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Drywall Systems

SL03.de

Technical Information 2023-07



# Knauf Ceiling Aprons

Load transferring connection in the plenum in drywalling constructions for partitions

## General

Parts that are described as ceiling aprons generally have a load transferring function.

Generally, partition systems or floor-to-ceiling glazing are connected as a post and beam construction there.

In case of suspended ceilings, connection to above may be required to bear possible loads in acc. to DIN 4103-1.

The loads that arise are mostly horizontal loads and are transferred into the supporting substrate (e.g. solid ceilings) via the ceiling apron.

Knauf ceiling aprons are generally designed for heights up to  $h = 1.50$  m. They are anchored and suspended from the primary construction of the building and do not require diagonal bracing.

## Proofs of Usability

AbP P-1102/046/19-MPA BS

## Construction types

Knauf offers cost-effective solutions for the loads that arise and the geometrical requirements. Tables 2 and 3 include the construction types suitable for loads and cantilever loads according to DIN 4103-1 for installation zones 1 and 2, or for wind equivalent loads.

## Construction types acc. to profile type

Type	Grid
I	Knauf profile UA 75 with fastening kit for UA 75
II	Knauf profile UA 100 with fastening kit for UA 100

Table 1 Construction types

### Range of construction types depending on load and geometry

#### Choice of construction types for ceiling aprons up to 1500 mm height

Load or load combination	Axial spacing fixing kit mm	Recommended construction types							
		Wall height of the wall to be connected to the ceiling apron grid in m							
		3.00	3.50	4.00	4.50	5.00	5.50	6.00	
<b>Ceiling apron height 500 mm</b>									
Installation zone 1 and 2 and cantilever loads	312.5	I, II	I, II	I, II	I, II	I, II	I, II	I, II	I, II
	417	I, II	I, II	I, II	I, II	I, II	I, II	I, II	I, II
	625	I, II	I, II	I, II	I, II	I, II	I, II	I, II	I, II
Wind equivalent load (0.285 kN/m <sup>2</sup> )	312.5	I, II	I, II	I, II	I, II	I, II	I, II	I, II	I, II
	417	I, II	I, II	I, II	I, II	I, II	I, II	I, II	I, II
	625	I, II	I, II	I, II	I, II	I, II	I, II	I, II	I, II
<b>Ceiling apron height 750 mm</b>									
Installation zone 1 + 2 and cantilever loads	312.5	I, II	I, II	I, II	I, II	I, II	I, II	I, II	I, II
	417	I, II	I, II	I, II	I, II	I, II	I, II	I, II	I, II
	625	I, II	I, II	I, II	I, II	I, II	I, II	I, II	I, II
Wind equivalent load (0.285 kN/m <sup>2</sup> )	312.5	I, II	I, II	I, II	I, II	I, II	I, II	I, II	I, II
	417	I, II	I, II	I, II	I, II	I, II	I, II	I, II	I, II
	625	I, II	I, II	I, II	II	II	II	II	II
<b>Ceiling apron height 1000 mm</b>									
Installation zone 1 + 2 and cantilever loads	312.5	I, II	I, II	I, II	I, II	I, II	I, II	I, II	I, II
	417	I, II	I, II	I, II	I, II	I, II	I, II	I, II	I, II
	625	I, II	I, II	I, II	I, II	I, II	I, II	I, II	I, II
Wind equivalent load (0.285 kN/m <sup>2</sup> )	312.5	I, II	I, II	I, II	I, II	I, II	I, II	I, II	I, II
	417	I, II	I, II	I, II	I, II	I, II	I, II	I, II	II
	625	I, II	I, II	II	II	II	II	II	II
<b>Ceiling apron height 1250 mm</b>									
Installation zone 1 and 2 and cantilever loads	312.5	I, II	I, II	I, II	I, II	I, II	I, II	I, II	I, II
	417	I, II	I, II	I, II	I, II	I, II	I, II	I, II	I, II
	625	I, II	I, II	I, II	I, II	I, II	I, II	I, II	I, II
Wind equivalent load (0.285 kN/m <sup>2</sup> )	312.5	I, II	I, II	I, II	I, II	I, II	I, II	I, II	I, II
	417	I, II	I, II	I, II	I, II	II	II	II	II
	625	II	II	II	-	-	-	-	-
<b>Ceiling apron height 1500 mm</b>									
Installation zone 1 and 2 and cantilever loads	312.5	I, II	I, II	I, II	I, II	I, II	I, II	I, II	I, II
	417	I, II	I, II	I, II	I, II	I, II	I, II	I, II	I, II
	625	II	II	I, II	I, II	I, II	I, II	I, II	I, II
Wind equivalent load (0.285 kN/m <sup>2</sup> )	312.5	I, II	I, II	I, II	I, II	I, II	II	II	II
	417	I, II	I, II	II	II	II	II	II	II
	625	II	II	II	-	-	-	-	-

