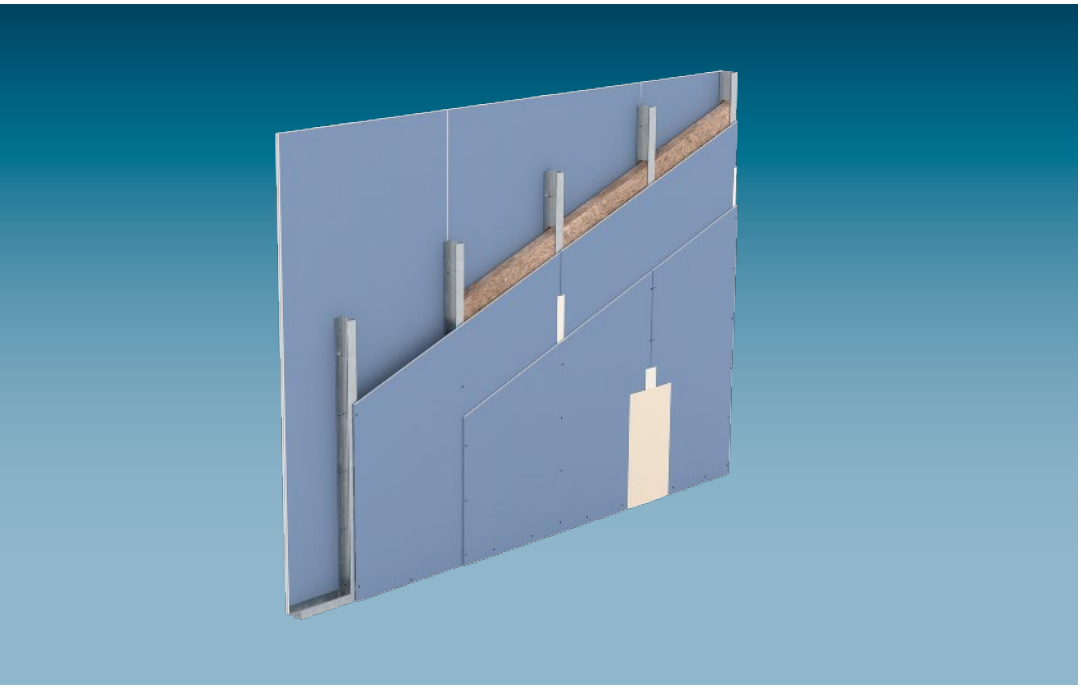


Drywall Systems

W11.de

System Data Sheet 2024-01

Knauf Metal Stud Partitions

W111.de – Knauf Metal stud partition – Single metal stud frame, single-layer cladding
W112.de – Knauf Metal stud partition – Single metal stud frame, double-layer cladding
W113.de – Knauf Metal stud partition – Single metal stud frame, triple-layer cladding
W115.de – Knauf Metal stud partition – Decoupled double metal stud partition
W115V.de – Knauf Metal stud partition – Double frame with interior cladding
W116.de – Knauf Metal stud partition – Linked double frame

Note on English translation / Hinweise zur englischen Fassung

This is a translation of the System Data Sheet valid in Germany.
All stated details and properties are in compliance with the regulations of the German standards and building regulations. They are only applicable for the specified products, system components, application rules, and construction details in connection with the specifications of the respective certificates and approvals.
Knauf Gips KG denies any liability for applications outside of Germany as this requires changes acc. to the respective national standards and building regulations.

Dies ist eine Übersetzung des in Deutschland gültigen Detailblattes. Alle angegebenen Werte und Eigenschaften entsprechen den in Deutschland gültigen Normen und bauaufsichtlichen Regelungen. Sie gelten nur bei Verwendung der angegebenen Produkte, Systemkomponenten, Anwendungsregeln und Konstruktionsdetails in Verbindung mit den Vorgaben der bauaufsichtlichen Nachweise.
Die Knauf Gips KG lehnt jegliche Haftung für Einsatz und Anwendung außerhalb Deutschlands ab, da in diesem Fall eine Anpassung an nationale Normen und bauaufsichtliche Regelungen notwendig ist.

Contents

Notes on the document

Knauf system data sheets are the planning and application basis for the planners and professional installers with the application of Knauf systems. The contained information and specifications, constructions, details and stated products are based, unless otherwise stated, on the certificates 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 ANDI WAND W111-DIA70.de
- Knauf Burglar-Retardant Partitions W11RC.de
- Knauf Metal Stud Partitions instead of Fire Walls W13.de
- Knauf Furring and Lining W61.de
- Knauf Installation Shaft Walls W62.de
- Knauf AQUAPANEL® Metal Stud Partitions W38.de
- Knauf AQUAPANEL® Furring W68.de
- Knauf Installation Shaft Walls AQUAPANEL® W69.de

Technical brochure

- Knauf Jointing Competence Tro89.de

Technical information

- Knauf Balustrades SL02.de
- Fastening of Loads to Knauf Wall and Ceiling Systems VT03.de

Folders

- Fire resistance with Knauf BS1.de (German only)
- Sound insulation and room acoustics with Knauf (only sections in English)

Product data sheets

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

Symbols in the system data sheet

The following symbols are used in this document:

Insulation layers

G Mineral wool insulation layer acc. to EN 13162
Non-combustible
(insulating material, e.g. from Knauf Insulation)

S Mineral wool insulation layer acc. to EN 13162
Non-combustible,
melting point ≥ 1000 °C acc. to DIN 4102-17
(insulating materials e.g. from Knauf Insulation)

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 notes on Knauf systems

Field of application

The specifications in this system data sheet only applies for metal stud partitions in interiors.

Coatings and linings

Ceramic coverings (e.g. tiles):

- Minimum cladding thickness 18 mm (Diamant: 15 mm), e.g. 2x 12.5 mm with stud spacing 625 mm
- With narrower cladding thickness, reduce the stud spacing to max. 500 mm (417 mm with vertical cladding) .
- Tile weights up to 25 kg/m^2 (one-sided) with a maximum surface per tile of 1800 cm^2 (e.g. 60 x 30 cm) have proven to be uncritical (compare to Code of Practice 8:2019-12 Partition heights of lightweight partitions[1)]).

1) Issued by the German Bundesverband der Gipsindustrie e. V.

Notes	After wallpapering or after application of plasters, quick drying must be ensured through adequate airing. Other coatings or layers and vapour barriers up to about 0.5 mm thickness as well as claddings (with the exception of sheet steel), do not have any influence on the technical fire resistance classification of the Knauf Metal Stud Partitions.

Notes on fire resistance

Reinforcing and supporting connection components must at least feature the same fire resistance class.

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.

Construction notes

Movement joints

Movement joints of the main structure should be integrated into the construction of the metal stud partitions. Movement joints are to be installed every 15 m on continuous metal stud partitions.

Notes on sound insulation

Requirements for the insulation layer:
Mineral wool insulation layer acc. to EN 13162
(Insulation materials, e.g. from Knauf Insulation)
Length-related flow resistance of kPa·s/m^2 ≤ r ≤ 50 kPa·s/m^2 acc. to DIN 4109-33

R_w = Weighted sound reduction index in dB without sound transmission via flanking constructional components

Note	Avoid air leaks. For deflection heads sealing with permanently elastic sealant material (recommendation: Knauf Insulation LDS Solimur) required.

Certificates of Usability

Knauf system	Fire resistance	Ball impact safety	Sound insulation Knauf sound protection proofs	Structural engineering Knauf boards	Diamant / Silentboard
W111.de	AbP P-3310/563/07-MPA BS AbP P-3202/2028-MPA BS	–	L 037-01.15 L 038-07.14 L 043-01.15 L 051-06.17	AbP P-1402/354/12-MPA BS	AbP P-1405/928/10-MPA BS
W112.de	AbP P-3310/563/07-MPA BS	904 2509 000/3/Sgm			
W113.de	AbP P-3310/563/07-MPA BS				
W115.de	AbP P-3310/563/07-MPA BS			AbP P-1403/355/12-MPA BS	AbP P-1100/490/15-MPA BS
W116.de	AbP P-3310/563/07-MPA BS			AbP P-1402/354/12-MPA BS	AbP P-1405/928/10-MPA BS
				Decoupled furring	Screw fastened furring
W115V.de	AbP P-3310/563/07-MPA BS	–	L 057-06.20	AbP P-1100-490-15-MPA BS	AbP P-1405/928/10-MPA BS

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.

Fire protection

The specifications marked with plus offer additional application options, which are not directly included in the Certificate of Usability. On the basis of our technical assessments, we assume that these marked design solutions can be assessed as a non-significant divergence. On request, we can make the documentation on which this assessment is based, such as surveyors' reports or technical assessments, available to you together with the Proof of Usability. We recommend that a non-significant divergence be coordinated and authorised in advance in consultation between the persons responsible for fire resistance and/or the relevant authorities.

plus Extension of the fire resistance Proof of Usability

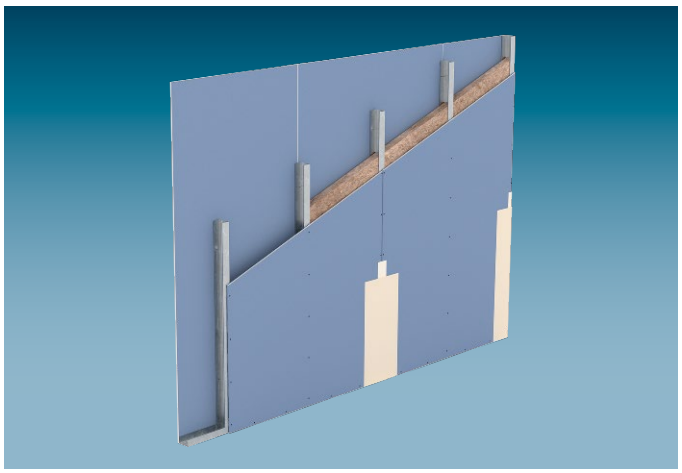
Prior consultation with respect to fire resistance notes recommended.

Knauf system	System-related deviations	System-wide divergences
W111.de	■ When applied with insulation layer G	■ In case of connections to fire resistance classified suspended ceilings ■ Power socket installation
W112.de	■ When applying the insulation layer G in conjunction with ▪ Wall height > 5.00 m ▪ Cladding with 2x 12.5 mm Knauf Bauplatten wallboards ■ With application of wall heights with CW 75 and cladding of Diamant/Silentboard/Solidboard ■ With application of F30 wall heights from CW 100 ■ With horizontal board application	
W113.de	■ When applied with insulation layer G ■ With application of wall heights with CW 50 / CW 75 and Diamant/Silentboard cladding ■ With horizontal board application	
W115.de	■ When applying the insulation layer G in conjunction with ▪ Wall height > 5.00 m ▪ Cladding with 2x 12.5 mm Knauf Bauplatten wallboards ■ With horizontal board application	
W115V.de	■ When applied with insulation layer G in conjunction with wall height > 5.00 m ■ With application of wall heights with CW 75 and Diamant/Silentboard cladding ■ With horizontal board application	
W116.de	■ When applied with insulation layer G	

Knauf metal stud partitions

Knauf metal stud partitions consist of a metal stud frame configured as a single or double frame and both sides with single-layer or multiple-layer cladding made of Knauf boards. The stud construction is connected all around to the flanking constructional components. Insulation materials can be installed in the wall cavity.

W111.de Single metal stud frame, single-layer cladding



The metal stud partition system **W111.de** consists of a single metal stud frame and is clad with a single layer of gypsum board on each side.

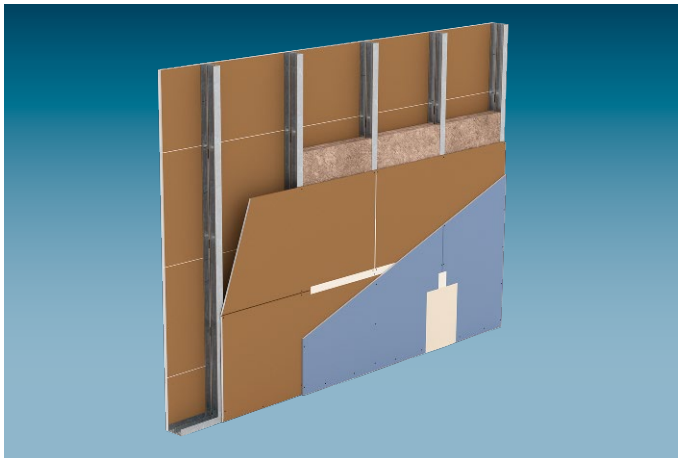
- Partition heights up to: 10.65 m
- Weighted airborne sound insulation index R_w up to: 60.9 dB
- Fire resistance class up to: F90

New

ANDI system variant with CW 70 and 15 mm Diamant cladding
Single-layer construction with:

- Ceramic tiles without reduction of the stud partition spacing
- Mechanically equivalent in comparison to 2-layer systems with standard boards.
- Conventional prefabricated wall thickness of 100 mm

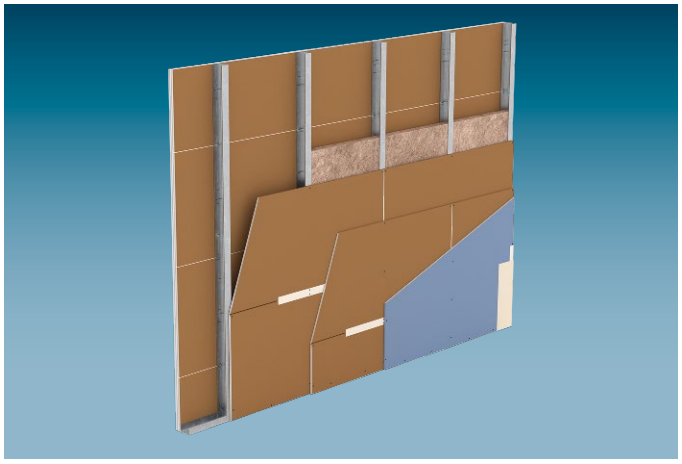
W112.de Single metal stud frame, double-layer cladding



The metal stud partition system **W112.de** consists of a single metal stud frame and is clad with two layers of gypsum board on each side.

- Partition heights up to: 12.00 m
- Weighted airborne sound insulation index R_w up to: 70.4 dB
- Fire resistance class up to: F90

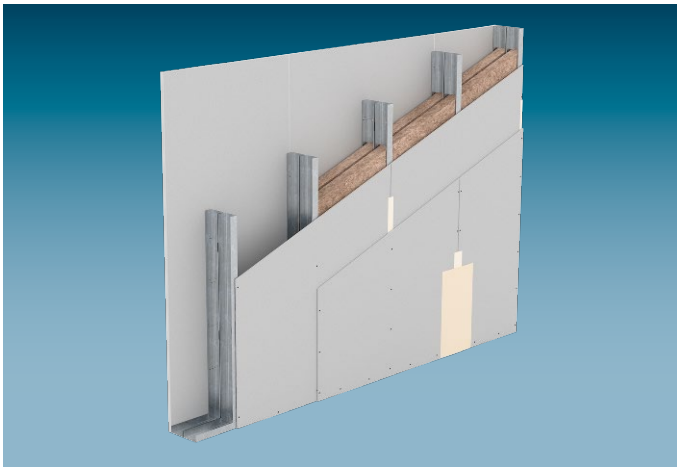
W113.de Single metal stud frame, triple-layer cladding



The metal stud partition system **W113.de** consists of a single metal stud frame and is clad with three layers of gypsum board on each side.

- Partition heights up to: 12.00 m
- Weighted airborne sound insulation index R_w up to: 71.6 dB
- Fire resistance class up to: F90

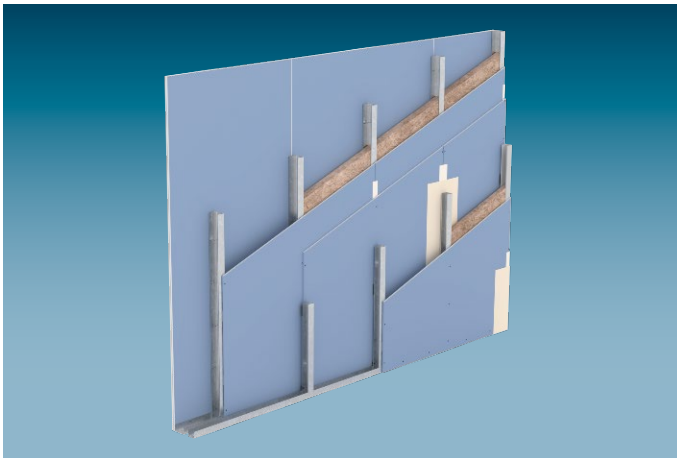
W115.de Decoupled double stud partition



The metal stud partition system **W115.de** consists of a decoupled double stud partition and is clad with two layers of gypsum board on each side.
The W115.de system is preferred for the application of party walls.

- Partition heights up to: 9.70 m
- Weighted airborne sound insulation index R_w up to: 74.4 dB
- Fire resistance class up to: F90

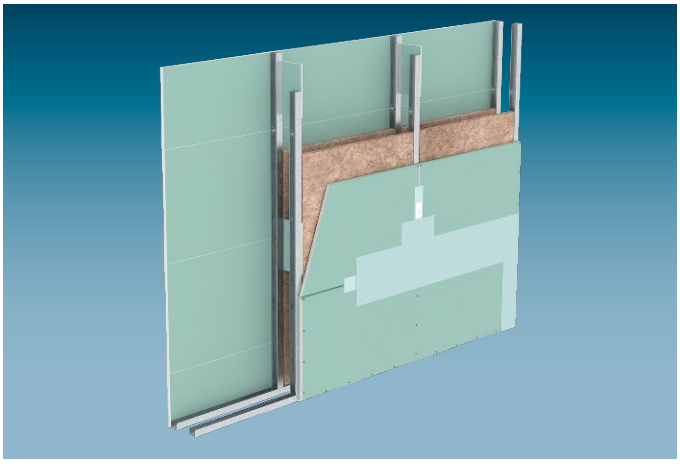
W115V.de Double metal stud frame with interior cladding



The metal stud partition system **W115V.de** consist of a basic wall with double-layer cladding and a furring, which is clad with a single or double-layer to suit the requirement.
The W115V.de system is preferred for the application of party walls.

- Partition heights up to: 7.00 m
- Weighted airborne sound insulation index R_w up to: 82.5 dB
- Fire resistance class up to: F90
- Burglar-retardant classification of resistance class (Variant with Diamant Steel GKFI): RC2
- Tested influence of electrical installations on the sound reduction index

W116.de Linked double stud partition



The metal stud partition system **W116.de** consists of a spaced and linked double stud partition and is clad with one or two layers of gypsum board on each side.
System W116.de is the preferred solution for the installation wall application.

- Partition heights up to: 8.00 m
- Weighted airborne sound insulation index R_w up to: 63.5 dB
- Fire resistance class up to: F90

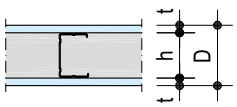
New

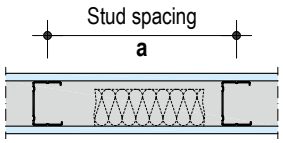
ANDI system variant with CW 70 and 15 mm Diamant cladding
Single-layer construction with:

- Ceramic tiles without reduction of the stud partition spacing
- Mechanically equivalent in comparison to double-layer systems with standard boards.

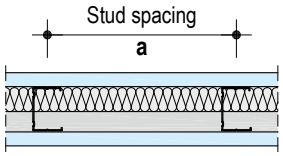
System variants

Knauf system	Fire resistance class	Cladding per wall side: Knauf Wallboard	Knauf Piano fire-resistant board	Solid Board	Diamant	Silentboard	Min. thickness t mm	Weight: Without insulation layer approx. kg/m²	Wall thickness D mm	Profiles Knauf CW Cavity h mm	Insulation layer: Required fire protection necessary: Min. thickness mm	Min. density kg/m³	Sound insulation: Insulation layer Min. thickness mm	Sound reduction index R_w dB
W111.de metal stud partition														Single metal stud frame, single-layer cladding
	–	•					**12.5**	22	75	50	–		40	44.2
									100	75			60	47.6
									125	100			80	50.0
						•	**12.5**	41	75	50	–		40	56.8
									100	75			60	59.7
									125	100			80	60.9
				•			**25**	48	100	50	–		40	50.2
									125	75			60	51.4
									150	100			80	52.8
	F30		•				**12.5**	25	75	50	None		40	45.9
									100	75			60	48.3
									125	100			80	51.2
					•		**12.5**	29	75	50	None		40	48.7
									100	75			60	51.5
									125	100			80	53.2
					•		**15**	35	100	70	None		60	52.8
	F90			•			**25**	48	100	50	Mineral wool S 40 50		40	50.2
									125	75			60	51.4
									150	100			80	52.8





NEW ANDI



With fire resistance: Backing for front edge joints with profiles provided no insulation installed.

Demands on the insulation layer (Insulation materials, e.g. from Knauf Insulation):

- Required for fire resistance: See table
- Fire resistance permissible: Mineral wool G plus
- Required for sound insulation: Mineral wool, length-related flow resistance of kPa·s/m² ≤ r ≤ 50 kPa·s/m² acc. to DIN 4109-33

With ceramic tiles:

Minimum cladding	Stud spacing
12.5 mm Knauf gypsum boards	≤ 417 mm
15 mm Diamant	≤ 625 mm
18 mm Knauf gypsum boards	≤ 625 mm

Notes

plus Extension of the fire resistance Proof of Usability see page 5.

Observe the notes on page 4.

Partition heights

Maximum permissible wall heights

Knauf Profile Metal gauge 0.6 mm	Stud spacing a mm	Knauf Bauplate wallboard / Feuerschutzplatte Knauf Piano fire-resistant board Without Fire resistance m	 With Fire resistance m	Solid Board Without Fire resistance m	 With Fire resistance m	Diamant / Silentboard Without Fire resistance m	 With Fire resistance m
CW 50	1000	–	–	2.80[1)]	2.80[1)]	–	–
	625	3.20[1)]	3.20[1)]	3.85	3.85	4.00	4.00
	417	3.85	3.85	–	–	4.00	4.00
	312.5	4.00	4.00	–	–	4.00	4.00
CW 70	625	–	–	–	–	4.65[2)]	4.65[2)]
	417	–	–	–	–	5.30[2)]	5.00[2)]
	312.5	–	–	–	–	5.70[2)]	5.00[2)]
CW 75	1000	–	–	4.00	4.00	–	–
	625	4.00	4.00	4.10	4.10	4.75	4.75
	417	4.35	4.35	–	–	5.40	5.00
	312.5	4.85	4.85	–	–	5.80	5.00
CW 100	1000	–	–	4.30	4.30	–	–
	625	5.10	5.00	6.05	5.00	6.55	5.00
	417	5.95	5.00	–	–	7.20	5.00
	312.5	6.60	5.00	–	–	7.70	5.00
CW 125	1000	–	–	6.05	5.00	–	–
	625	6.65	5.00	8.20	5.00	8.30	5.00
	417	7.60	5.00	–	–	8.95	5.00
	312.5	8.30	5.00	–	–	9.35	5.00
CW 150	1000	–	–	8.10	5.00	–	–
	625	8.20	5.00	9.75	5.00	9.65	5.00
	417	9.15	5.00	–	–	10.20	5.00
	312.5	9.70	5.00	–	–	10.65	5.00

1) only for installation zone 1

2) only with Diamant GKFI 15 mm

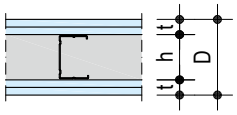
Notes

plus Extension of the fire resistance Proof of Usability see page 5.

