special configuration <sup>1)</sup>							
KDBF wall decoupling	items	-	-	-	-	-	-
KDBF AER clip (for inspection aperture, wall end, end profile)	items	-	-	-	-	-	-
protect profile (end profile)	rm	-	-	-	-	-	-

1) The requirements can be found in the Special Configurations section

The quantities relate to a panelled wall area of approx. 25 m<sup>2</sup> with a height of 2.5 m and a length of 10 m. The DESIGNBOARD dimensions are 1.25 m long and 0.608 m wide.

#### Note

We will gladly calculate the material consumption for you individually, as depending on the dimensions, configuration and alignment of the DESIGNBOARD elements, it may differ from the tables shown here. The tables shown here provide an approximate estimate for a certain panel dimension over a certain area.

## Material requirements

### Material requirements, ceiling

Material requirements per m<sup>2</sup> of panelled ceiling area

Wall structure	Joint planning	Zero gap (0 mm)	Shadow gap 5 mm	Shadow gap 10 mm
	Profile arrangement	Vertical	Vertical	Vertical
<b>Components</b>	<b>Unit</b>			
Number of DESIGNBOARD elements	items	2.70	2.70	2.70
KDPF profile 18 mm	rm	3.38	3.43	3.47
KDBF fixing clip 2	items	2.70	2.70	2.70
KDBF fixing clip 3	items	4.06	9.13	9.13
KDBF ceiling clip	items	16.23	16.23	16.23
Alternatively				
KDBF fixing clip 4	items	-	-	-
KDBF fixing clip 5	items	-	-	-
KDBF insulating tongue	rm	-	2.80	2.81
Tongue-in-groove	rm	2.78	2.80	2.81
Special configuration <sup>1)</sup>				
KDPF profile, 18 mm (for inspection aperture)	rm	-	-	-

1) The requirements can be found in the Special Configurations section.

The quantities relate to a panelled ceiling area of approx. 24 m<sup>2</sup> with a height of 2.4 m and a length of 10 m. The DESIGNBOARD dimensions are 0.608 m long and 0.608 m wide.

<b>Note</b>	We will gladly calculate the material consumption for you individually, as depending on the dimensions, configuration and alignment of the DESIGNBOARD elements, it may differ from the tables shown here. The tables shown here provide an approximate estimate for a certain panel dimension over a certain area.
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