Table 2 Ceiling aprons up to 1500 mm height

#### Door installation in wall to be connected in case of ceiling aprons up to 1500 mm height

For the specified values in table 2 a maximum door leaf weight of 100 kg and 1.01 x 2.01 m (w x h) dimensions must be considered.

#### Choice of construction types for ceiling aprons with enhanced spacing fixing kit

Load or load combination	Axial spacing fixing kit mm	Recommended construction types							
		Wall height of the wall to be connected to the ceiling apron grid in m							
		3.00	3.50	4.00	4.50	5.00	5.50	6.00	
<b>Ceiling apron height 300 mm</b>									
Installation zone 1 and 2 and cantilever loads or wind equivalent load (0.285 kN/m <sup>2</sup> )	1000	I, II	I, II	I, II	I, II	I, II	I, II	I, II	I, II
	1250	I, II	I, II	I, II	I, II	I, II	I, II	I, II	I, II
	1500	I, II	I, II	I, II	I, II	I, II	I, II	II	II
	1750	I, II	I, II	I, II	I, II	II	II	II	II
	2000	I, II	I, II	I, II	II	II	II	II	II
	2250	I, II	I, II	II	II	II	II	II	II
	2500	I, II	II	II	II	II	II	II	II
2750	II	II	II	II	II	II	II	II	
3000	II	II	II	II	II	II	II	II	
<b>Ceiling apron height 500 mm</b>									
Installation zone 1 and 2 and cantilever loads or wind equivalent load (0.285 kN/m <sup>2</sup> )	1000	I, II	I, II	I, II	I, II	I, II	II	II	II
	1250	I, II	I, II	II	II	II	II	II	-
	1500	I, II	II	II	II	-	-	-	-
	1750	II	II	-	-	-	-	-	-
	2000	II	-	-	-	-	-	-	-
	2250	-	-	-	-	-	-	-	-
	2500	-	-	-	-	-	-	-	-
2750	-	-	-	-	-	-	-	-	
3000	-	-	-	-	-	-	-	-	

Table 3 Ceiling aprons with enhanced spacing fixing kit

#### Door installation in wall to be connected in case of ceiling aprons with enhanced spacings fixing kit

For the specified values in table 3, a maximum door leaf weight per door of 50 kg must be considered.

Dimensions apply for door leaf weights of 50 kg to 100 kg and 1.01 x 2.01 m (w x h):

- Installation permissible with construction type I, II
- Installation only permissible with construction type II
- No installation permissible

**Note** The specified values apply **without** additional vertical loads from suspended ceiling. Values **with** additional vertical loads from suspended ceiling on request.