When Sanistands are used, constructional specifications acc. to Technical information Fastening of loads to Knauf Wall and Ceiling Systems VT03.de must be observed.

Observe the notes on page 4.

System variants

Knauf system	Fire resistance class	Cladding per wall side: Knauf Wallboard	Knauf Piano fire-resistant board	Solid Board	Diamant	Silentboard	Min. thickness t mm	Weight: Without insulation layer approx. kg/m²	Wall thickness D mm	Profiles Knauf CW: Cavity h mm	Insulation layer: Required fire protection necessary: Min. thickness mm	Min. density kg/m³	Sound insulation: Insulation layer: Min. thickness mm	Sound reduction index R_w dB
W112.de Metal stud partition														Single metal stud frame, double-layer cladding
	F30	•					2x 12.5	41	100	50	None		40	54.1
									125	75			60	55.9
									150	100			80	58.4
	F90		•				2x 12.5	48	100	50	None		40	56.4
									125	75			60	57.2
									150	100			80	59.8
					•		2x 12.5	56	100	50	None		40	59.4 60.1[1]
									125	75			60	61.5 63.0[1]
									150	100			80	63.2 64.5[1]
Stud spacing a						•	2x 12.5 plus	78	100	50	None		40	67.5
									125	75			60	69.6
									150	100			80	70.4
			•				12.5 + 12.5	52	100	50	None		40	59.0
									125	75			60	59.7
					•				150	100			80	63.0
				•			25 + 12.5 plus	74	125	50	None		40	64.4
									150	75			60	66.2
					•				175	100			80	68.0
						•	12.5 + 12.5 plus	67	100	50	None		40	66.0
									125	75			60	67.4
					•				150	100			80	67.6

1) Upper board layer stapled

Always use Diamant as a covering layer with combined cladding

Demands on the insulation layer (Insulation materials, e.g. from Knauf Insulation):

- Required for fire resistance: None
- Fire protection permissible: Mineral wool G plus
- Required for sound insulation: Mineral wool, length-related flow resistance of kPa·s/m² ≤ r ≤ 50 kPa·s/m² acc. to DIN 4109-33

Notes

plus Extension of the fire resistance Proof of Usability see page 5.

Observe the notes on page 4.

Partition heights

Maximum permissible wall heights

Knauf profile Metal gauge 0.6 mm	Stud spacing a mm	Knauf Wallboard 2x 12.5 mm / Feuerschutzplatte Knauf Piano fire-resistant board 2x 12.5 mm / Feuerschutzplatte Knauf Piano 12.5 mm + Diamant 12.5 mm Without Fire resistance m	With Fire resistance F30 m	F90 m	Diamant 2x 12.5 mm / Silentboard 2x 12.5 mm plus / Solid Board 25 mm + Diamant 12.5 mm plus / Silentboard 12.5 mm + Diamant 12.5 mm plus Without Fire resistance m	With Fire resistance F90 m
CW 50	625	4.00	4.00	4.00	4.75	4.75
	417	4.00	4.00	4.00	5.40	5.00
	312.5	4.35	4.35	4.35	5.80	5.00
CW 75	625	5.05	5.00	5.05	7.20	7.00
	417	5.95	5.00	5.60	7.85	7.00 plus
	312.5	6.50	5.00	5.60	8.20	7.00
CW 100	625	7.15	7.00	7.00	9.30	7.00
	417	8.05	7.00 plus	7.00	9.75	7.00
	312.5	8.55	7.00	7.00	10.00	7.00
CW 125	625	9.05	7.00	7.00	10.80	7.00
	417	9.65	7.00 plus	7.00	11.20	7.00
	312.5	10.10	7.00	7.00	11.55	7.00
CW 150	625	10.35	7.00	7.00	12.00	7.00
	417	10.95	7.00 plus	7.00	12.00	7.00
	312.5	11.40	7.00	7.00	12.00	7.00

- All board layers fastened to frame with screws.
- With stapled upper board layer: Wall heights acc. to system W111 on page 9.

Ball impact safety

Ball impact safety is ensured in case of stud spacing ≤ 312.5 mm and a cladding thickness ≥ 2x 12.5 mm Knauf GKF.

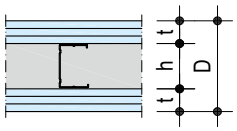
Notes

plus Extension of the fire resistance Proof of Usability see page 5.

When Sanistands are used, constructional specifications acc. to Technical information Fastening of loads to Knauf Wall and Ceiling Systems VT03.de must be observed.

Observe the notes on page 4.

System variants

Knauf system	Fire resistance class	Cladding per wall side: Knauf Wallboard	Knauf Piano fire-resistant board	Solid Board	Diamant	Silentboard	Min. thickness t mm	Weight: Without insulation layer approx. kg/m²	Wall thickness D mm	Profiles Knauf CW: Cavity h mm	Insulation layer: Required fire protection necessary: Min. thickness mm	Min. density kg/m³	Sound insulation: Insulation layer Min. thickness mm	Sound reduction index R_w dB
W113.de Metal Stud Partition														Single metal stud frame, triple-layer cladding
	**F30**	•					**3x 12.5**	61	125	50	None		40	58.7
									150	75			60	58.7
									175	100			80	63.9
	F90		•				**3x 12.5**	70	125	50	None		40	61.0
									150	75			60	61.1
									175	100			80	64.5
					•		**3x 12.5**	82	125	50	None		40	64.8 66.6[1)]
									150	75			60	66.3 67.1[1)]
									175	100			80	67.7 68.0[1)]
						•	**2x 12.5 + 12.5** plus	104	125	50	None		40	71.3
					•				150	75			60	71.6
									175	100			80	71.3

Stud spacing
a

1) Upper board layer stapled

Always use Diamant as a covering layer with combined cladding

Demands on the insulation layer (Insulation materials, e.g. from Knauf Insulation):

- Required for fire resistance: None
- Fire protection permissible: Mineral wool G plus
- Required for sound insulation: Mineral wool, length-related flow resistance of kPa·s/m² ≤ r ≤ 50 kPa·s/m² acc. to DIN 4109-33

Notes

plus Extension of the fire resistance Proof of Usability see page 5.

Observe the notes on page 4.

Partition heights

Maximum permissible wall heights

Knauf profile	Stud spacing	Knauf Wallboard 3x 12.5 mm / Feuerschutzplatte Knauf Piano fire-resistant board 3x 12.5 mm			Diamant 3x 12.5 mm / Silentboard 2x 12.5 mm + Diamant 12.5 mm plus		
		Without Fire resistance	With Fire resistance		Without Fire resistance	With Fire resistance	
Metal gauge 0.6 mm	a mm		F30 m	F90 m		F90 m	
CW 50	625	5.20	5.00	5.00	7.65	7.65	
	417	6.05	5.00	5.00	8.15	8.15	plus
	312.5	6.50	5.00	5.00	8.45	8.45	
CW 75	625	7.65	5.00	5.60	9.85	9.00	
	417	8.35	5.00	5.60	10.20	9.00	plus
	312.5	8.75	5.00	5.60	10.40	9.00	
CW 100	625	9.60	5.00	9.00	11.50	9.00	
	417	10.05	5.00	9.00	11.85	9.00	
	312.5	10.40	5.00	9.00	12.00	9.00	
CW 125	625	11.00	5.00	9.00	12.00	9.00	
	417	11.50	5.00	9.00	12.00	9.00	
	312.5	11.85	5.00	9.00	12.00	9.00	
CW 150	625	12.00	5.00	9.00	12.00	9.00	
	417	12.00	5.00	9.00	12.00	9.00	
	312.5	12.00	5.00	9.00	12.00	9.00	

- All board layers fastened to frame with screws.
- With stapled upper board layer: Wall heights acc. to system W112.de on page 11.

Ball impact safety

Ball impact safety is ensured in case of stud spacing ≤ 312.5 mm and a cladding thickness ≥ 2x 12.5 mm Knauf GKF.

Notes

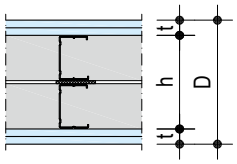
plus Extension of the fire resistance Proof of Usability see page 5.

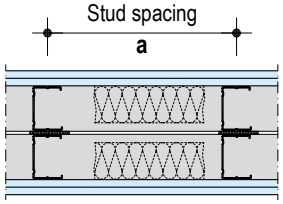
When Sanistands are used, constructional specifications acc. to Technical information Fastening of loads to Knauf Wall and Ceiling Systems VT03.de must be observed.

Observe the notes on page 4.

System variants

Knauf system	Fire resistance class	Cladding per wall side: Knauf Wallboard	Knauf Piano fire-resistant board	Solid Board	Diamant	Silentboard	Min. thickness t mm	Weight: Without insulation layer approx. kg/m²	Wall thickness D mm	Profiles Knauf CW mm	Cavity h mm	Insulation layer: Required fire protection necessary: Min. thickness mm	Min. density kg/m³	Sound insulation: Insulation layer Min. thickness mm	Sound reduction index R_w dB
W115.de Metal stud partition															Decoupled double stud partition
	F30	•					2x 12.5	44	155	2x 50	105	None		2x 40	64.7
									205	2x 75	155			2x 60	66.6
									255	2x 100	205			2x 80	67.6
	F90		•				2x 12.5	50	155	2x 50	105	None		2x 40	67.3
									205	2x 75	155			2x 60	69.7
									255	2x 100	205			2x 80	71.9
					•		2x 12.5	59	155	2x 50	105	None		2x 40	69.7
									205	2x 75	155			2x 60	72.2
									255	2x 100	205			2x 80	74.4
			•		•		12.5 + 12.5	55	155	2x 50	105	None		2x 40	68.0
									205	2x 75	155			2x 60	70.6
									255	2x 100	205			2x 80	73.2
					•	•	12.5 + 12.5 plus	70	155	2x 50	105	None		2x 40	74.0





With combined cladding always use Diamant as a cover layer

Demands on the insulation layer (Insulation materials, e.g. from Knauf Insulation):

- Required for fire resistance: None
- Fire protection permissible: Mineral wool G plus
- Required for sound insulation: Mineral wool, length-related flow resistance of kPa·s/m² ≤ r ≤ 50 kPa·s/m² acc. to DIN 4109-33

Notes

plus Extension of the fire resistance Proof of Usability see page 5.

Observe the notes on page 4.

Partition heights

Maximum permissible wall heights

Knauf profile Metal gauge 0.6 mm	Stud spacing a mm	Knauf Wallboard 2x 12.5 mm / Feuerschutzplatte Knauf Piano fire-resistant board 2x 12.5 mm Without Fire resistance m	With Fire resistance F30 m	 F90 m	Feuerschutzplatte Knauf Piano fire-resistant board 12.5 mm + Diamant 12.5 mm Without Fire resistance m	With Fire resistance F90 m	Diamant 2x 12.5 mm / Silentboard 12.5 mm + Diamant 12.5 mm plus Without Fire resistance m	With Fire resistance F90 m
CW 50	625	2.95[1)]	2.95[1)]	2.95[1)]	3.30[1)]	3.30[1)]	3.35[1)]	3.35[1)]
	417	3.60[1)]	3.60[1)]	3.60[1)]	3.95	3.95	4.00	4.00
	312.5	4.00	4.00	4.00	4.00	4.00	4.00	4.00
CW 75	625	4.00	4.00	4.00	4.00	4.00	4.00	4.00
	417	4.00	4.00	4.00	4.30	4.30	4.40	4.40
	312.5	4.55	4.55	4.55	4.85	4.85	4.95	4.95
CW 100	625	4.50	4.50	4.50	4.85	4.85	4.95	4.95
	417	5.40	5.00	5.40	5.80	5.80	5.90	5.90
	312.5	6.15	5.00	6.15	6.50	6.50	6.65	6.65
CW 125	625	5.80	5.00	5.80	6.20	6.20	6.30	6.30
	417	6.95	5.00	6.95	7.35	7.00	7.50	7.00
	312.5	7.75	5.00	7.00	8.15	7.00	8.35	7.00
CW 150	625	7.15	5.00	7.00	7.55	7.00	7.70	7.00
	417	8.40	5.00	7.00	8.85	7.00	9.00	7.00
	312.5	9.25	5.00	7.00	9.60	7.00	9.70	7.00

1) only for installation zone 1

Ball impact safety

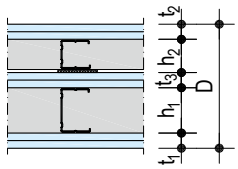
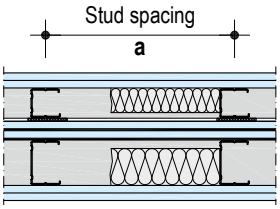
Ball impact safety is ensured in case of stud spacing ≤ 312.5 mm and a cladding thickness ≥ 2x 12.5 mm Knauf GKF.

Notes

plus Extension of the fire resistance Proof of Usability see page 5.

Observe the notes on page 4.

System variants

Knauf system	Fire resistance class	Basic wall Cladding: Diamant	Basic wall Cladding: Diamant Steel GKFI	Basic wall Cladding: Silentboard	Basic wall Cladding: Min. thickness t_1 + t_3 mm	Basic wall Cladding: Profile Knauf CW Cavity h_1 mm	Furring Cladding: Diamant	Furring Cladding: Silentboard	Furring Cladding: Min. thickness t_2 mm	Furring Cladding: Profile Knauf CW Cavity h_2 mm	Total weight Without insulation layer approx. kg/m²	Minimum wall thickness[1] D mm	Sound insulation: Insulation layer[2] Min. thickness mm	Sound insulation: Sound reduction index[3] R_w dB
W115V.de Metal stud partition													Double metal stud frame with interior cladding	
	F90	•			2x 12.5 + 2x 12.5	50	•		1x 12.5	50	71	167.5	40 + 40	70.4
						75				50		192.5	60 + 40	73.9
				•	2x 12.5 + 2x 12.5 plus	50		•	1x 12.5	50	99	167.5	40 + 40	76.7
						75				50		192.5	60 + 40	78.9
		•	•		2x 12.5 + 2x 12.5 + 0.4	75	•		1x 12.5	50	78	193.5	60 + 40	75.4
	F90	•			2x 12.5 + 2x 12.5	50	•		2x 12.5	50	84	180	40 + 40	76.9
						75				50		205	60 + 40	78.7
				•	2x 12.5 + 2x 12.5 plus	50		•	2x 12.5	50	118	180	40 + 40	81.0
						75				50		205	60 + 40	82.5
		•	•		2x 12.5 + 2x 12.5 + 0.4	75	•		2x 12.5	50	91	206	60 + 40	80.0

1) *Total wall thickness $D = t_1 + h_1 + t_3 + 5$ mm insulation strips $+ h_2 + t_2$*

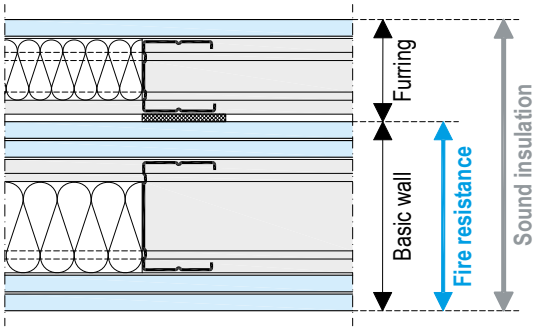
2) *Insulation layer thickness: Basic wall + furring*

3) *Sound reduction index for decoupled furring.*
In case of the furring screw fastened to the basic wall: Influence of the screw fastening of the furring in the basic wall -3 dB (see also page 63).

Demands on the insulation layer (Insulation materials, e.g. from Knauf Insulation):

- Required for fire resistance: None
- Fire protection permissible: Mineral wool G plus
- Required for sound insulation: Mineral wool, length-related flow resistance of kPa·s/m² ≤ r ≤ 50 kPa·s/m² acc. to DIN 4109-33

Wall configuration – scheme drawing



Notes

plus Extension of the fire resistance Proof of Usability see page 5.

Observe the notes on page 4.

Partition heights

Maximum permissible wall heights

Design of basic wall[1]		Decoupled furring		Screw fastened furring
Knauf profile Metal gauge 0.6 mm	Stud spacing a mm	Diamant 1x 12.5 mm / Silentboard 1x 12.5 mm plus m	Diamant 2x 12.5 mm / Silentboard 2x 12.5 mm plus m	 m
CW 50	625	3.00[2]	3.35[2] / 2.65	4.75
CW 75	625			7.00 plus

1) Cladding acc. to system variants see page 16

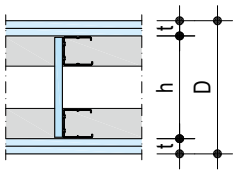
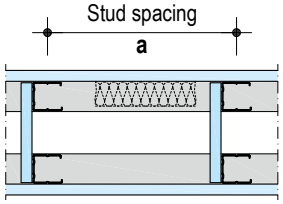
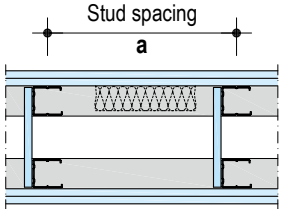
2) Only for installation zone 1

Burglar-retardant

System variants with Diamant Steel GKFI achieve burglar-retardant classification of resistance class RC2 acc. to DIN EN 1627.
For further information see system data sheet Knauf Burglar-Retardant Partitions W11RC.de

Notes	plus Extension of the fire resistance Proof of Usability see page 5. Observe the notes on page 4.

System variants

Knauf system	Fire resistance class	Cladding per wall side: Knauf Wallboard	Knauf Piano fire-resistant board	Solid Board	Diamant	Silentboard	Min. thickness t mm	Weight: Without insulation layer approx. kg/m²	Wall thickness D mm	Profiles Knauf CW mm	Cavity h mm	Insulation layer: Required fire protection necessary: Min. thickness mm	Min. density kg/m³	Sound insulation: Insulation layer Min. thickness mm	Sound reduction index R_w dB
W116.de Metal stud partition															Linked double stud partition
	–			•			**25**	52	≥ 155	2x 50	≥ 105	–		40	–
														2x 40	–
					•		**18**	46	≥ 141	2x 50	≥ 105	–		40	52.5
														2x 40	56.0
					•		**15**	39	≥ 175	2x 70	≥ 145	–		60	*52*
														2x 60	*56*
	F30	•					**2x 12.5**	45	≥ 155	2x 50	≥ 105	None		40	54.0[1)]
	F90		•				**2x 12.5**	52	≥ 155	2x 50	≥ 105	None		40	*54*
					•		**2x 12.5**	60	≥ 155	2x 50	≥ 105	None		40	62.5
														2x 40	63.5

1) Measured with a board weight of approx. 9 kg/m²

- ***Sound reduction index values*** represented in italics are derived values from measurements on divergent constructions.
- Use impregnated boards in areas with moderate levels of humidity (recommendation acc. to DIN 18181).

Demands on the insulation layer (Insulation materials, e.g. from Knauf Insulation):

- Required for fire resistance: None
- Fire protection permissible: Mineral wool G plus
- Required for sound insulation: Mineral wool, length-related flow resistance of kPa·s/m² ≤ r ≤ 50 kPa·s/m² acc. to DIN 4109-33

Notes

plus Extension of the fire resistance Proof of Usability see page 5.

Observe the notes on page 4.

Partition heights

Maximum permissible wall heights

Knauf profile	Stud spacing	Knauf Wallboard 2x 12.5 mm / Feuerschutzplatte Knauf Piano fire-resistant board 2x 12.5 mm			Massivbauplatte solid board 25 mm	Diamant 15 mm	Diamant 18 mm	Diamant 2x 12.5 mm	
		Without Fire resistance	With Fire resistance		Without Fire resistance	Without Fire resistance	Without Fire resistance	Without Fire resistance	With Fire resistance
Metal gauge 0.6 mm	a mm	m	F30 m	F90 m	m	m	m	m	F90 m
CW 50	1000	–	–	–	4.00	–	–	–	–
	625	5.05	5.00	5.00	–	–	5.60	7.20	5.00
CW 70	625	–	–	– plus	–	6.40	–	–	– plus
CW 75	1000	–	–	–	4.30	–	–	–	–
	625	7.15	5.00	5.60	–	–	7.70	8.00	5.60
CW 100	1000	–	–	–	6.05	–	–	–	–
	625	8.00	5.00	7.00	–	–	8.00	8.00	7.00

Ball impact safety

Ball impact safety is ensured in case of stud spacing ≤ 312.5 mm and a cladding thickness ≥ 2x 12.5 mm Knauf GKF.

Notes

plus Extension of the fire resistance Proof of Usability see page 5.

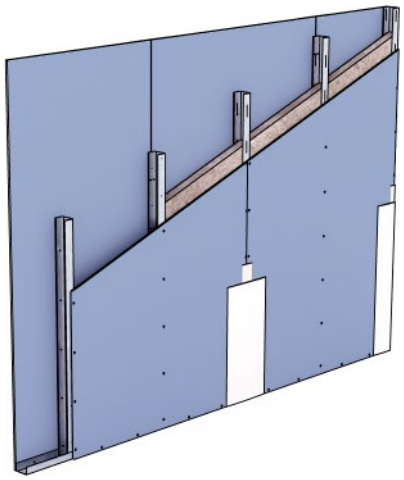
Observe the notes on page 4.