### Application example ceiling aprons with enhanced spacing fixing kit

#### Example:

- Ceiling apron height = 450 mm
- Height of the wall to be connected = 3.90 m
- Penetration opening under basic ceiling w x h = 1300 x 150 mm

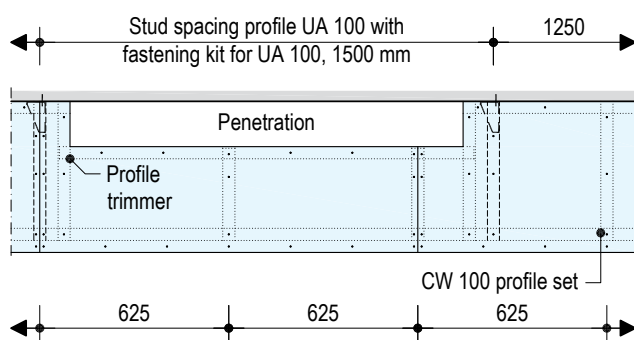
#### Read off value:

- Ceiling apron height 450 mm =  
**Read off line ceiling apron height 500 mm**
- Wall height of connection wall 3.90 m =  
**Read off column 4.00 m**
- Penetration opening w x h 1300 x 150 mm =  
**Read off line 1500 mm**
- Required construction type  
**Construction type II** (Profile UA 100 with fastening kit for UA 100)

Load or load combination	Axial spacing fixing kit mm	Recommended construction types							
		Wall height of the wall to be connected to the ceiling apron grid in m							
		3.00	3.50	4.00	4.50	5.00	5.50	6.00	
<b>Ceiling apron height 500 mm</b>									
Installation zone 1 and 2 and cantilever loads	1000	I, II	I, II	I, II	I, II	I, II	II	II	
or wind equivalent load (0.285 kN/m <sup>2</sup> )	1250	I, II	I, II	II	II	II	II	II	-
	1500	I, II	II	II	II	-	-	-	-
	1750	II	II	-	-	-	-	-	-
	2000	II	-	-	-	-	-	-	-

### Application example design

Scheme drawings I Dimensions in mm



### Design

Align UW runners on the ceiling. Equalize unevenness in the substrate. The connection must be fully established.

#### Version with UA 75 profile

The fastening kit for UA 75 consists of 1 support base, 2 bolt anchors M10, 2 screws M8 x 16, 2 washers, 2 hexagonal nuts and 2 bolt screws.

Anchor the support base with bolt anchors M10 in supporting substrate at axial spacing according to table 2 or 3. (To simplify marking of the bore holes on the ceiling, the UA profiles can be initially screw fixed to the support base). Screw fasten support base with UA 75 profile via the oblong hole of the lap using two adjacent screws M8 x 16 with washers and nuts.

Subsequently screw fasten the profile UA 75 to the sides of the angled section of the support base each with Ø 5.5 mm bolt screw.

The ceiling apron is connected to the overhanging end with a UW double profile and reinforced by an inserted UA profile. The UA profile serves as a frictional bonding connection option for the constructional component to be connected.

Alternatively, the lower connection can be established by the Knauf UW runner with long arm (75/70/0,7) and a UA 75. This variant eliminates the need for fastening of a further UW runner. Ensure that the lap of the UA profile is not aligned downwards.

When using the enhanced spacings fixing kit in the connection, set the CW 75 profiles at an axial spacing of ≤ 625 mm.

#### Version with UA 100 profile

The fastening kit for UA 100 consists of 2 angle brackets, 2 U-pieces, 4 bolt anchors M8, 4 screws M8 x 25, 4 washers, 4 hexagonal nuts and 4 bolt screws.

Anchor the angle bracket and U-piece with bolt anchors M8 in supporting substrate at axial spacings according to table 2 or 3.

Screw fasten the angle bracket with UA 100 profiles in the oblong holes of the lap using two adjacent screws M8 x 25 with washers and nuts. Subsequently screw fasten the profile UA 100 to the sides of the long flange of the angle bracket each with Ø 5.5 mm bolt screws.

The ceiling apron is connected to the overhanging end with a UW double profile and reinforced by an inserted UA profile. The UA profile serves as a frictional bonding connection option for the constructional component to be connected.

Alternatively, the lower connection can be established by the Knauf UW runner with long arm (100/70/0,7) and a UA 100. This variant eliminates the need for fastening of a further UW runner. Ensure that the lap of the UA profile is not aligned downwards.

When using the enhanced spacings fixing kit in the connection, set the CW 100 profiles at an axial spacing of ≤ 625 mm.

#### Cladding

Cladding on both sides with 12.5 mm Diamant boards. The cladding screw fastening in the studs is undertaken using Diamant screws with ≤ 250 mm spacing. Pay attention to the metal gauge of the profiles with the circumferential screw fastening and select suitable screws (XTN or XTB). Cut-out the cladding in the area of the screw head of the drilling screw.

Alternative cladding possible with 2x 12.5 mm Diamant boards.

Fastener spacer: lower layer ≤ 750 mm / upper layer ≤ 250 mm.

Fill the joints correctly and use an edge profile if required. Also fill cut-outs and screw heads.

#### Notes

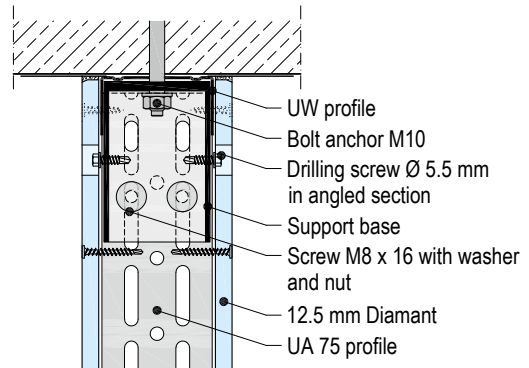
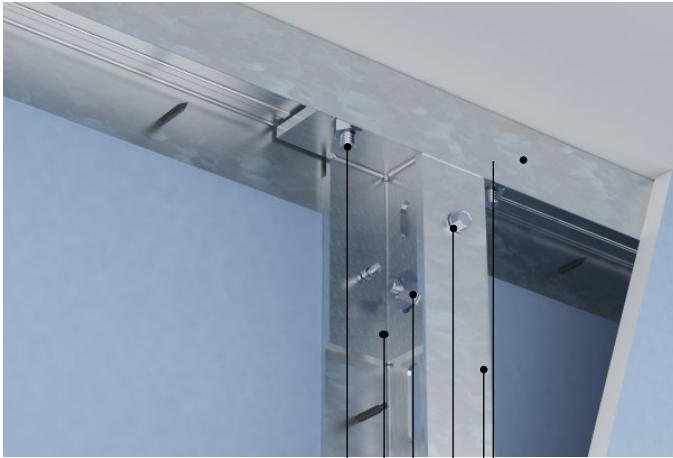
Movement joints of the main structure should be integrated into the construction of the ceiling aprons. Movement joints are to be installed about every 15 m on continuous ceiling aprons. Application options on request.

For further information on planning and design see [Installation Instructions Ceiling Aprons / Balustrades SL08-A01.de](#)

### Construction type I – Knauf profile UA 75 Connection to ceiling

### W176.de VO2 Connection to ceiling

Scale 1:5



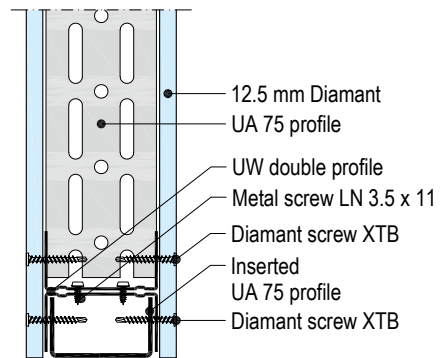
- Bolt anchor M10
- Support base
- UW runner Profile UA 75
- Drilling screw Ø 5,5 mm in angled section
- Screw M8 x 16 with washer and nut

**Note** Cut-out the cladding in the area of the screw head of the drilling screw.

### Overhanging end

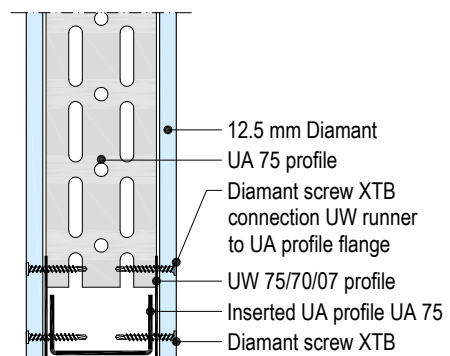
### W176.de-VU2 Overhanging end

Scale 1:5



- Inserted UA profile
- UW double profile
- Metal screw LN 3.5 x 11
- Connection of upper UW runner with UA flange
- Connection between inserted UA profile and lower UW runner via screw fastening of cladding