Details

Scale 1:5

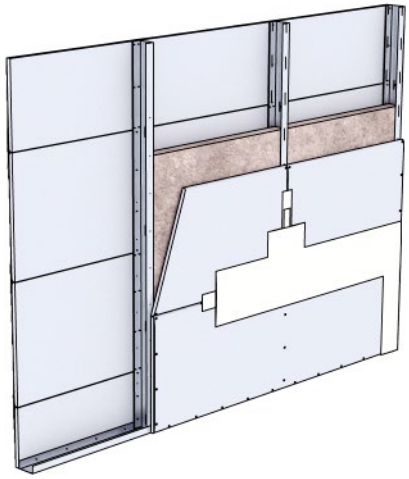
W111.de-P1 Vertical board layer

12.5 mm Diamant



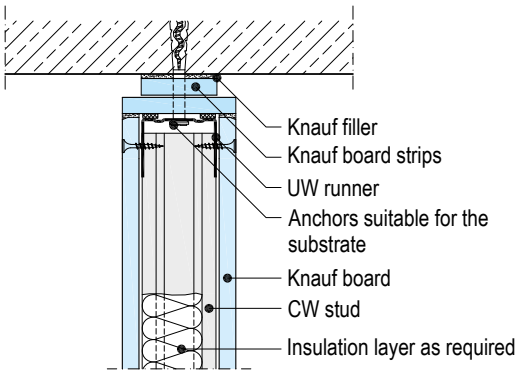
W111.de-P2 Horizontal board layer

25 mm Solid Board



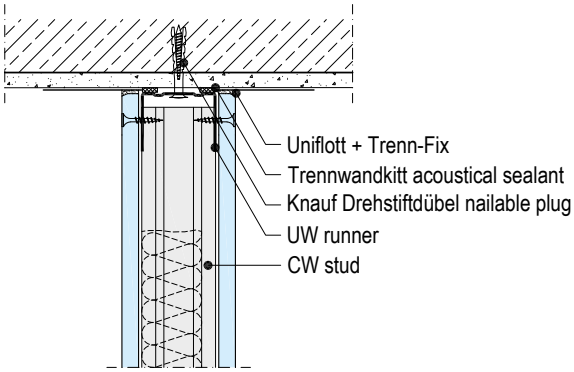
W111.de VO3 Ceiling connection with shadow gap

Vertical section I Without fire resistance



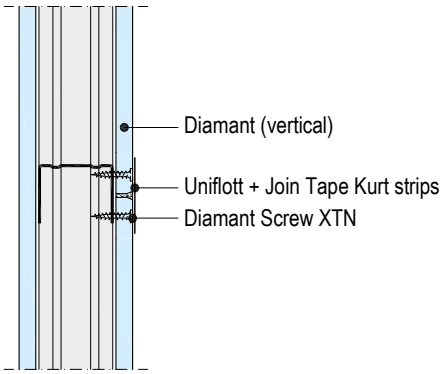
W111.de-VO1 Ceiling connection to solid ceiling

Vertical section



W111.de-VM1 Board joint

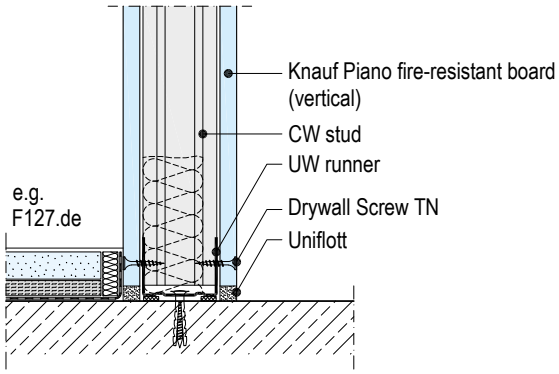
Vertical section



- With fire resistance: Backing for front edge joints with profiles provided no insulation installed.

W111.de-VU1 Connection to basic floor slab

Vertical section

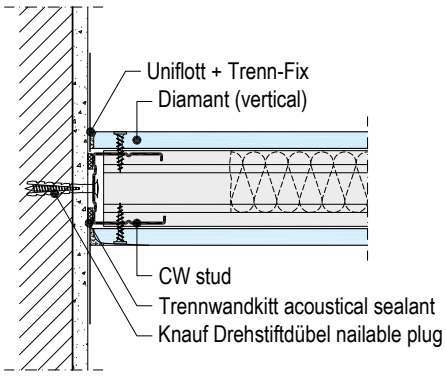


Details

Scale 1:5

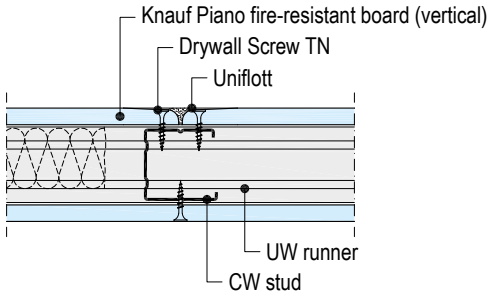
W111.de-A1 Connection to solid wall

Horizontal section



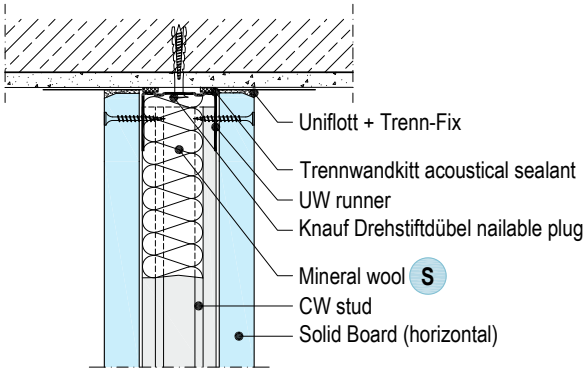
W111.de-B1 Board joint

Horizontal section



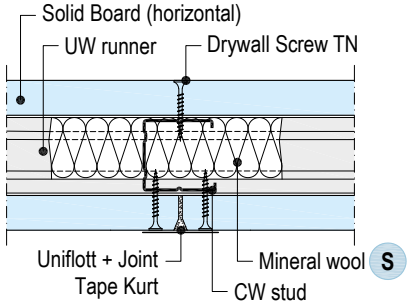
W111.de-VO4 Ceiling connection to solid ceiling

Vertical section



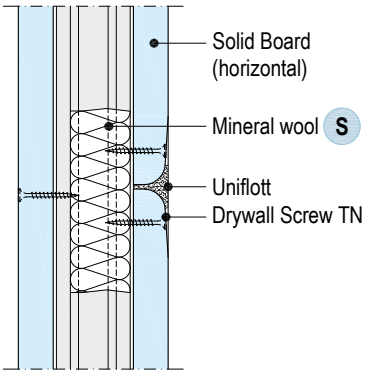
W111.de-B2 Board joint

Horizontal section



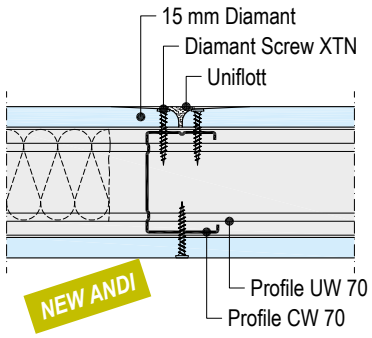
W111.de-VM2 Board joint

Vertical section



W111-DIA70.de-B20 Board joint

Horizontal section

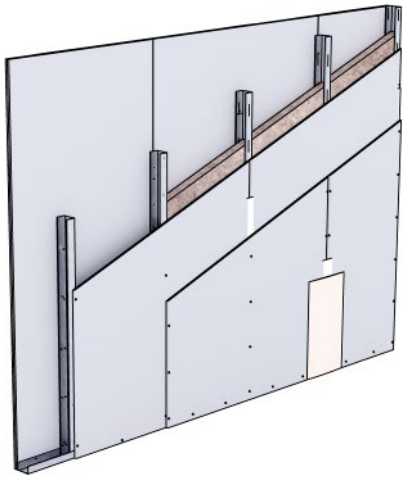


Details

Scale 1:5

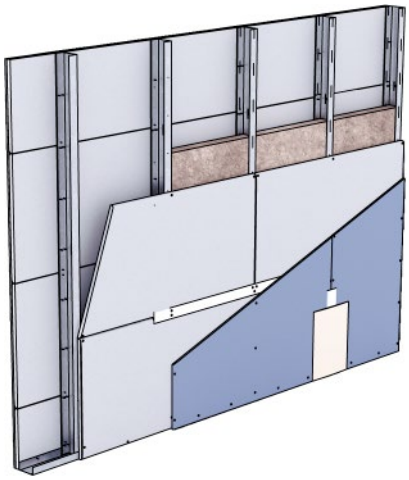
W112.de-P1 Vertical board layer

2x 12.5 mm Feuerschutzplatte Knauf Piano fire-resistant board



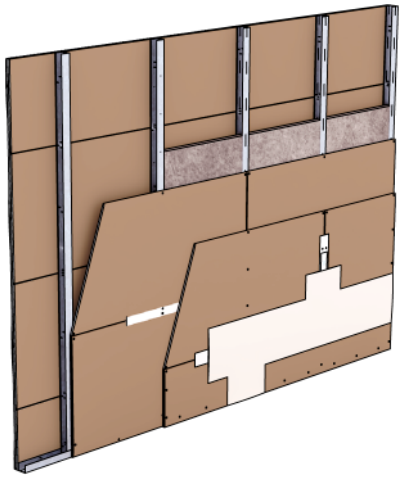
W112.de-P2 Board layer 1 horizontal, board layer 2 vertical

25 mm Solid Board + 12.5 mm Diamant



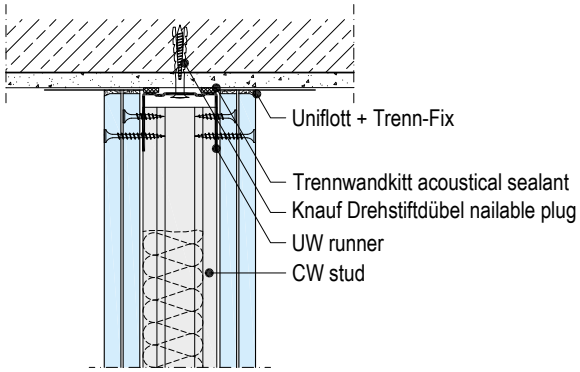
W112.de-P3 Horizontal board layers

2x 12.5 mm Silentboard



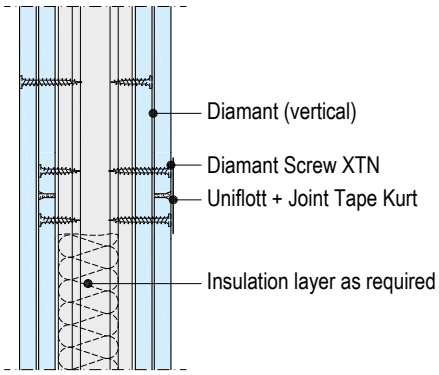
W112.de-VO1 Ceiling connection to solid ceiling

Vertical section



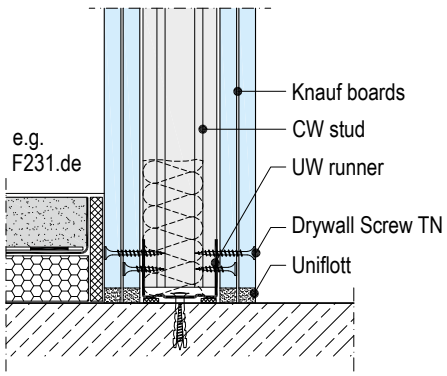
W112.de-VM1 Board joint

Vertical section



W112.de-VU1 Connection to basic floor slab

Vertical section

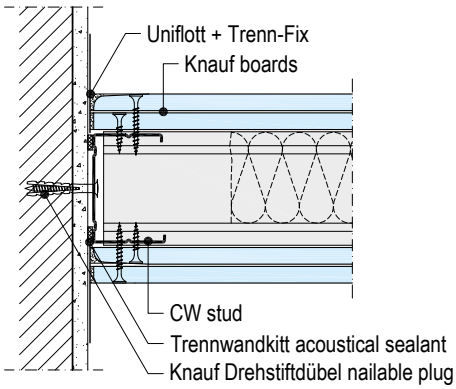


Details

Scale 1:5

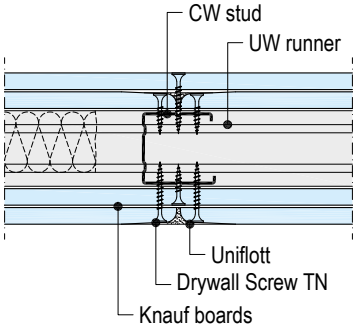
W112.de-A1 Connection to solid wall

Horizontal section



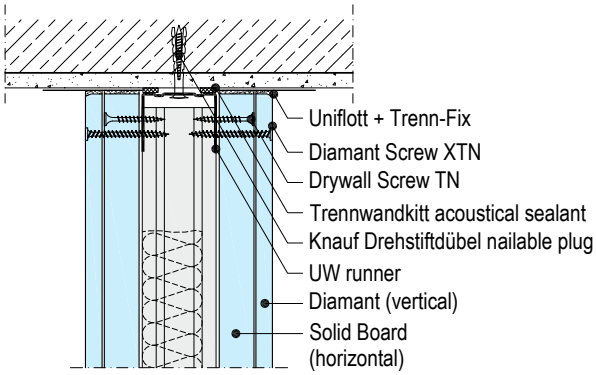
W112.de-B1 Board joint

Horizontal section



W112.de-VO13 Ceiling connection to solid ceiling

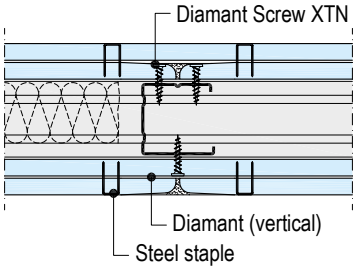
Vertical section



plus **Extension of the fire resistance Proof of Usability**
Prior consultation in acc. to page 5 recommended

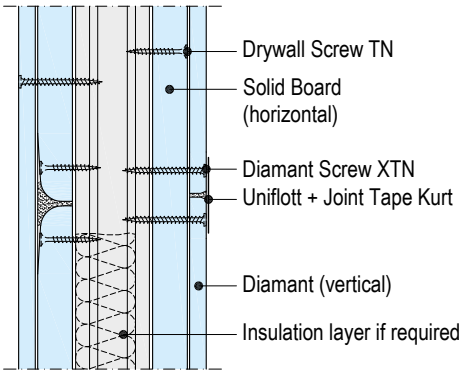
W112.de-B3 Board joint – top board layer stapled

Horizontal section



W112.de-VM2 Board joint

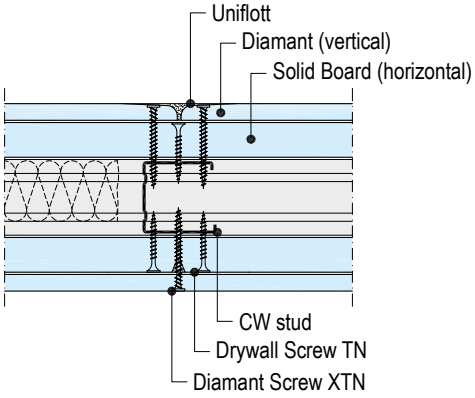
Vertical section



plus **Extension of the fire resistance Proof of Usability**
Prior consultation in acc. to page 5 recommended

W112.de-B4 Board joint

Horizontal section



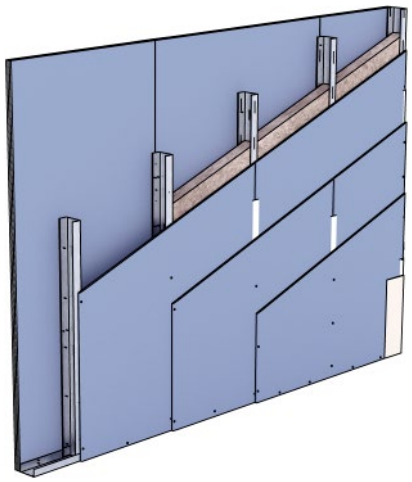
plus **Extension of the fire resistance Proof of Usability**
Prior consultation in acc. to page 5 recommended

Details

Scale 1:5

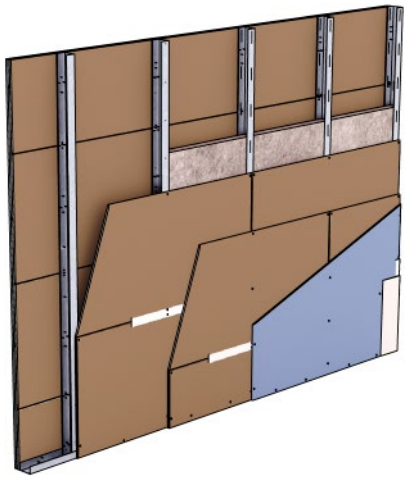
W113.de-P1 Vertical board layer

3x 12.5 mm Diamant



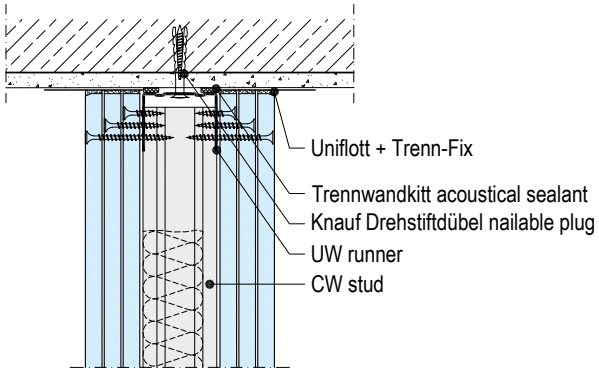
W113.de-P2 Board layer 1 and 2 horizontal, board layer 3 vertical

2x 12.5 mm Silentboard + 12.5 mm Diamant



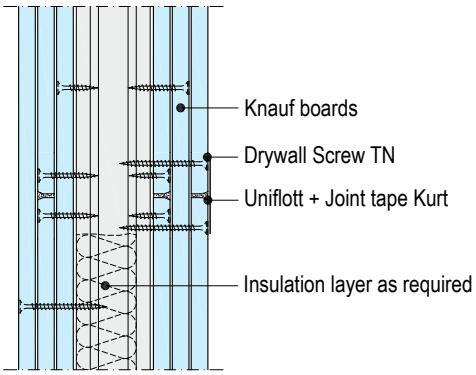
W113.de-VO1 Ceiling connection to solid ceiling

Vertical section



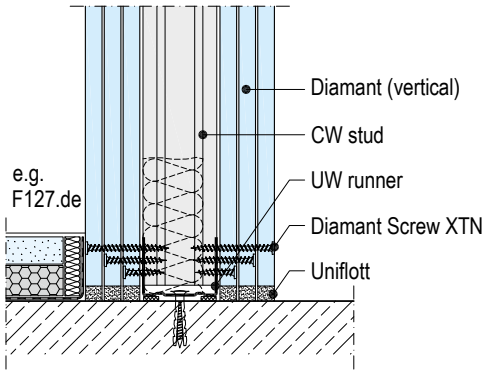
W113.de-VM1 Board joint

Vertical section



W113.de-VU1 Connection to basic floor slab

Vertical section

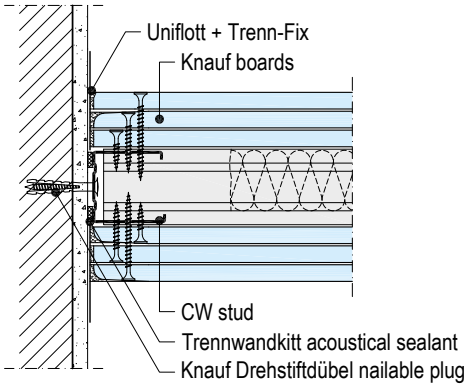


Details

Scale 1:5

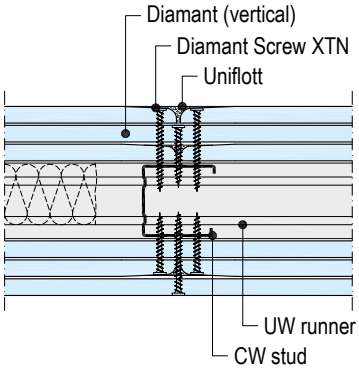
W113.de-A1 Connection to solid wall

Horizontal section



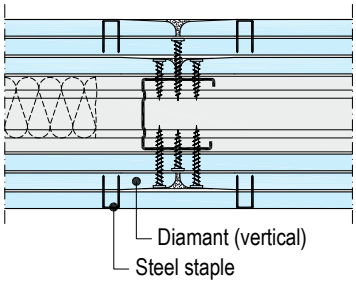
W113.de-B1 Board joint

Horizontal section



W112.de-B3 Board joint – top board layer stapled

Horizontal section



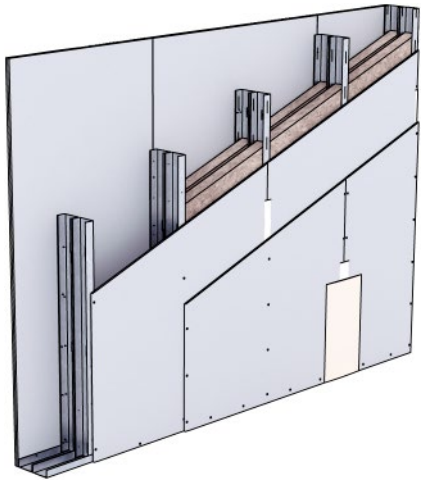
W115.de Decoupled double stud partition

Details

Scale 1:5

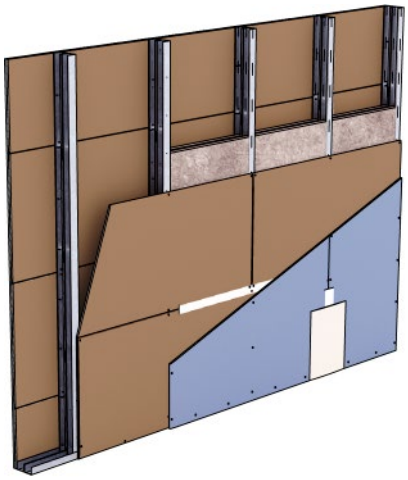
W115.de-P1 Vertical board layer

2x 12.5 mm Feuerschutzplatte Knauf Piano fire-resistant board



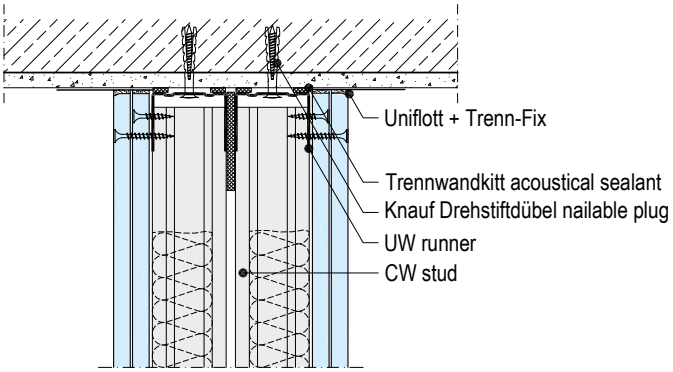
W115.de-P2 Board layer 1 horizontal, board layer 2 vertical

12.5 mm Silentboard + 12.5 mm Diamant



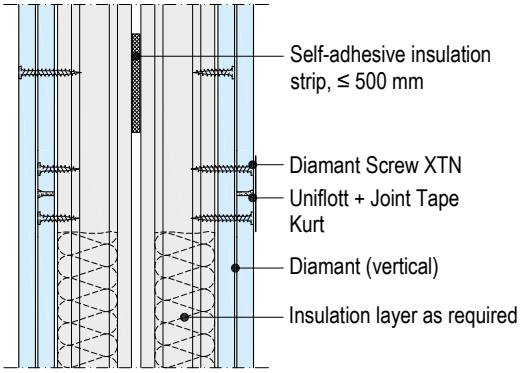
W115.de-VO1 Ceiling connection to solid ceiling