### W176.de-VU4 Overhanging end



- 12.5 mm Diamant
- UA 75 profile
- Diamant screw XTB connection UW runner to UA profile flange
- UW 75/70/07 profile
- Inserted UA profile UA 75
- Diamant screw XTB

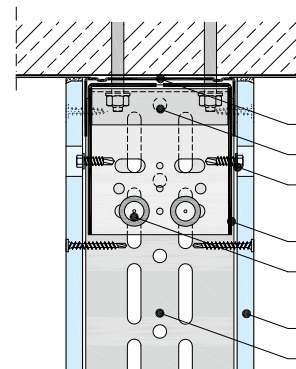
#### Construction type II – Knauf profile UA 100 Ceiling connection

#### W176.de VO1 Connection to ceiling

Scale 1:5



- U-piece
- Angle bracket
- Bolt anchor M8
- UW runner
- Profile UA 100
- Drilling screw Ø 5.5 mm in angle bracket flange
- Screw M8 x 25 with washer and nut



- UW runner
- U-piece
- Drilling screw Ø 5.5 mm in angle bracket flange
- Angle bracket
- Screw M8 x 25 with washer and nut
- 12.5 mm Diamant
- Profile UA 100

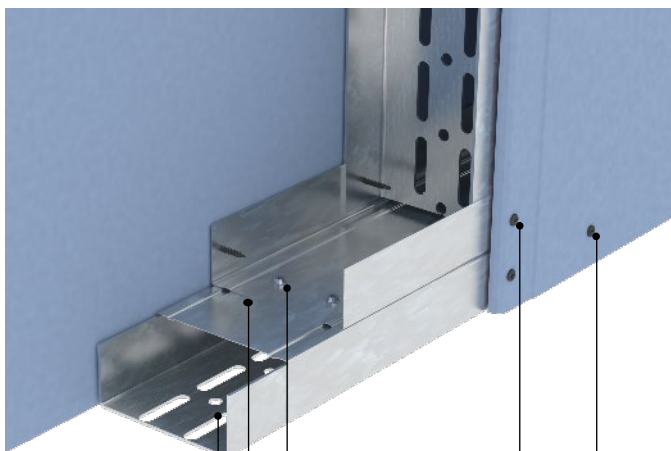
**Note**

Cut-out the cladding in the area of the screw head of the drilling screw.

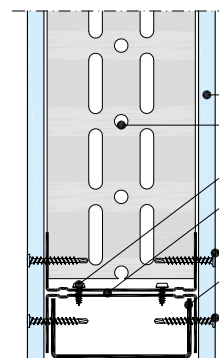
#### Overhanging end

#### W176.de-VU1 Overhanging end

Scale 1:5

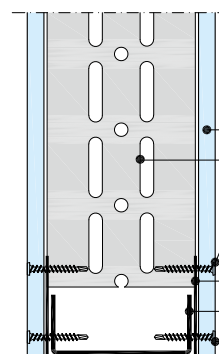


- Inserted UA profile
- UW double profile
- Metal screw LN 3.5 x 11
- Connection of upper UW runner with UA flange
- Connection between inserted UA profile and lower UW runner via screw fastening of cladding



- 12.5 mm Diamant
- UA 100 profile
- Metal screw LN 3.5 x 11
- UW double profile
- Diamant screw XTB
- Inserted profile UA 100
- Diamant screw XTB

#### W176.de-VU3 Overhanging end



- 12.5 mm Diamant
- UA 100 profile
- Diamant screw XTB connection UW runner to UA profile flange
- UW 100/70/07 profile
- Inserted profile UA 100
- Diamant screw XTB



Videos for Knauf systems and products can be found under the following link:

[youtube.com/knauf](https://youtube.com/knauf)



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