Vertical section



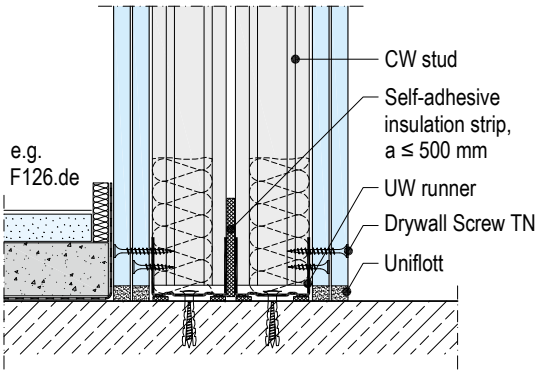
W115.de-VM1 Board joint

Vertical section



W115.de-VU1 Connection to basic floor slab

Vertical section

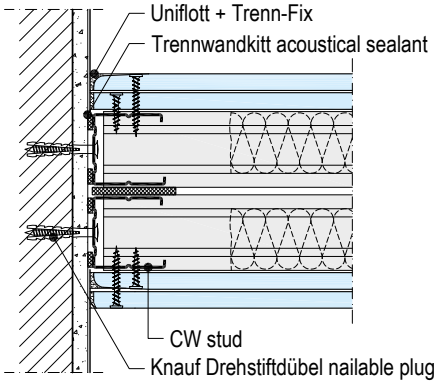


Details

Scale 1:5

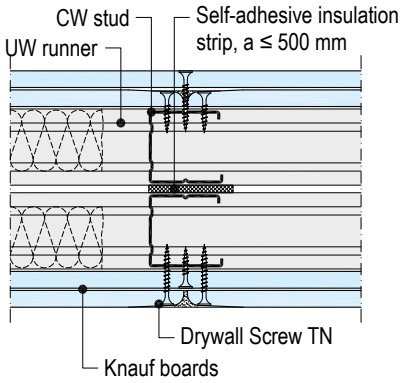
W115.de-A1 Connection to solid wall

Horizontal section



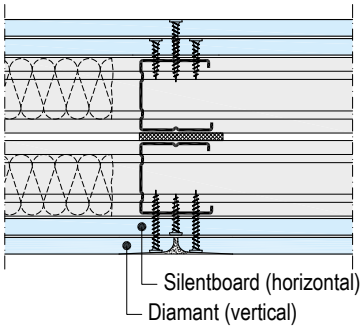
W115.de-B1 Board joint

Horizontal section



W115.de-B2 Board joint

Horizontal section



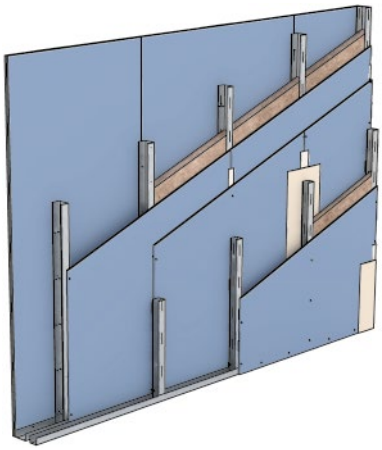
Extension of the fire resistance Proof of Usability
Prior consultation in acc. to page 5 recommended

Details

Scale 1:5

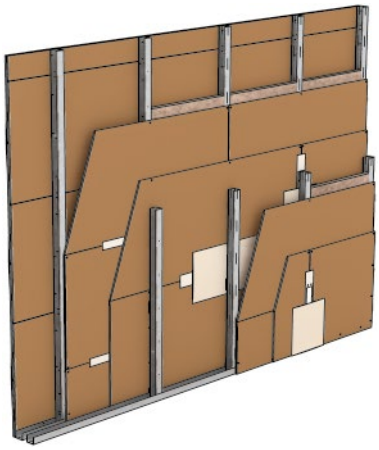
W115V.de-P1 Vertical board layer

Basic wall 2x 12.5 mm Diamant / Furring 1x 12.5 mm Diamant



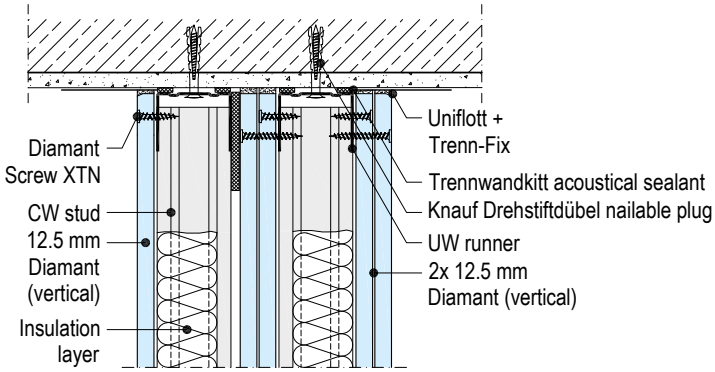
W115V.de-P2 Horizontal board layer

Basic wall 2x 12.5 mm Silentboard / furring 2x 12.5 mm Silentboard



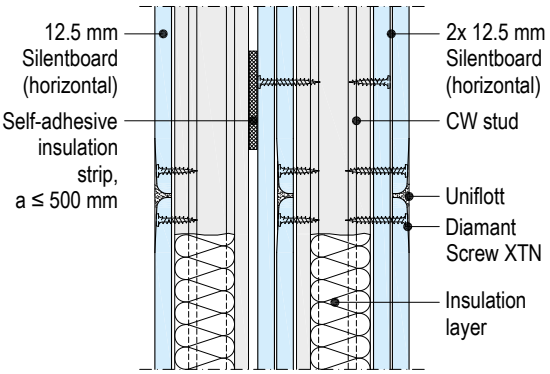
W115V.de-VO1 Ceiling connection to solid ceiling

Vertical section – example **decoupled**



W115V.de-VM1 Board joint

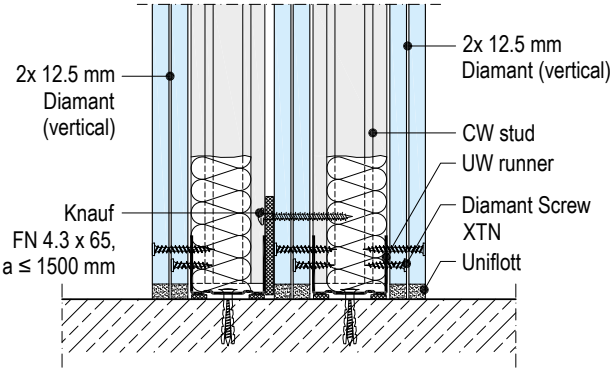
Vertical section – example **decoupled**



plus **Extension of the fire resistance Proof of Usability**
Prior consultation in acc. to page 5 recommended

W115V.de-VU1 Connection to basic floor slab

Vertical section – example **screw fastened**

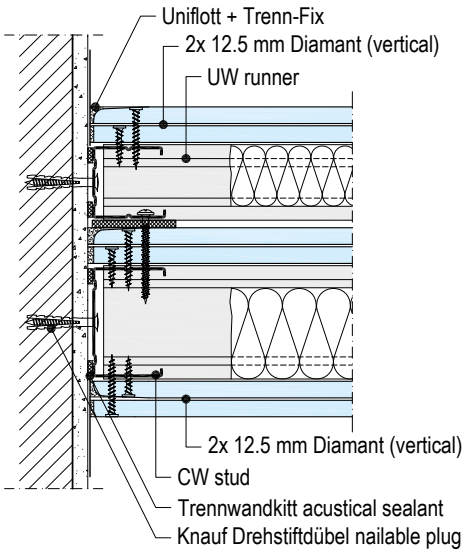


Details

Scale 1:5

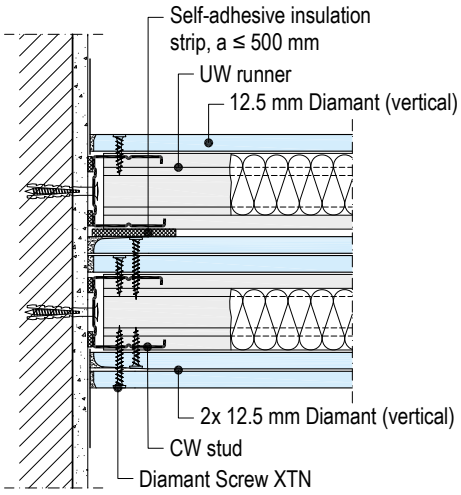
W115V.de-A1 Connection to solid wall

Horizontal section – example **screw fastened**



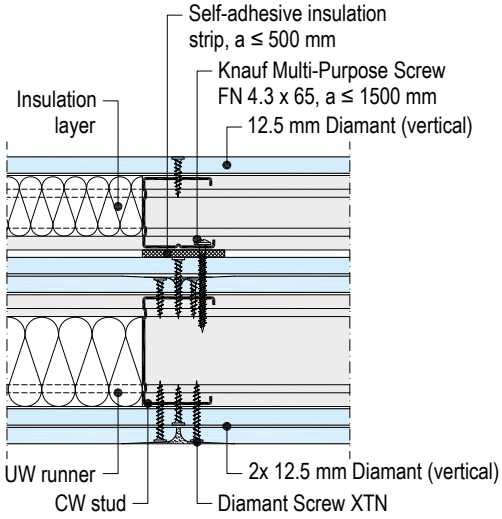
W115V.de-A2 Connection to solid wall

Horizontal section – example **decoupled**



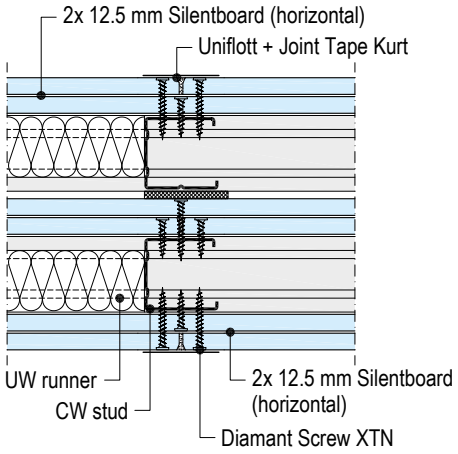
W115V.de-B1 Board joint

Horizontal section – example **screw fastened**



W115V.de-B2 Board joint

Horizontal section – example **decoupled**



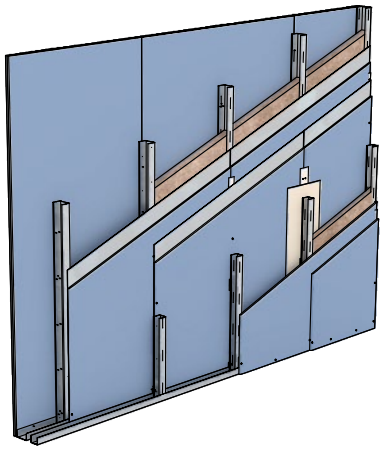
plus **Extension of the fire resistance Proof of Usability**
Prior consultation in acc. to page 5 recommended

Details Diamant Steel GKFI

Scale 1:5

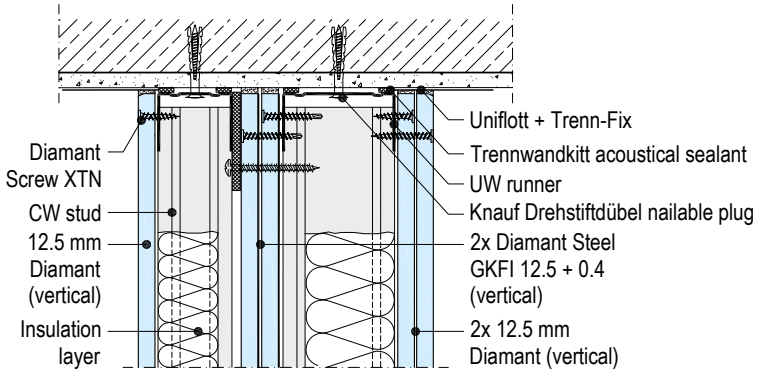
W115V.de-P3 Vertical board layer

Basic wall 2x 12.5 mm Diamant + 2x 12.5 + 0.4 mm Diamant Steel GKFI / Furring 2x 12.5 mm Diamant



W115V.de-SO3 Ceiling connection to solid ceiling

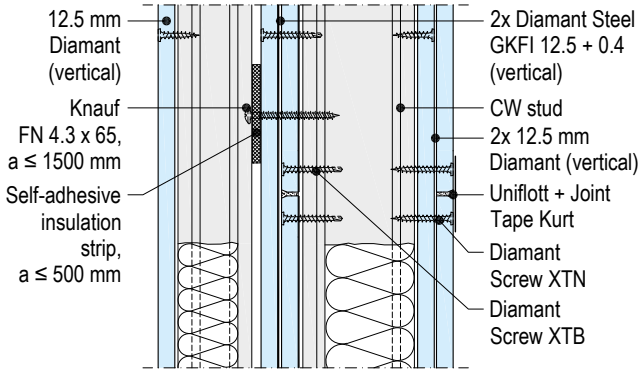
Vertical section – example **screw fastened**



plus **Extension of the fire resistance Proof of Usability**
Prior consultation in acc. to page 5 recommended

W115V.de-SO4 Board joint

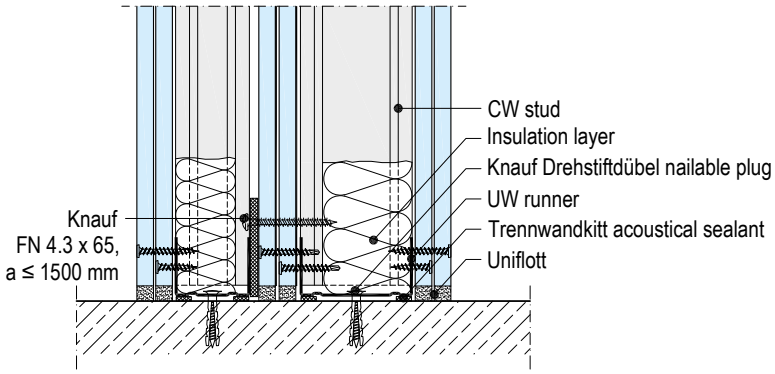
Vertical section – example **screw fastened**



plus **Extension of the fire resistance Proof of Usability**
Prior consultation in acc. to page 5 recommended

W115V.de-SO5 Connection to basic floor slab

Vertical section – example **screw fastened**



plus **Extension of the fire resistance Proof of Usability**
Prior consultation in acc. to page 5 recommended

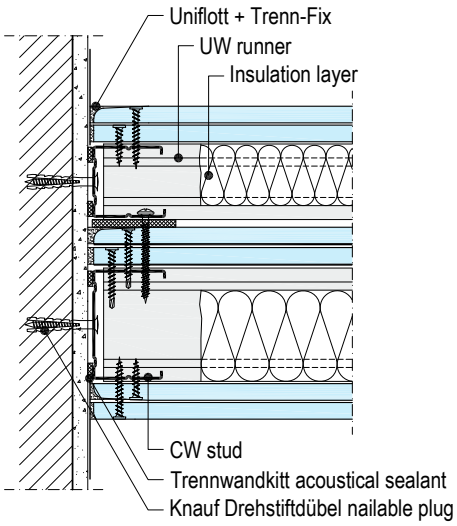
Note	Always screw fasten Diamant Steel GKFI with Diamant Screws XTB

Details Diamant Steel GKFI

Scale 1:5

W115V.de-SO1 Connection to solid wall

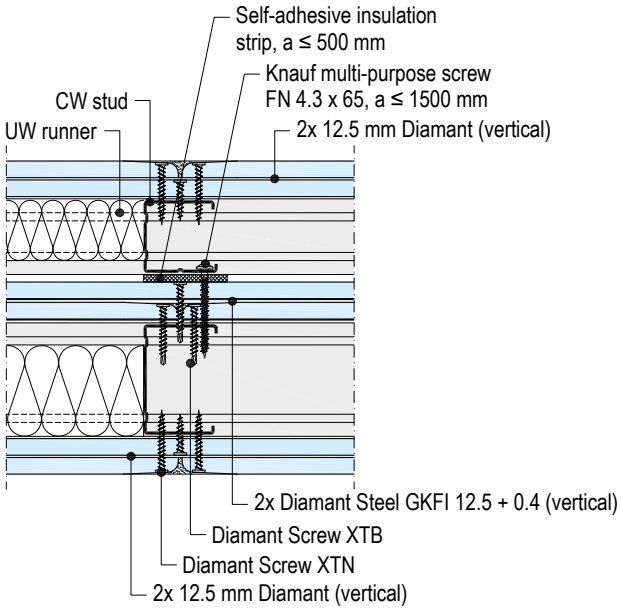
Horizontal section – example **screw fastened**



plus **Extension of the fire resistance Proof of Usability**
Prior consultation in acc. to page 5 recommended

W115V.de-SO2 Board joint

Horizontal section – example **screw fastened**



plus **Extension of the fire resistance Proof of Usability**
Prior consultation in acc. to page 5 recommended

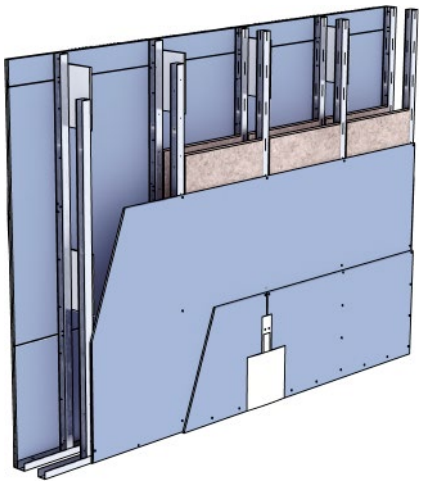
Note	Always screw fasten Diamant Steel GKFI with Diamant Screws XTB

Details

Scale 1:5

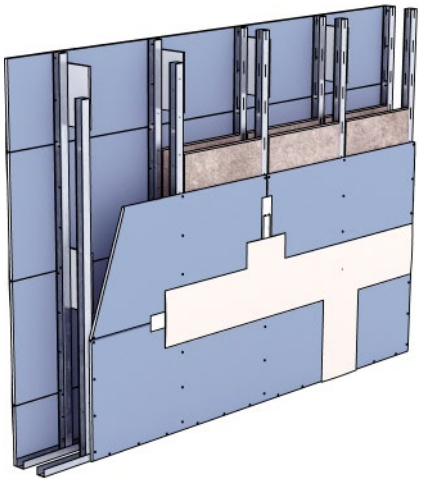
W116.de-P1 Horizontal board layer

2x 12.5 mm Diamant



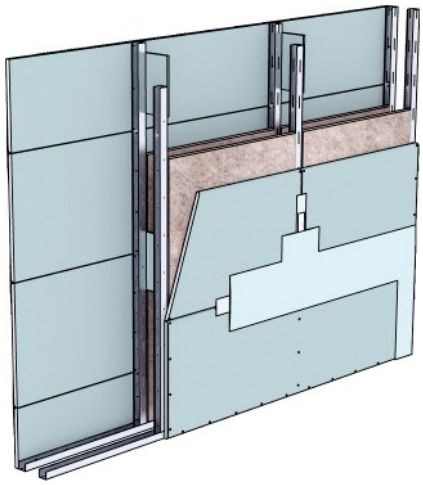
W116.de-P2 Horizontal board layer

18 mm Diamant



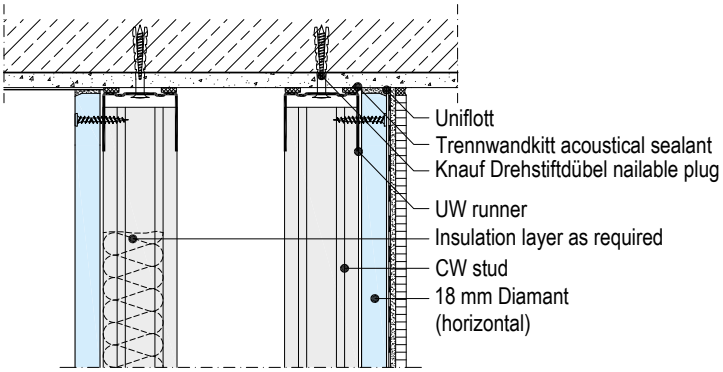
W116.de-P3 Horizontal board layer

25 mm Solid Board



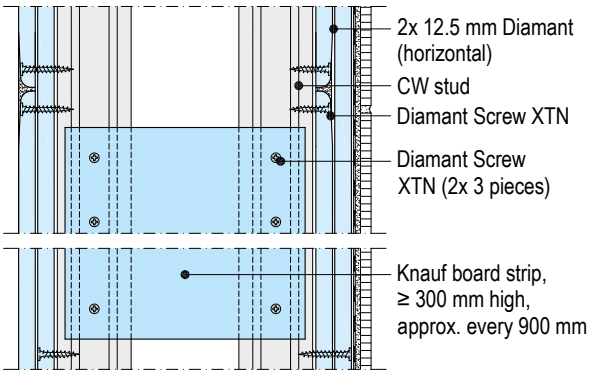
W116.de-VO10 Ceiling connection to solid ceiling

Vertical section I Without fire resistance



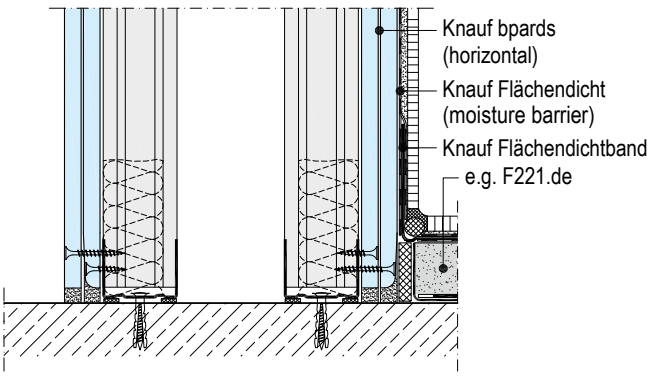
W116.de-VM1 Board joint

Vertical section



W116.de-VU1 Connection to basic floor slab

Vertical section

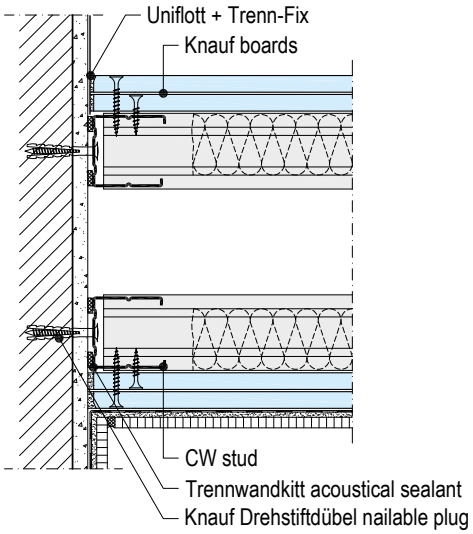


Details

Scale 1:5

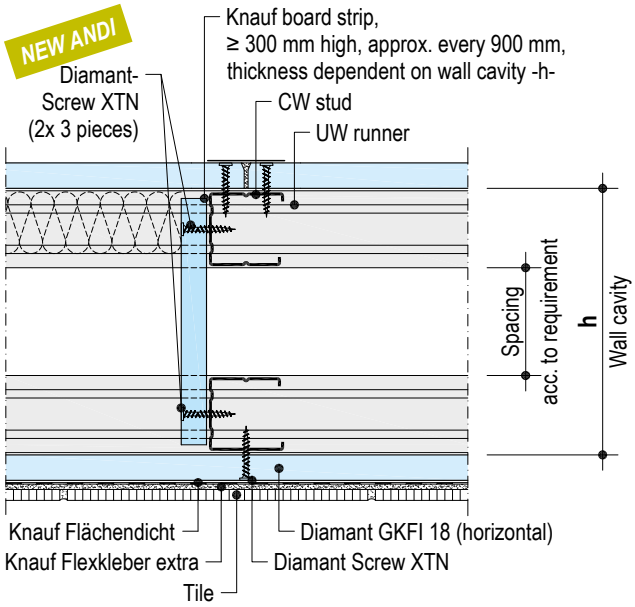
W116.de-A1 Connection to solid wall

Horizontal section



W116.de-DIA70-B20 Board joint

Horizontal section I Without fire resistance

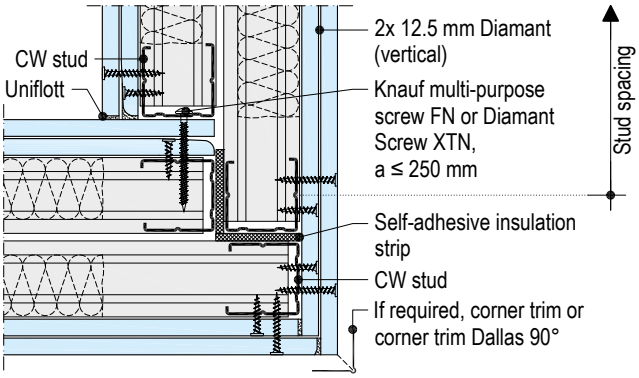


Corners

Scale 1:5

W115.de-D1 Corner

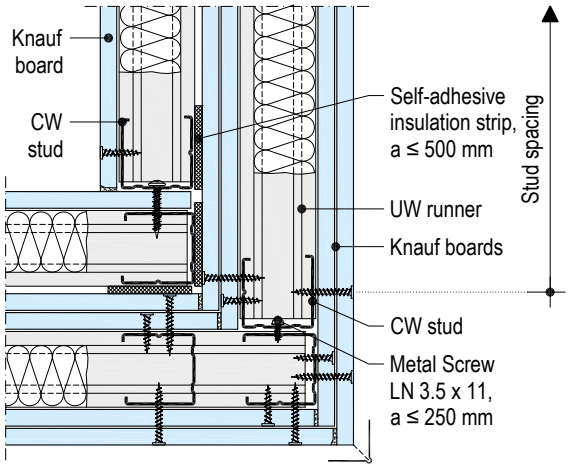
Horizontal section



Extension of the fire resistance Proof of Usability
Prior consultation in acc. to page 5 recommended

W115V.de-D1 Corner

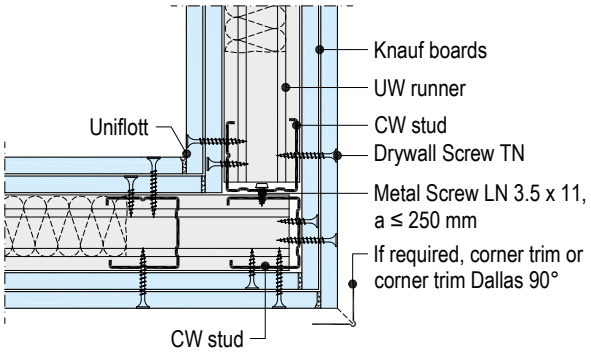
Horizontal section – example **decoupled**



Extension of the fire resistance Proof of Usability
Prior consultation in acc. to page 5 recommended

W112.de-D5 Corner

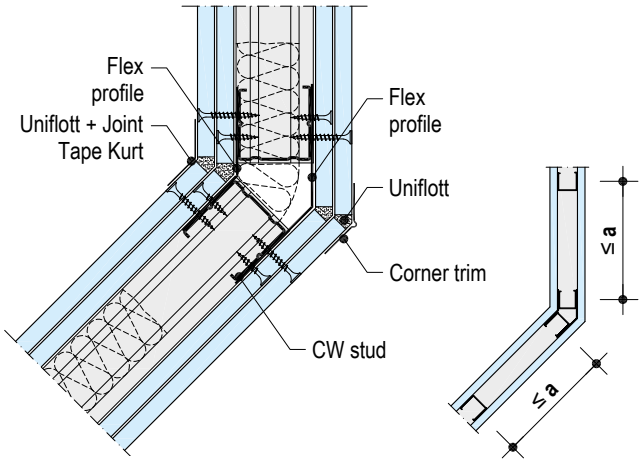
Horizontal section



Extension of the fire resistance Proof of Usability
Prior consultation in acc. to page 5 recommended

W112.de-D2 Corner – CW studs + Flex profile

Horizontal section

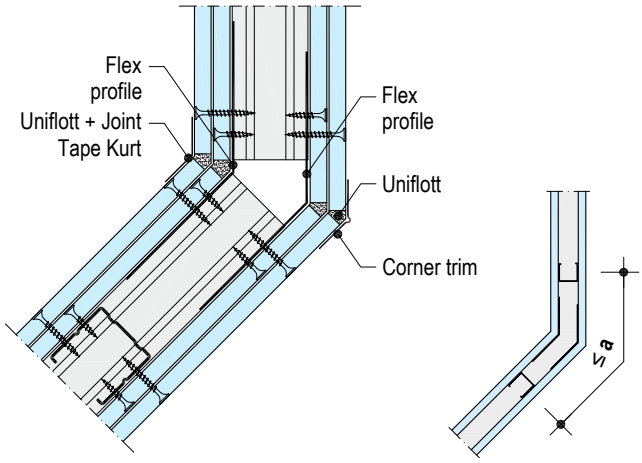


- **a** = stud spacing
- Installation aid: Connect flex profiles by crimping to the CW studs or UW runners

Extension of the fire resistance Proof of Usability
Prior consultation in acc. to page 5 recommended

W112.de-D3 Corner – Flex profiles

Horizontal section I Without fire resistance



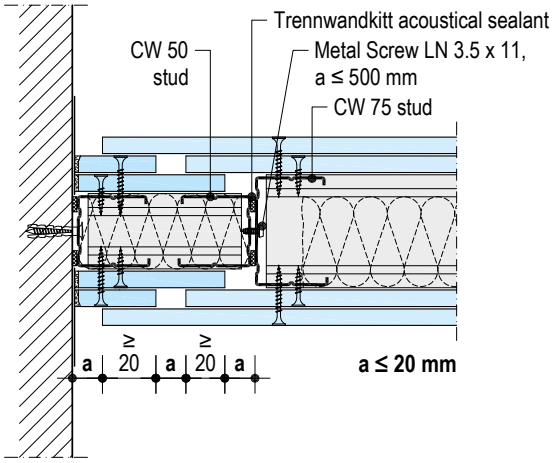
- **a** = stud spacing
- Installation aid: Connect flex profiles by crimping to the CW studs or UW runners

Connection to wall

Scale 1:5 I Dimensions in mm

W112.de-A9 Connection to solid wall – sliding

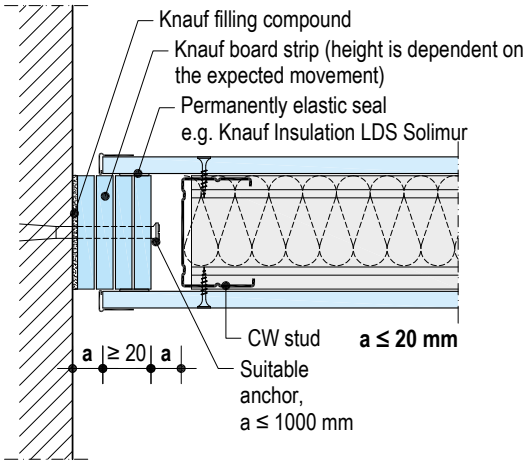
Horizontal section



Extension of the fire resistance Proof of Usability
Prior consultation in acc. to page 5 recommended

W111.de-A2 Connection to solid wall – sliding

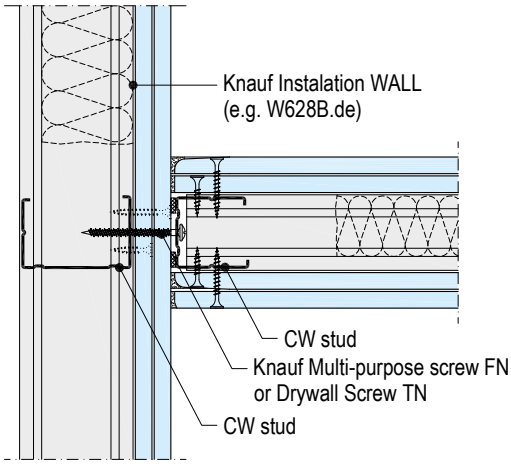
Horizontal section



Extension of the fire resistance Proof of Usability
Prior consultation in acc. to page 5 recommended

W112.de-A7 Connection to installation shaft wall

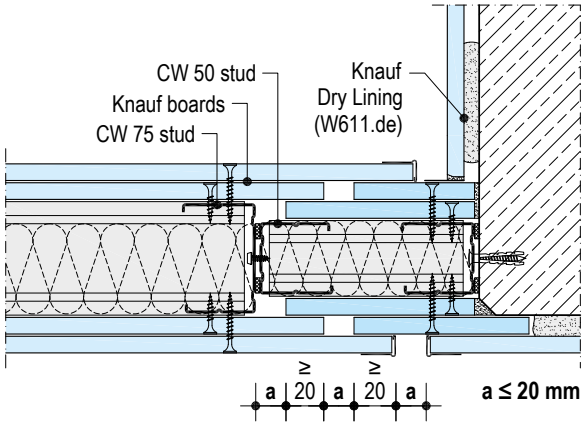
Horizontal section



Extension of the fire resistance Proof of Usability
Prior consultation in acc. to page 5 recommended

W112.de-A3 Connection to solid component – sliding

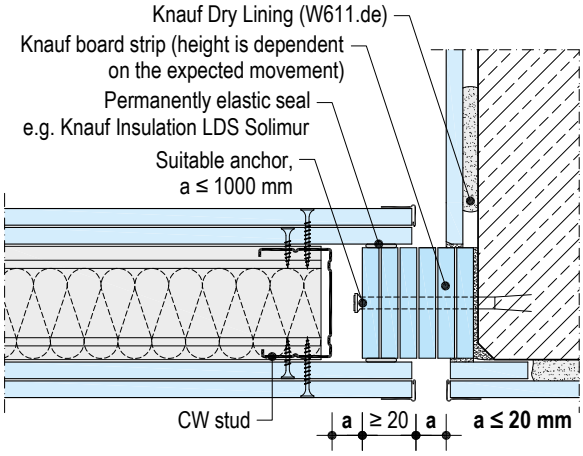
Horizontal section



Extension of the fire resistance Proof of Usability
Prior consultation in acc. to page 5 recommended

W112.de-A10 Connection to solid component – sliding

Horizontal section



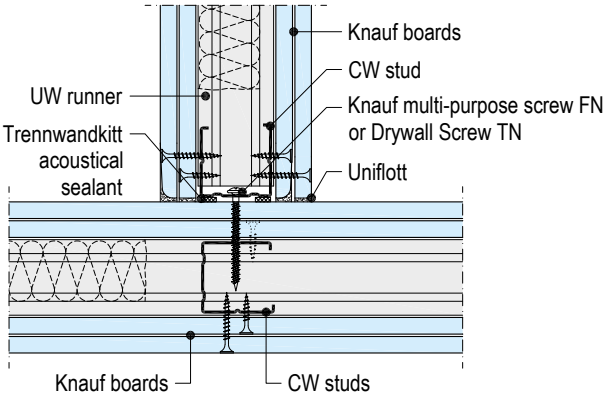
Extension of the fire resistance Proof of Usability
Prior consultation in acc. to page 5 recommended

T connections

Scale 1:5

W112.de-C1 T-junction, connection to CW stud

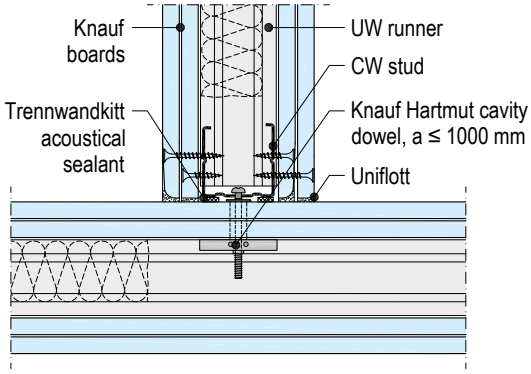
Horizontal section



plus **Extension of the fire resistance Proof of Usability**
Prior consultation in acc. to page 5 recommended

W112.de-C3 T-junction with cavity dowel Hartmut

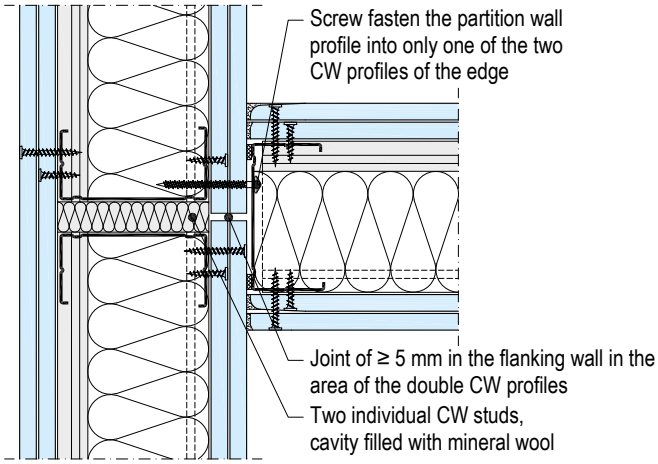
Horizontal section



plus **Extension of the fire resistance Proof of Usability**
Prior consultation in acc. to page 5 recommended

W112.de-C7 T-junction, slotted edge

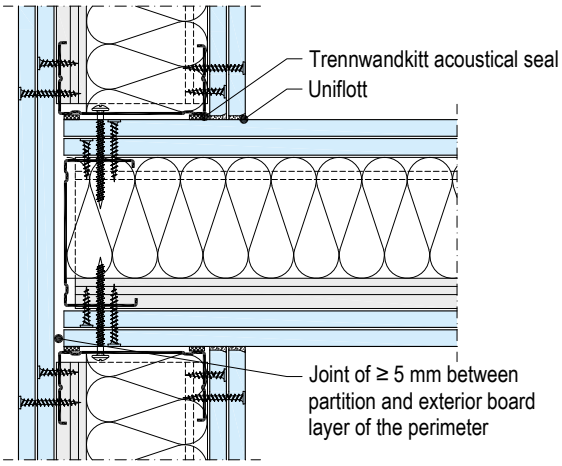
Horizontal section



plus **Extension of the fire resistance Proof of Usability**
Prior consultation in acc. to page 5 recommended

W112.de-C8 T-junction, interrupted edge

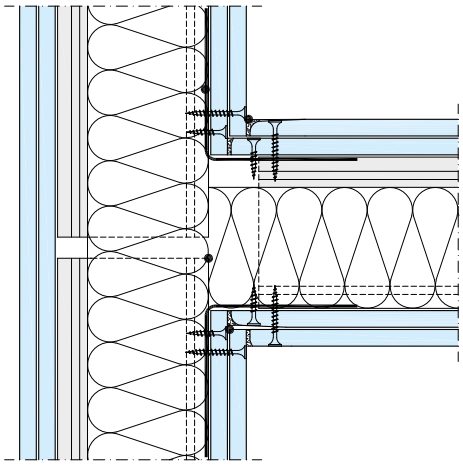
Horizontal section



plus **Extension of the fire resistance Proof of Usability**
Prior consultation in acc. to page 5 recommended

W112.de-C9 T-junction with Flex Profile

Horizontal section I Without fire resistance



- Installation aid: Connect flex profiles by crimping to the UW runners.
- In case of demands on the fire resistance, UW runners (floor and ceiling profile) must be continuous.

Note

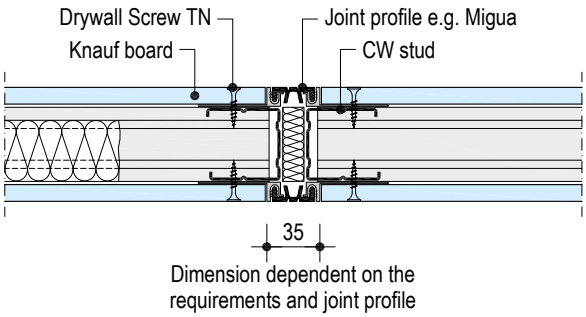
For demands on the sound insulation refer to to folder Schallschutz und Raumakustik mit Knauf (partly German only: Determination of the sound insulation in installed state SS03.de in Chapter Flanking constructional components.

Movement joints

Scale 1:5 I Dimensions in mm

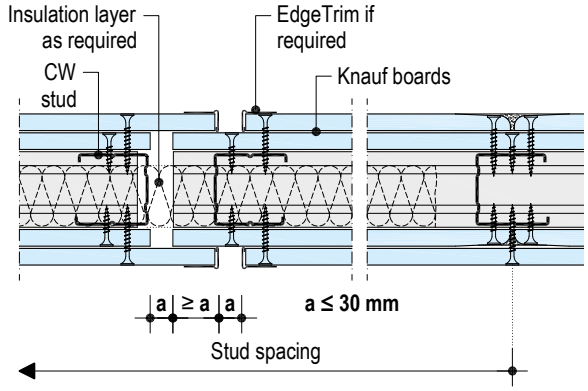
W111.de-BFU2 Movement joint with joint profile

Horizontal section I Without fire resistance



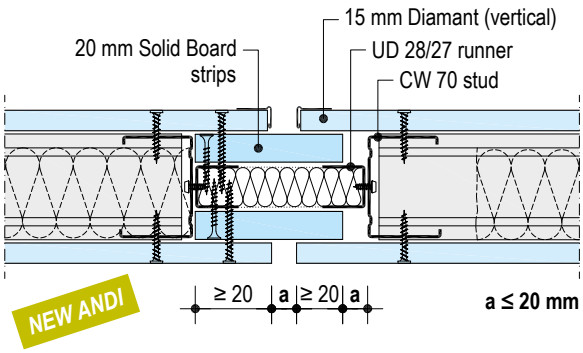
W112.de-BFU2 Movement joint

Horizontal section I Without fire resistance



W111-DIA70.de-BFU20 Movement joint

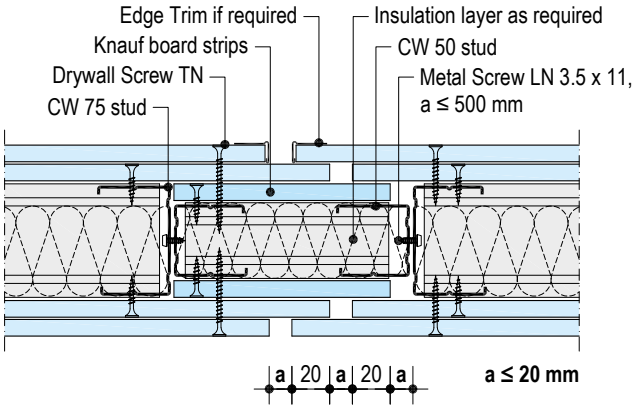
Horizontal section



plus **Extension of the fire resistance Proof of Usability**
Prior consultation in acc. to page 5 recommended

W112.de-BFU1 Movement joint

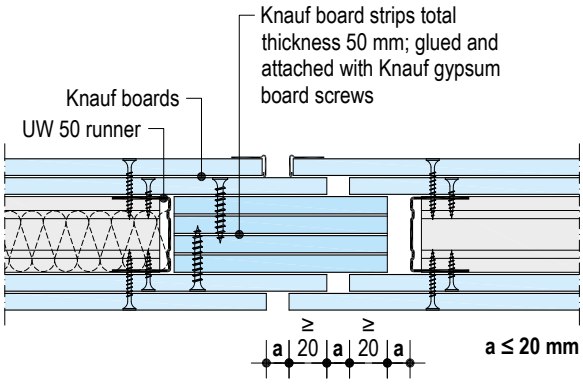
Horizontal section



plus **Extension of the fire resistance Proof of Usability**
Prior consultation in acc. to page 5 recommended

W112.de-BFU4 Movement joint

Horizontal section

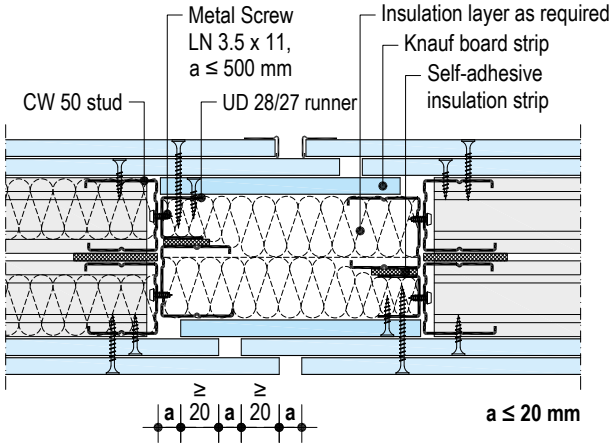


- The rigid connection of the wall shells causes a local reduction of the sound insulation.
- Knauf recommendation with partition cavity 50 mm

plus **Extension of the fire resistance Proof of Usability**
Prior consultation in acc. to page 5 recommended

W115.de-BFU1 Movement joint

Horizontal section



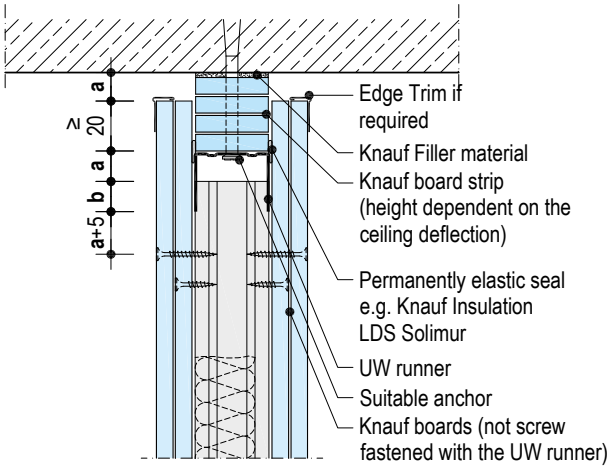
plus **Extension of the fire resistance Proof of Usability**
Prior consultation in acc. to page 5 recommended

Deflection heads

Scale 1:5 I Dimensions in mm

W112.de VO2 Connection to ceiling, deflection head[1)]

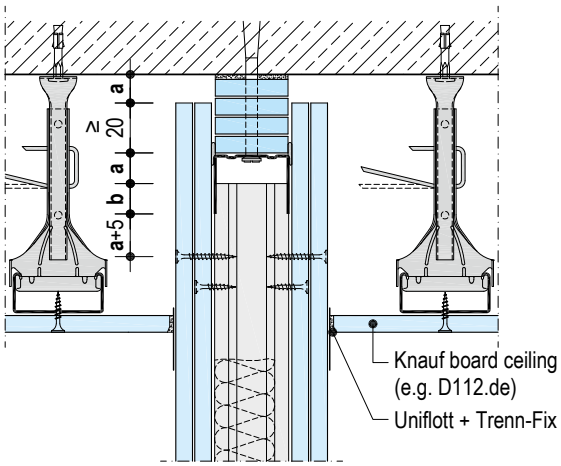
Vertical section



plus **Extension of the fire resistance Proof of Usability**
Prior consultation in acc. to page 5 recommended

W112.de-VO7 Deflection head with board ceilings[1)]

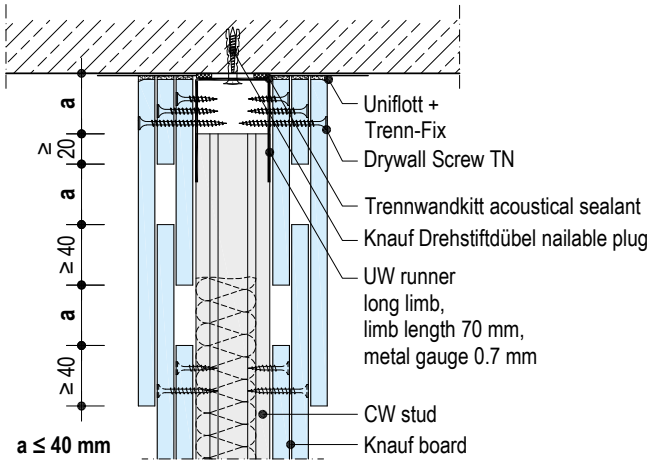
Vertical section



plus **Extension of the fire resistance Proof of Usability**
Prior consultation in acc. to page 5 recommended

W112.de-VO12 Connection to ceiling, deflection head up to 40 mm

Vertical section



■ **Permissible wall height ≤ 7 m**

plus **Extension of the fire resistance Proof of Usability**
Prior consultation in acc. to page 5 recommended

1) Details for deflection heads

Knauf system	Without Fire resistance		With Fire resistance		Max. permissible partition height
	a mm	b mm	a mm	b mm	m
W111.de	≤ 20	≥ 20	≤ 20	≥ 20	
W112.de	≤ 30	≥ 10	≤ 20	≥ 20	6.50
W113.de	≤ 30	≥ 10	≤ 20	≥ 20	

Observe the permissible partition heights of the respective system (see pages 9, 11 and 13).

Notes

In case of a deflection head, do not screw fasten the Knauf boards to the UW runner.

Apply a deflection head in case of ceiling deflection ≥ 10 mm. Larger ceiling deflections on request.

Influence of a deflection head on the sound reduction index see page 40.

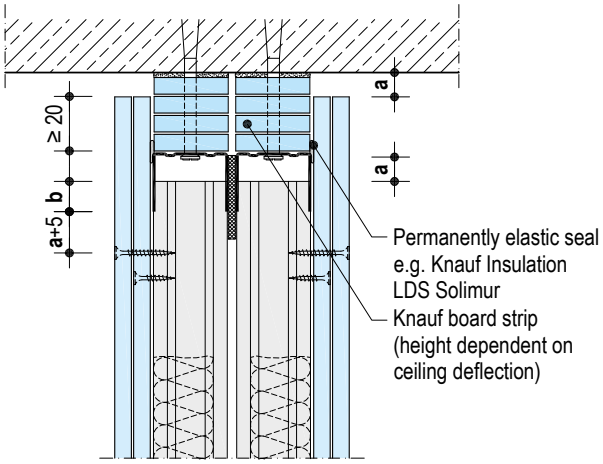
See also Knauf YouTube Channel

Deflection heads

Scale 1:5 I Dimensions in mm

W115.de VO2 Connection to ceiling, deflection head[1)]

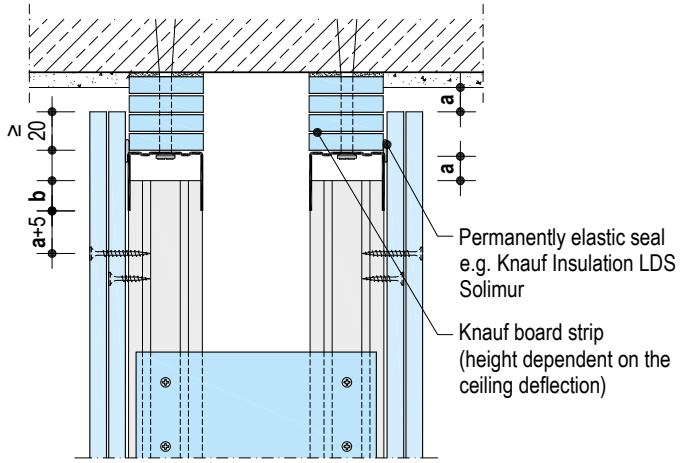
Vertical section



plus **Extension of the fire resistance Proof of Usability**
Prior consultation in acc. to page 5 recommended

W116.de VO2 Connection to ceiling, deflection head[1)]

Vertical section



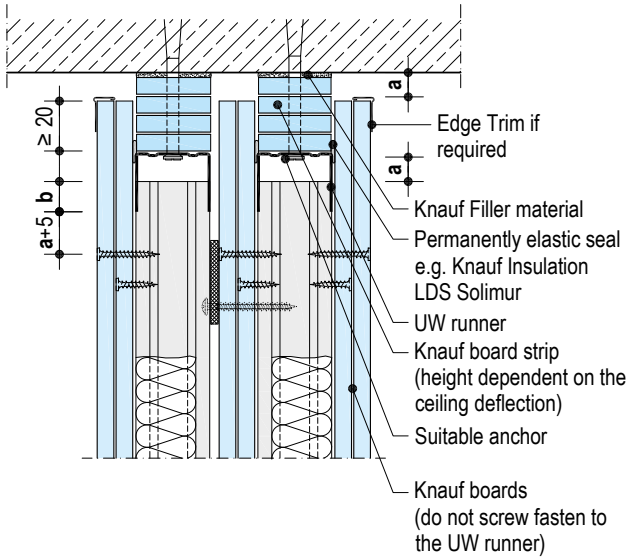
1) Details for deflection heads

Knauf system	Without Fire resistance		With Fire resistance		Max. permissible partition height
	a mm	b mm	a mm	b mm	m
W115V.de double-layer	≤ 20	≥ 20	≤ 20	≥ 20	6.50
W115.de double-layer	≤ 20	≥ 20	≤ 20	≥ 20	
W116.de single-layer	≤ 20	≥ 20	–	–	
W116.de double-layer	≤ 30	≥ 10	≤ 20	≥ 20	

Observe the permissible partition heights of the respective system (see pages 15, 17 and 19).

W115V.de VO2 Connection to ceiling, deflection head[1)]

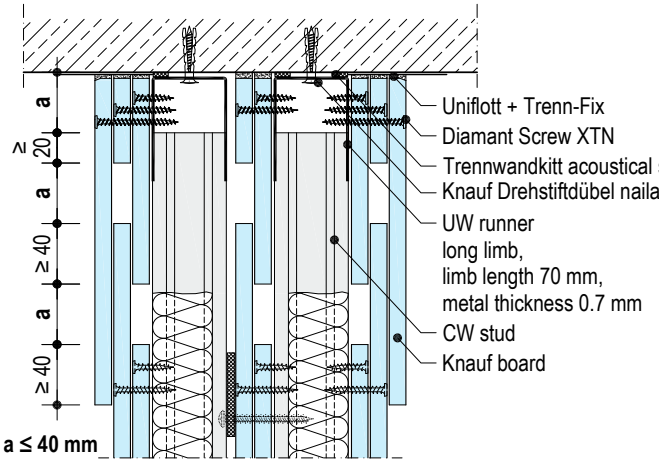
Vertical section – example **screw fastened**



plus **Extension of the fire resistance Proof of Usability**
Prior consultation in acc. to page 5 recommended

W115V.de VO3 Connection to deflection head

Vertical section – example **screw fastened**



■ **Permissible wall height ≤ 7 m**

plus **Extension of the fire resistance Proof of Usability**
Prior consultation in acc. to page 5 recommended

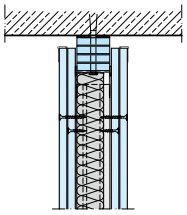
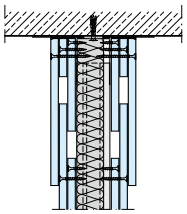
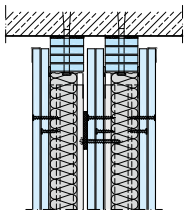
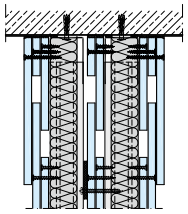
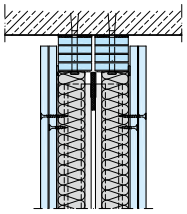
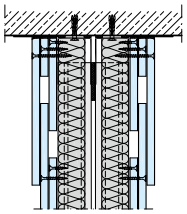
Notes	
	In case of a deflection head, do not screw fasten the Knauf boards to the UW runner.
	Apply a deflection head in case of ceiling deflection ≥ 10 mm. Larger ceiling deflections on request.
	Influence of a deflection head on the sound reduction index see page 40.
	See also Knauf YouTube Channel

Influence of a deflection head on the sound reduction index

The influence of the deflection heads on the resulting sound reduction index vary depending on the sound reduction index of the basis partition. Irrespective of the sound reduction index of the basis partition, the deflection heads must always be professionally designed and applied. Leaks and improper sealing between the board strips and basic ceiling, on the joints between the board strips as well as between the cladding layers considerably impair the achievable sound reduction index.

Note	In suspended ceilings under the deflection head, the deflection head does not have any negative effect on the airborne sound reduction index of the wall construction, see details W112.de-VO7 on page 38.

Scheme drawings

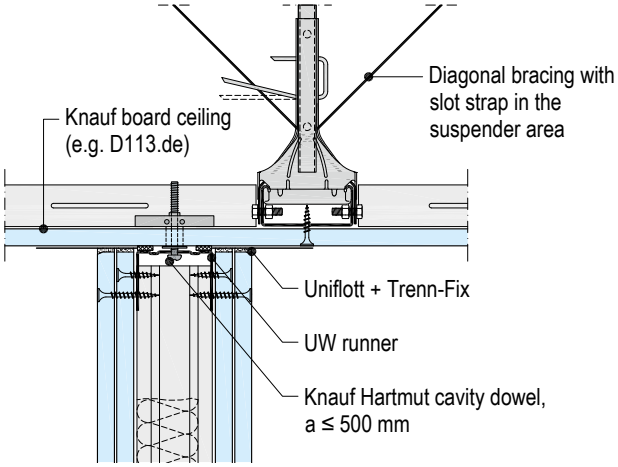
Deflection head	Sound reduction index of the basis partition		
Single metal stud frame	$R_w \leq 56$ dB	$56 < R_w \leq 62$ dB	$62 < R_w \leq 68$ dB
	-1 dB	-2 dB	-3 dB
	No negative influence		
Double stud frame, with interior cladding	Assigned		
	-4 dB		
	No negative influence		
Double stud frame	Assigned		
	-4 dB		
	No negative influence		

Connections to ceiling

Scale 1:5

W112.de-VO4 Connection to board ceiling

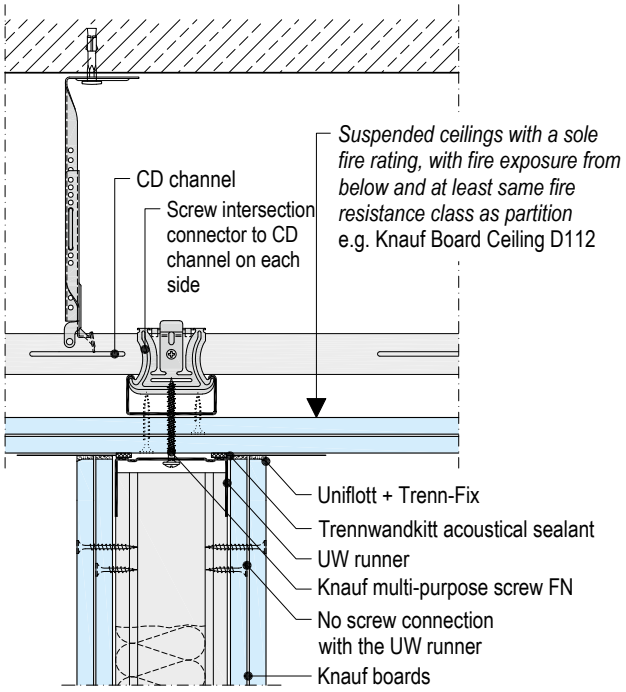
Vertical section I Without fire resistance



- Permissible wall height ≤ 4 m (higher on request)
- Horizontal bracing by diagonal bracing (e.g. slot strap, CD channel)
- Door opening installation on request

W112.de-VO6 Connection to board ceiling

Vertical section

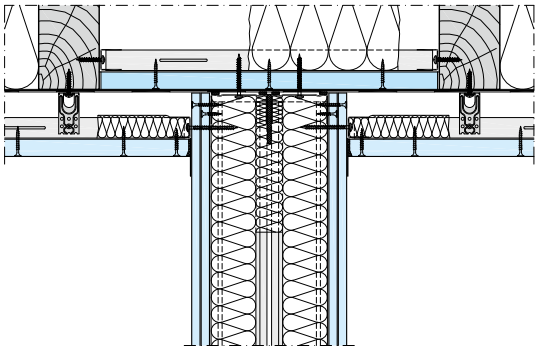


- Permissible wall height ≤ 4 m (higher on request)
- Horizontal bracing via load transfer via the ceiling diaphragm to the flanking partitions (supporting connection of the ceiling necessary)
- Door opening installation on request

plus **Extension of the fire resistance Proof of Usability**
Prior consultation in acc. to page 5 recommended

Connection to wood joist ceiling / attic system

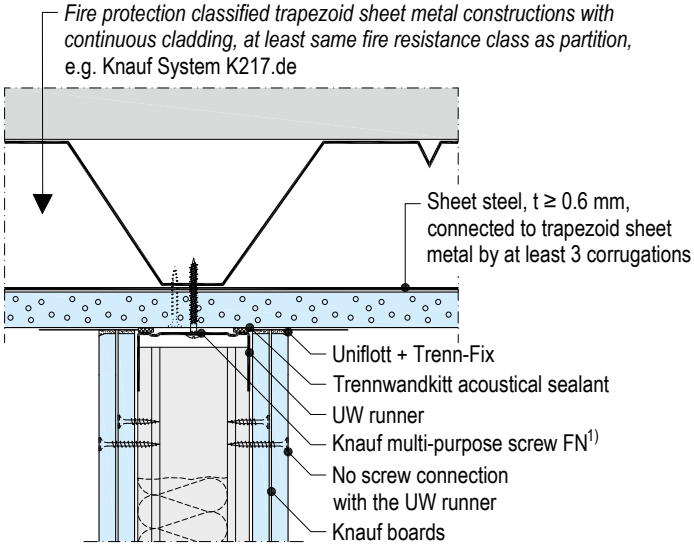
Scheme drawing I Not to scale



- Application acc. to system data sheet Knauf Attic Systems D61.de

W112.de-VO5 Connection to trapezoid sheet metal cover

Vertical section



1) With trapezoid sheet metal thickness: *t ≥ 1.0 mm pre-bore with Ø 2.0 mm*
t ≥ 1.5 mm pre-bore with Ø 3.0 mm
t ≥ 2.0 mm approved fastener

plus **Extension of the fire resistance Proof of Usability**
Prior consultation in acc. to page 5 recommended

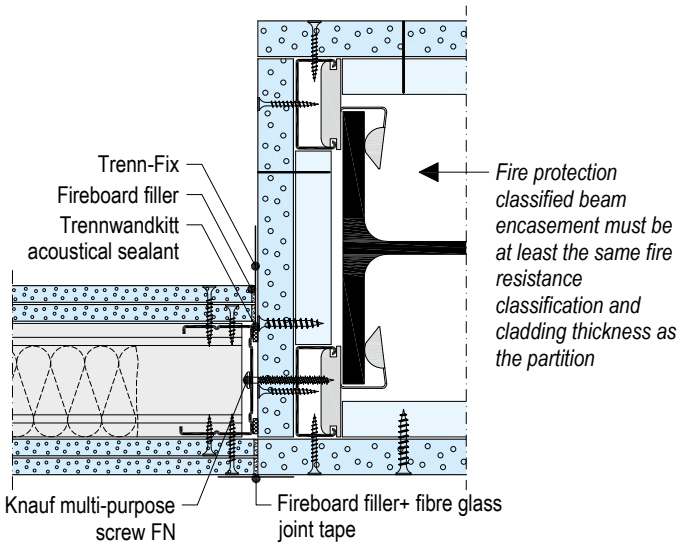
Note	For further information on planning and design see system data sheets Knauf Board Ceilings D11.de or Knauf Trapezoid Sheet Metal Systems K217.de

Connections to steel beams / steel column encasements

Scale 1:5

W112.de-VO9 Connection to steel column encasement

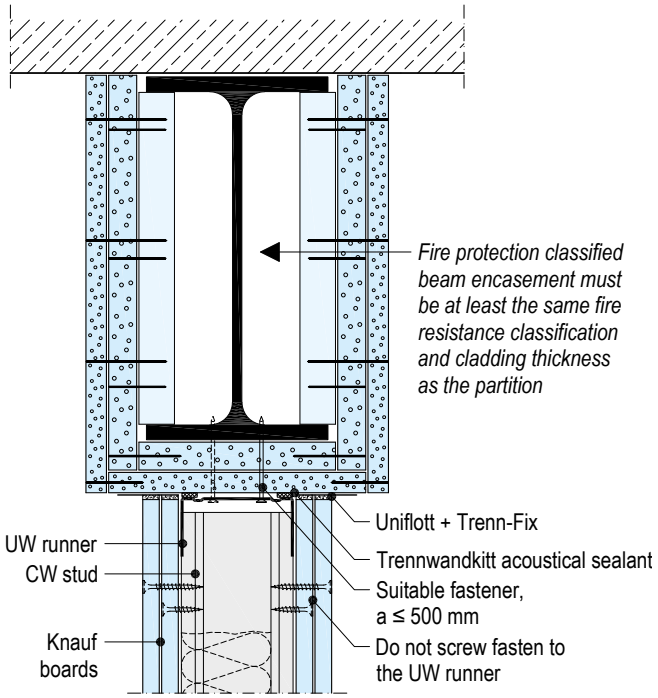
Horizontal section



plus **Extension of the fire resistance Proof of Usability**
Prior consultation in acc. to page 5 recommended

W112.de-VO8 Connection to steel beam encasement

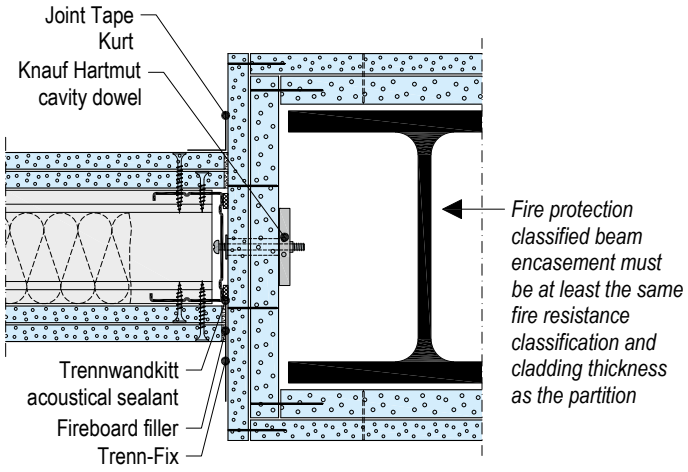
Vertical section



plus **Extension of the fire resistance Proof of Usability**
Prior consultation in acc. to page 5 recommended

W112.de-VO10 Connection to steel column encasement

Horizontal section



plus **Extension of the fire resistance Proof of Usability**
Prior consultation in acc. to page 5 recommended

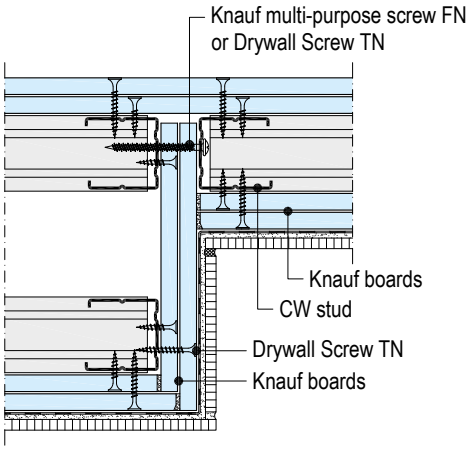
Note	Configuration of steel beam and column encasements see system data sheet Knauf Fireboard Steel Beam and Steel Column Encasements K25S.de.

Wall breaks, detached wall end

Scale 1:5

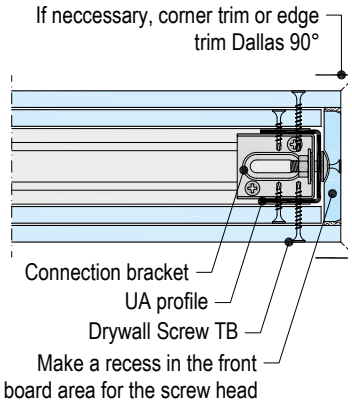
W116.de-D1 Wall break

Horizontal section I Without fire resistance



W112.de-END2 Detached wall end

Horizontal section I Without fire resistance

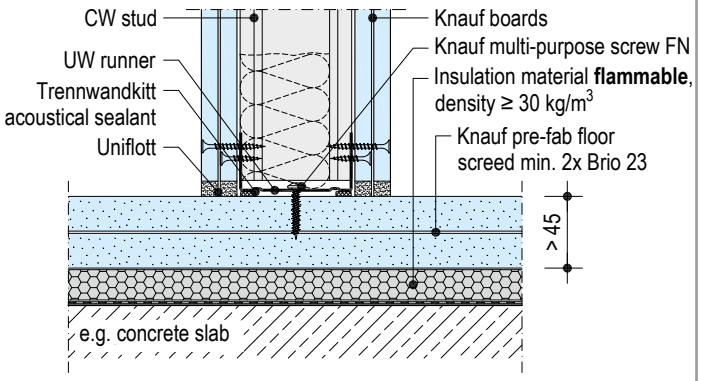


Connections to floor

Scale 1:5 I Dimensions in mm

W112.de-VU5 Connection to floor on flammable insulation materials

Vertical section

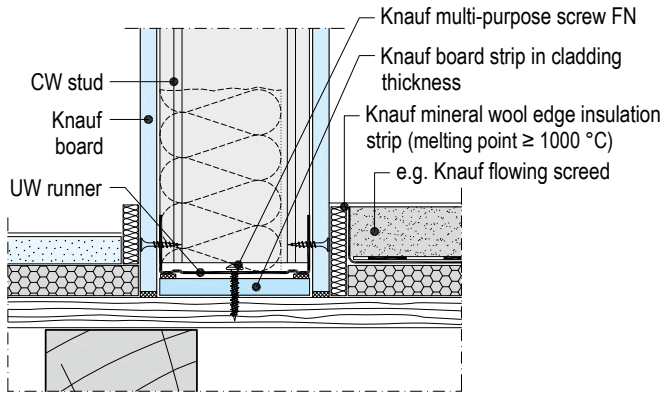


- In case of demands on the fire resistance: In case of installation of flammable insulation material screed thickness min. 45 mm (applied for Knauf flowing screeds and Knauf Pre-fab Floor Screed)
- Floor configuration in acc. with fire resistance specifications, observe brochure Knauf Pre-Fab Floor Screed F12.de.
- Larger screed thicknesses that are structurally necessary must be considered.
- Continuous screed layer reduces the sound insulation effectiveness.

plus **Extension of the fire resistance Proof of Usability**
Prior consultation in acc. to page 5 recommended

W111.de-VU4 Floor connection to wood joist ceiling

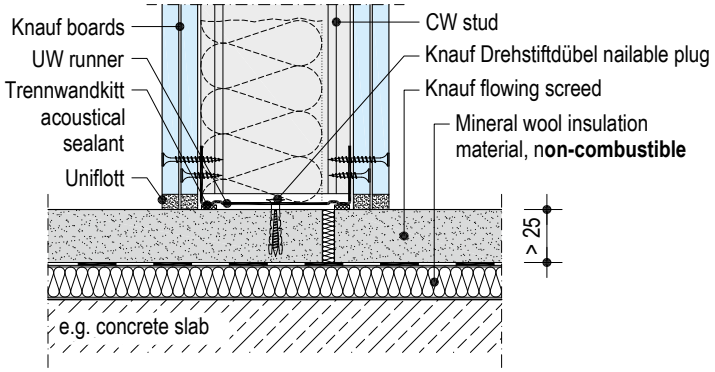
Vertical section



plus **Extension of the fire resistance Proof of Usability**
Prior consultation in acc. to page 5 recommended

W112.de-VU2 Connection to floor on non-combustible insulating materials

Vertical section

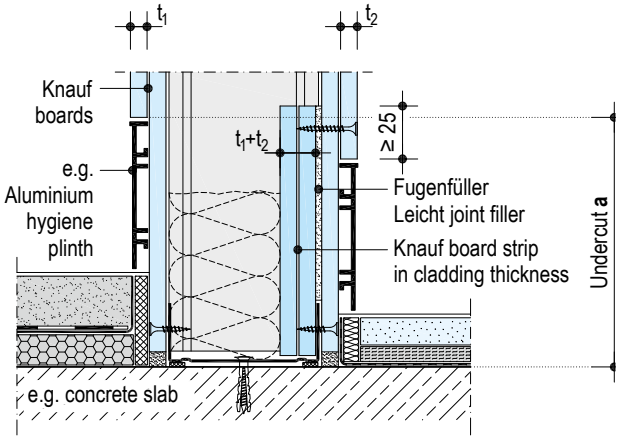


- In case of demands on the fire resistance: In case of installation of non-combustible insulation material screed thickness min. 25 mm (applied for Knauf flowing screeds and Knauf Pre-fab Floor Screed)
- Floor configuration in acc. with fire resistance specifications, observe brochure Knauf Floor Systems F20.de.
- Larger screed thicknesses that are structurally necessary must be considered.

plus **Extension of the fire resistance Proof of Usability**
Prior consultation in acc. to page 5 recommended

W112.de-VU3 Floor connection to undercut plinth

Vertical section



- Max. undercut **a** without structural influence; **a** ≤ 500 mm
- CW 50 < 150 mm; CW 75 < 225 mm; CW 100 < 300 mm
- In case of larger undercut maximum partition height **a** acc. to system W111.de see page 9.

plus **Extension of the fire resistance Proof of Usability**
Prior consultation in acc. to page 5 recommended

Note	Observe the reduced maximum permissible spacings (according to tables on page 62).

Single side installation

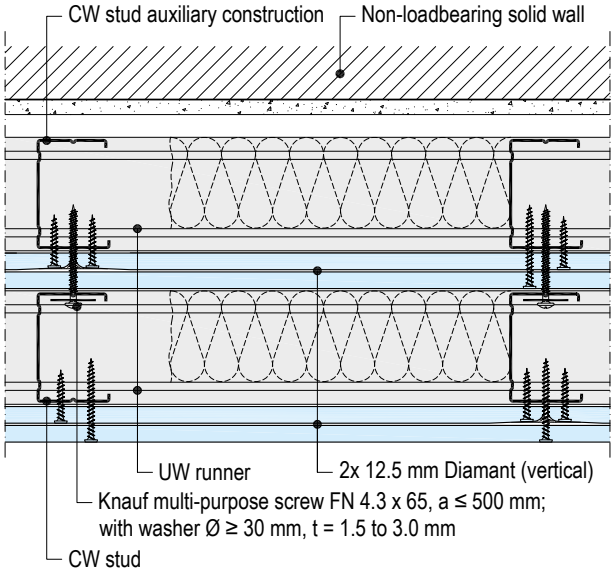
Scale 1:5

If a Knauf metal stud partition is to be placed in front of an existing non-load-bearing wall construction that does not fulfil any fire resistance requirements, an auxiliary construction made of stud profiles is erected in front of the existing wall to fasten the cladding layers facing away from the room. Subsequent further construction design is implemented in accordance with the respective system specifications and taking the following details into consideration.

Detail

W112.de-SO7 Single side installation before existing wall

Horizontal section



plus **Extension of the fire resistance Proof of Usability**
Prior consultation in acc. to page 5 recommended.

Door openings

Scheme drawings

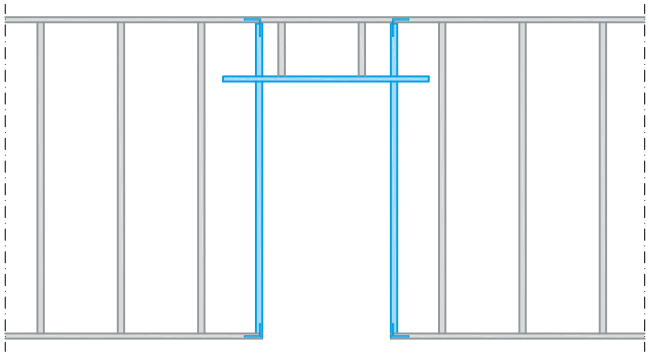
Maximum door leaf weights

Door opening profiles CW/UA

Door leaf width	Variant CW stud	UA profile variant UA 50	UA 75[1)]	UA 100	UA 125	UA 150
≤ 885 mm	≤ 25 kg	≤ 50 kg	≤ 75 kg	≤ 100 kg	≤ 125 kg	≤ 150 kg
≤ 1010 mm	–	≤ 50 kg	≤ 75 kg	≤ 100 kg	≤ 125 kg	≤ 150 kg
≤ 1260 mm	–	≤ 40 kg	≤ 60 kg	≤ 80 kg	≤ 100 kg	≤ 120 kg
≤ 1510 mm	–	≤ 35 kg	≤ 50 kg	≤ 65 kg	≤ 80 kg	≤ 95 kg

1) Values also apply for UA 70.

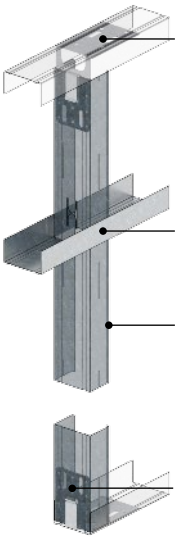
Stud frame



Door opening profiles

Variant CW 50/75/100

Acc. to DIN 18340:
- Partition height ≤ 2.60 m
- Door width ≤ 0.885 m
- Door leaf weight ≤ 25 kg



Knauf Door Frame Bracket **"top"**, Fastening with the enclosed dowels

Door lintel profile
Alternative: UW runner

CW stud

Knauf Door Frame Bracket **"bottom"**, Fastening with the enclosed dowels

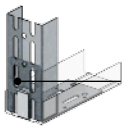
Variant UA 50/75/100 (Knauf recommendation)

Acc. to DIN 18340:
- Partition height > 2.60 m
- Door width > 0.885 m
- Door leaf weight > 25 kg

Knauf Door Frame Bracket **"top"**, Fastening with the enclosed dowels

UW runner cut in and bent, screw fastened with UA profile

UA profile room height (not jointed)



Knauf Door Frame Bracket **"bottom"**, Fastening with the enclosed dowels

- Remove the plastic strips on the Door Frame Bracket.
- Alternative: Knauf Connection Angle for UA profiles

When partitions are applied with UA 70 profiles

- Screw fasten the Knauf connection angle UA 50 in the oblong slots top and bottom with one enclosed nut and washer.
- In case of a deflection head only hand tighten the carriage bolt on the upper connection angle.
- Manufacture the lintel runner from UW profiles.

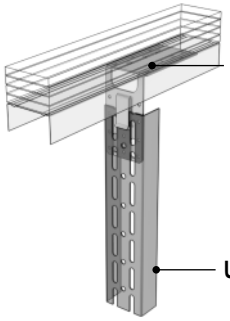
When partitions are applied with profiles UA 125 or UA 150

- Screw fasten the Door Frame Bracket 100 in the oblong slots top and bottom each with two enclosed carriage bolts using nuts and washers.
- In case of a deflection head only hand tighten the carriage bolt on the upper Door Frame Bracket.
- Manufacture the lintel runner from UW profiles.

Door openings (continued)

Notes	**Knauf recommendation** ■ In case of dual stud partitions, construct door opening with UA profiles. ■ Door opening profiles approx. 40 mm shorter than the stud frame profiles; observe additional constructional situation / constraints, e.g. deflection head.

Door openings with deflection head



Knauf Door Frame Bracket **"top"**, Fasten with e.g. Knauf Nailable Plugs L 8/100

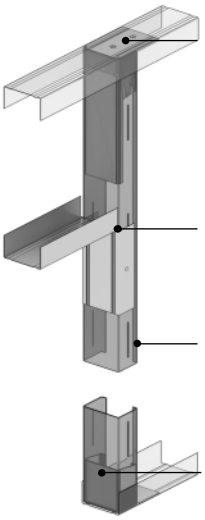
UA profile or **CW stud**

- For ceiling deflections up to maximum:
  - 20 mm with CW studs and UA profiles
  - 30 mm with Heavy Load Profile BOB GREENSTEEL

Variant Heavy Load Profile BOB GREENSTEEL C 50/75/100

Following EN 18340:

Partition height	≥ 2.80 m
Door width	≥ 1.010 m
Door leaf weight	> 40 kg



Head bracket, fasten with included bolt anchor

UW runner cut in and bent, screw fastened with Heavy Load Profile BOB GREENSTEEL

Heavy Load Profile BOB GREENSTEEL

Base, fasten with included bolt anchor

- Heavy Load Profile BOB GREENSTEEL cut-to-fit:
  - 10 mm shorter than the room height without deflection head
  - 30 mm shorter than room height with deflection head
- For further information on planning and design see Installation Instructions Heavy Load Profile BOB GREENSTEEL K691-A01.de.

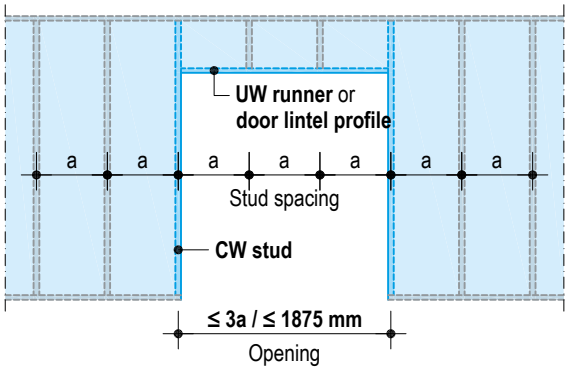
Note	**Maximum permissible door leaf weight:** ■ Door leaf weight possible up to 220 kg ■ Maximum door leaf width 1260 mm ■ Observe the specifications acc. to installation instructions Heavy Load Profile BOB GREENSTEEL K691-A01.de.

Maximum openings in metal stud partitions

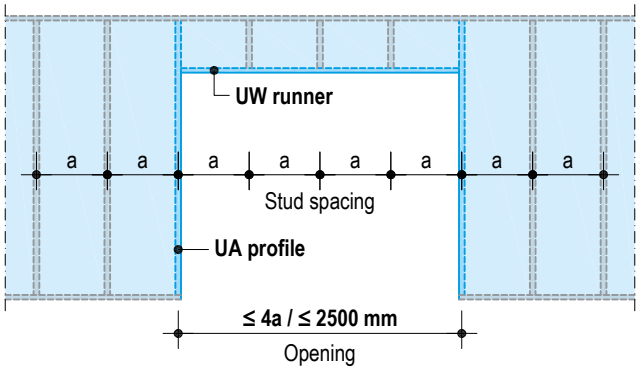
Without fire protection Scheme drawings

- Stud spacing ≤ 625 mm
- Observe the permissible partition heights of the respective system.
- Larger opening widths / partition heights on request
- The respective installation conditions must be observed with door installation.

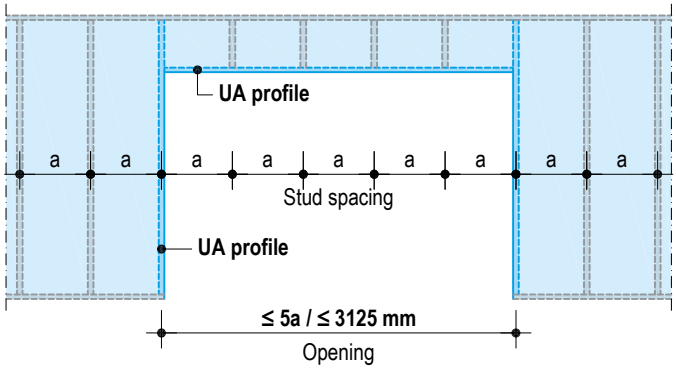
Up to 3a / ≤ 1875 mm: CW studs as reveal studs, UW runner or door lintel profile as a lintel runner



Up to 4a / ≤ 2500 mm: UA profiles as reveal studs, UW runner as a lintel runner



Up to 5a / ≤ 3125 mm: UA profiles as reveal studs, UA profile or lintel runner

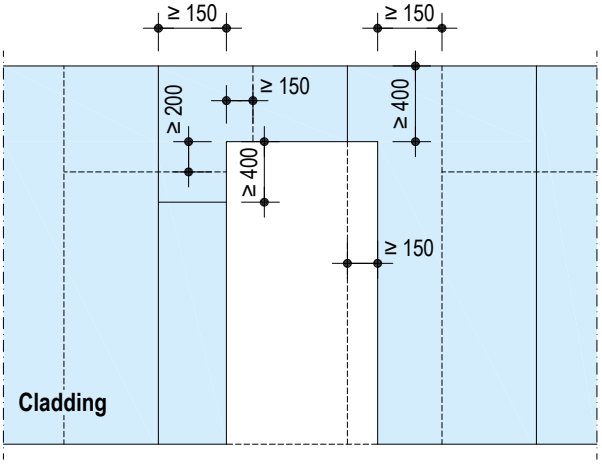


Cladding

Scheme drawings I Dimensions in mm

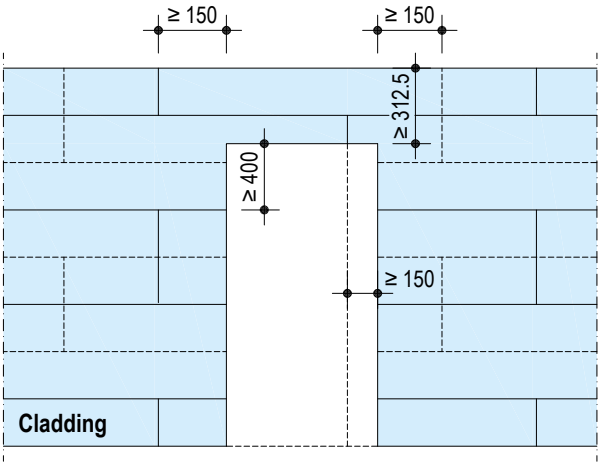
Board layer vertical

- Arrange the long joints on the door lintel and not along the door opening, rather offset it to the door lintel centre.
- Arrange the horizontal joints on the door lintel and not along the door opening, rather offset it to the door opening centre.
- Cladding above the door lintel < 400 mm is only permissible in case of floor-to-ceiling boards.



Horizontal board layer

- Arrange the horizontal joints on the door lintel and not along the door opening, rather offset them to the door lintel centre.
- Arrange the longitudinal joints on the door lintel and not along the door opening, rather offset them to the door opening centre.



Legend

- – – – – – Lower layer
- ——— Upper layer

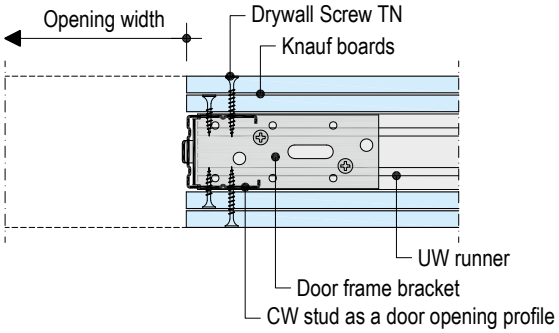
Caution	Do not apply board joints to door opening profiles.

Details

Scale 1:5 I Dimensions in mm

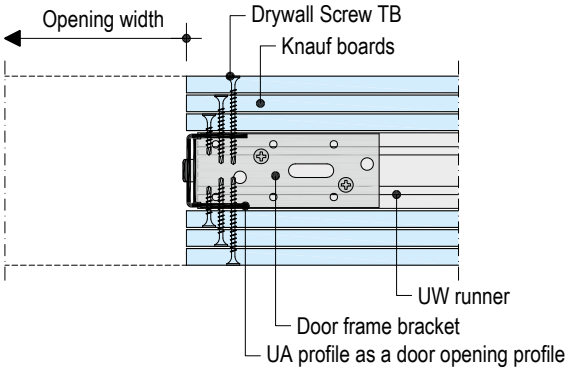
W112.de-E2 Door opening with CW stud

Horizontal section I Without fire resistance



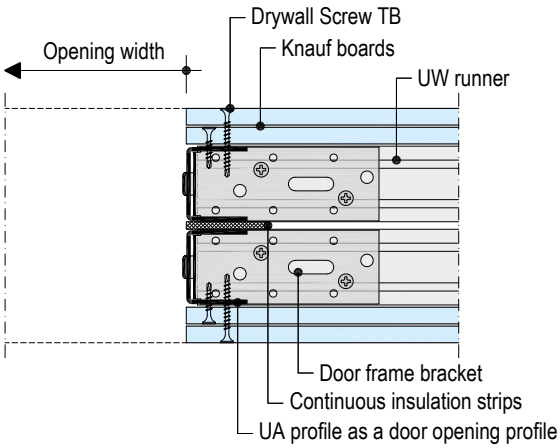
W113.de-E1 Door opening with UA profile

Horizontal section I Without fire resistance



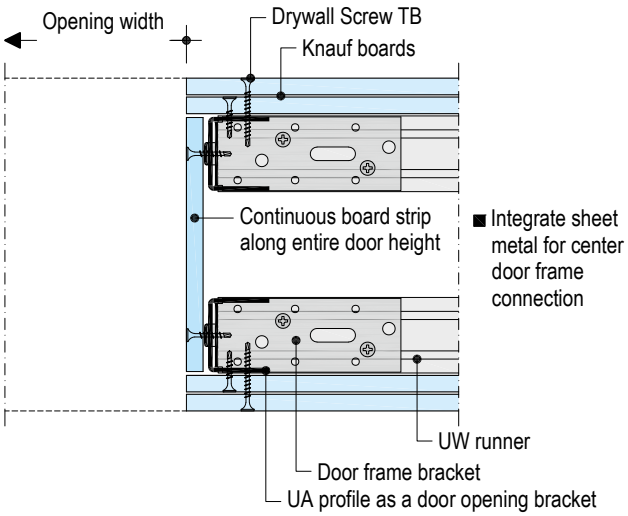
W115.de-E1 Door opening with UA runners

Horizontal section I Without fire resistance



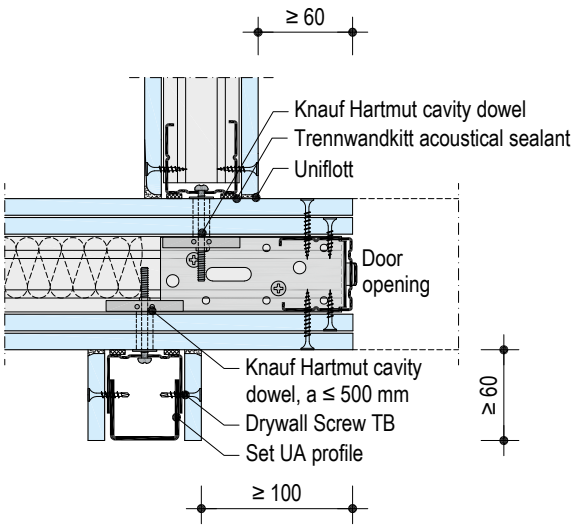
W116.de-E1 Door opening with UA profiles

Horizontal section I Without fire resistance



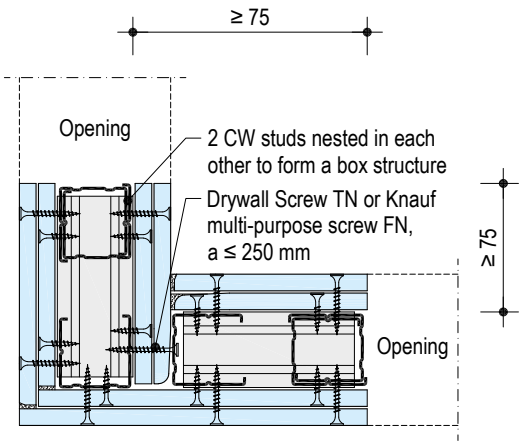
W112.de-E3 Wall opening beside wall connections

Horizontal section I Without fire resistance



W112.de-E4 Wall opening beside corners

Horizontal section I Without fire resistance



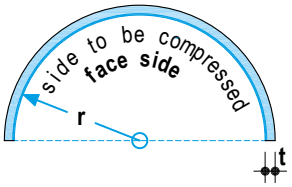
Notes

Furthermore, the details of the door manufacturers are to be observed (e.g. fire protection approval, additional constructional measures, etc.)
Fire protection only in conjunction with a corresponding fire protection connection.

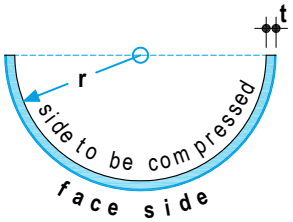
Curved partitions

Scheme drawings

Concave – inner arch



Convex – outer arch



Bending radii of Knauf boards

Board thickness t	Bending radius r in longitudinal direction	
	Dry bending	Wet bending
mm	mm	mm
6.5 (Techniform board)	≥ 1000	≥ 300
12.5 GKB / GKF	≥ 2750	≥ 1000
12.5 Diamant	≥ 2750	≥ 1000 (on site)[1)]

Other Knauf Boards / bending radii on request

1) Observe the extended time required due to hydrophobic properties (apply holes crosswise across the entire board, water thoroughly 4 to 5 times, total exposure time to water 45 min).

Bending instructions for Knauf boards (bend only in the longitudinal direction)

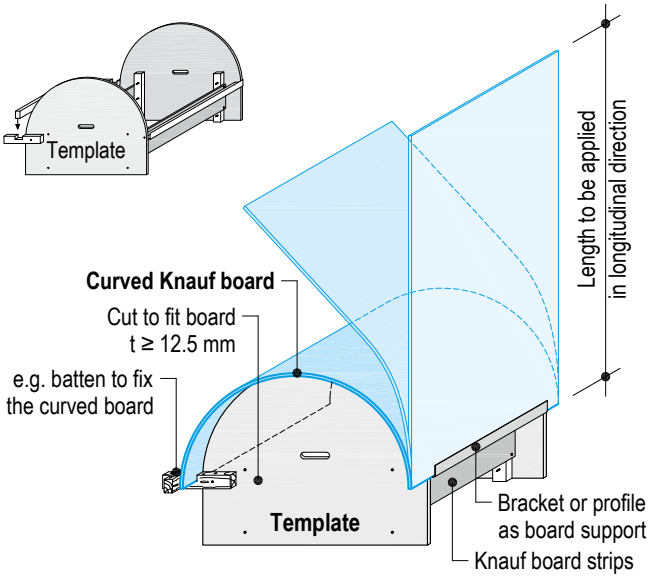
Dry bending

1. Slowly bend the Knauf board laterally over the stud partitions. Pre-bending on a template is recommended.
2. Fasten board with Drywall Screws along the curvature.

Wet bending

1. Put the cut-to-length Knauf boards on a grid made of channels or similar with the side to be compressed on top (to ensure that excess water can drip off).
2. Perforate with a spiked roller longitudinally and transversely.
3. Wet the board with a sprayer or lambskin roller and allow to soak in for a few minutes. Repeat the work step several times until saturation is achieved and the excess water runs off.
4. Place the board on the prefabricated template, bend and fix the board with adhesive tape and allow to dry.

With impregnated boards: Observe the extended time required due to hydrophobic properties.



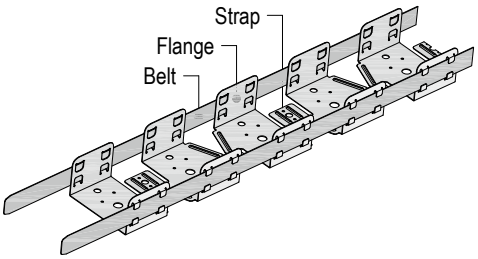
Installation instructions

- Connect the CW studs to the Knauf Sinus with a crimp connection.
- CW stud spacing ≤ 312.5 mm (external radius)
- Knauf fastener spacings ≤ 300 mm
- Horizontal cladding

Knauf Sinus

- Available in widths 50, 75 and 100 mm; length 1900 mm
- The desired curvature can be implemented at any location. The straps are simply bent by simple application of finger pressure and the profile is made flexible at this location.
- Possible radii:

Sinus	External radius
50	≥ 125 mm
75	≥ 175 mm
100	≥ 250 mm

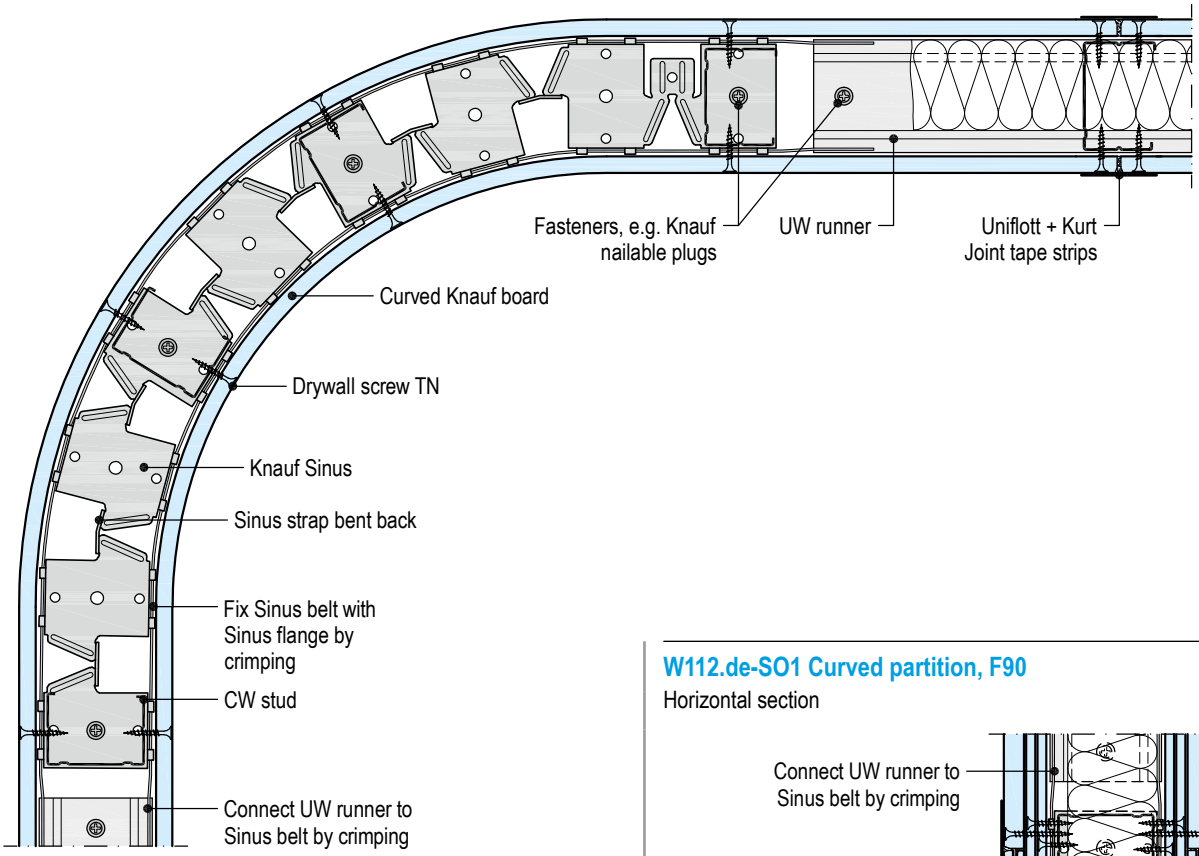


Details

Scale 1:5 I Dimensions in mm

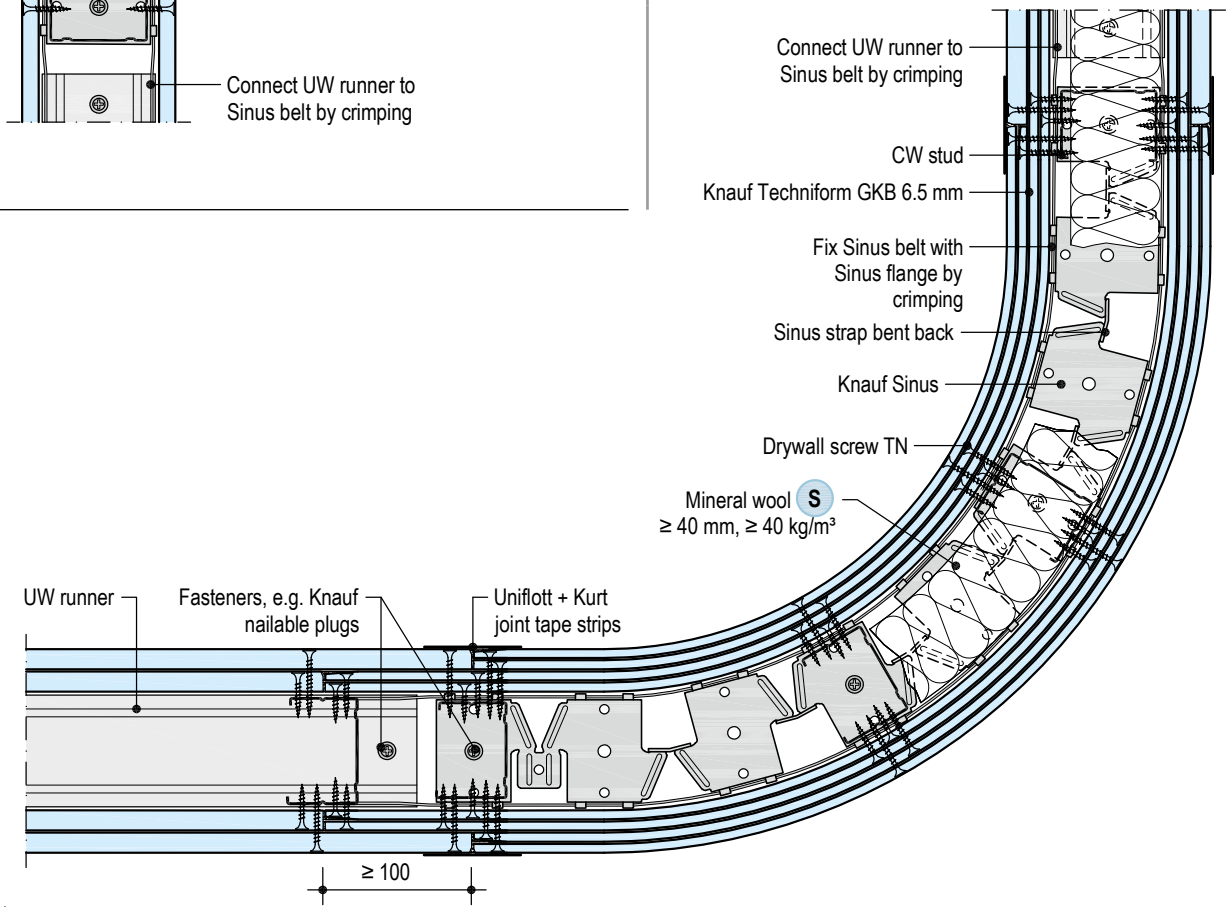
W111.de-SO1 Curved partition

Horizontal section I Without fire resistance



W112.de-SO1 Curved partition, F90

Horizontal section



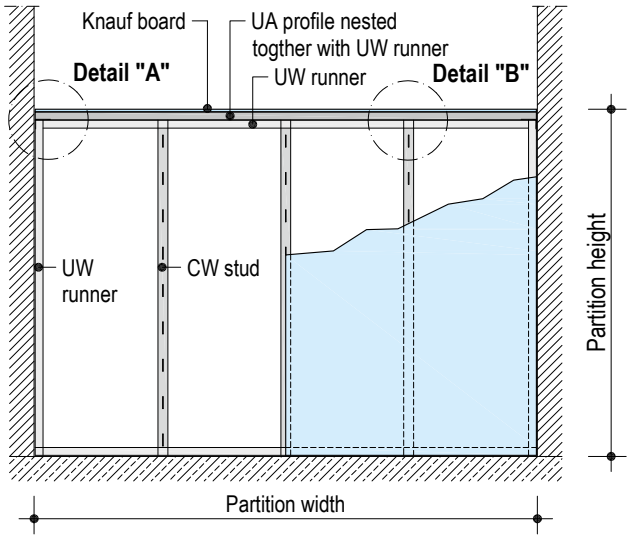
- Permissible wall height ≤ 5 m

plus **Extension of the fire resistance Proof of Usability**
Prior consultation in acc. to page 5 recommended

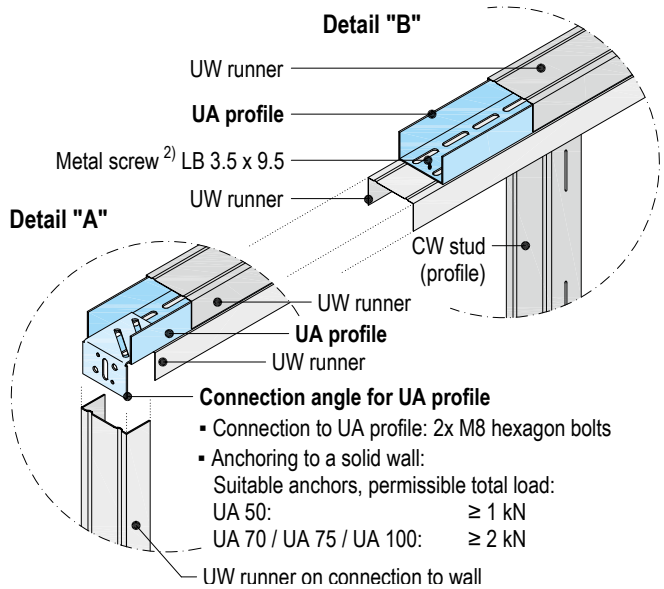
Metal stud partitions without connection to ceiling

Without fire resistance

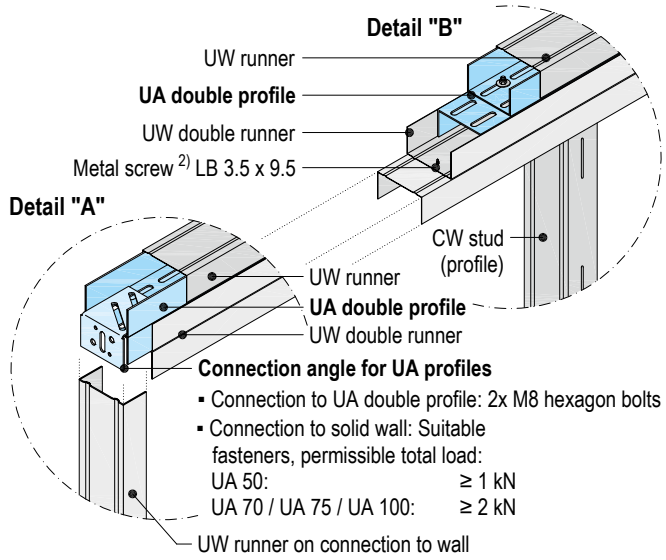
View Scheme drawings



Application with UA single profile



Application with UA double profile

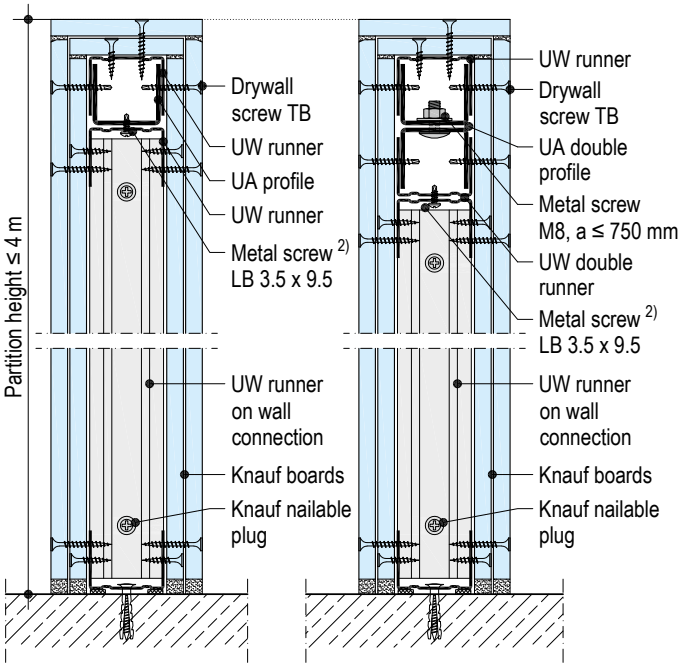


Detail metal stud partitions without connection to ceiling

Vertical section I Without fire resistance Scale 1:5

W111.de / W112.de

■ UA single profile ■ UA double profile



Connection to floor acc. to W111.de / W112.de

1) Fastener spacing in acc. with the spacings of the Knauf multi-purpose screws FN in the tables page 62

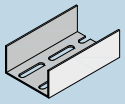
Installation of doors for partitions without connection to ceiling

- Without door closer:
  - Max. 50 kg door leaf weight
  - Door opening max. 1.01 x 2.125 m
  - Possible at any location
- With door closer:
  - Max. 100 kg door leaf weight
  - For single or double profiles ≥ UA 100
  - Door opening max. 1.01 x 2.125 m
  - Possible at any location
- Wall openings on request

Caution	UA single profiles may not be butt jointed. Apply UA double profile preferably without butt joint. When applied acc. to variant 4 page 64 1 butt joint is possible. Fire protection and sound insulation requirements **cannot** be implemented with this wall construction.

Metal stud partitions without connection to ceiling (Continuation)

Partition width = UA profile width

UA profile Metal gauge 2 mm 	**Maximum permissible partition width**[1)] **Installation zone 1** m	 **Installation zone 2** m
UA single profile		
UA 50	4.00	3.50
UA 70	4.25	4.00
UA 75	4.30	4.00
UA 100	5.30	4.40
UA 125	6.00	5.20
UA 150	6.40	5.70
UA double profile		
2x UA 50	4.20	4.00
2x UA 70	5.20	4.40
2x UA 75	5.40	4.50
2x UA 100	6.30	5.50
2x UA 125	7.20	6.50
2x UA 150	7.60	7.00

1) Cantilever loads are considered during calculation.

- Permissible partition height ≤ 4 m; larger partition heights on request

Connection of "lightweight" partitions to fire protection classified ceilings

Scheme drawings

- Partitions may only be connected to fire protection classified ceiling systems (suspended ceilings), if it can be ensured in the event of a fire, that should the partition be destroyed prematurely, the remaining elements can collapse without creating an additional load for the ceiling.
- If partitions with fire protection requirements are connected to the suspended ceiling, the suspended ceilings alone must have at least the same fire resistance class.
- Horizontal bracing of the suspended ceiling (max. 15 x 15 m ceiling area size) or load transfer to the flanking constructional components is necessary.
- The following design of the connections is possible (for further connections see page 41 or on request):

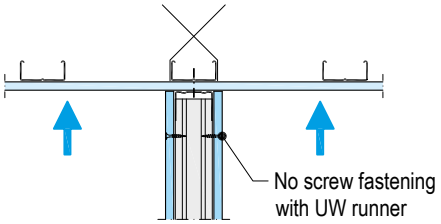
Knauf wall systems	**Knauf ceiling systems**		
	Suspended ceilings all allocated to a single fire rating		Suspended ceilings in conjunction with basic ceilings of type I – IV
	Fire exposure **from below**	Fire exposure **from above** (plenum)	
Without fire resistance	1	2	3a
Partition fire resistance class less than ceiling	1	2	3b
Partition fire resistance class equal to ceiling	1	2	3c

Suspended ceilings all allocated to a single fire rating

Fire exposure from below

On suspended ceilings with fire resistance from below, implement the connection to the ceiling without screw fixing to the UW profile, but the cladding must extend up to the suspended ceiling.

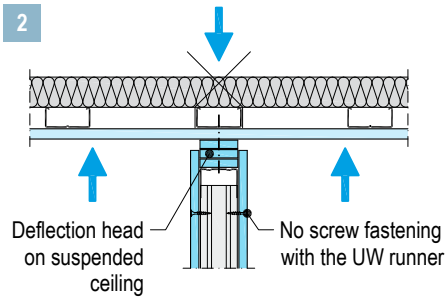
1



Fire exposure from above (plenum)

On suspended ceilings with protection from below and above / from above implement a deflection head in the standard design with movement play of at least 15 mm.

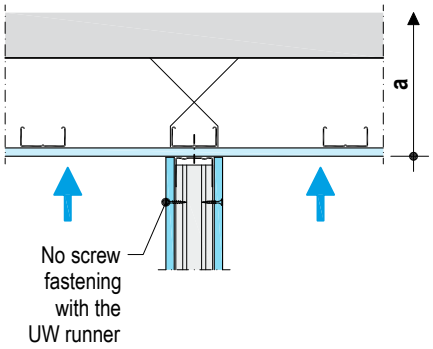
2



Suspended ceilings in conjunction with basic ceilings of types I – IV

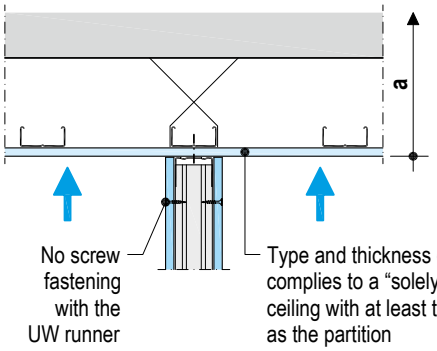
For suspended ceilings in conjunction with basic ceilings of types I – IV, the stated fire resistance class only applies for the entire ceiling system **(a)**.

3a Implement ceiling connection of partitions without fire resistance without screw fastening to the UW runner.



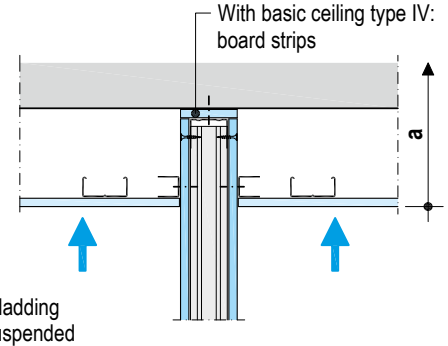
Partition without fire resistance

3b If partitions with fire protection are connected to the suspended ceiling, the classification of the suspended ceilings alone **(b)** must at least be the same fire resistance class as the partition.



Partition with fire resistance

3c Partitions with the same fire resistance class as the entire ceiling system **(a)** must be fastened to the basic ceiling.

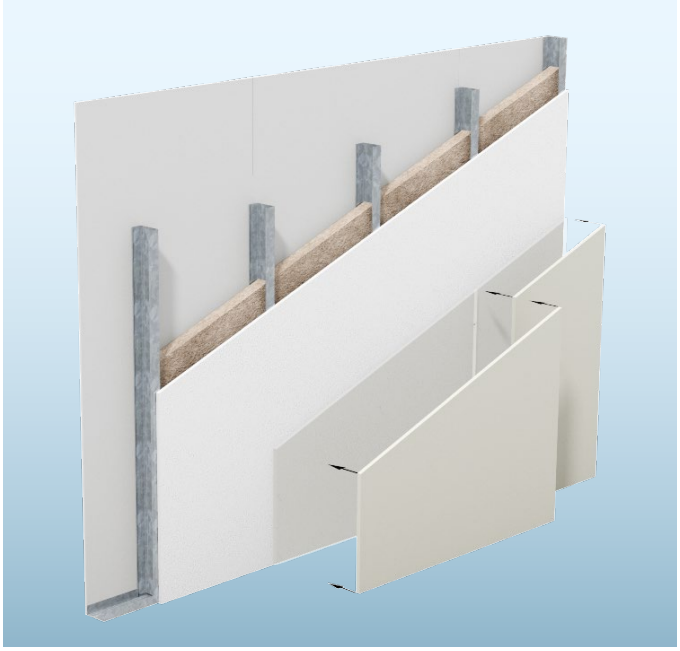


Partition with fire resistance

With connection components of combustible building materials, perimeter runners (UW) must be integrated into the wall cladding thickness with gypsum boards.

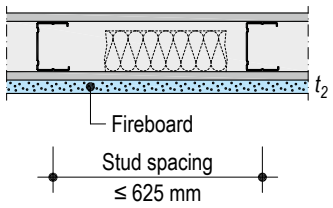
Note plus Extension of the fire resistance Proof of Usability see page 5.

Upgrading metal stud partitions with Fireboard

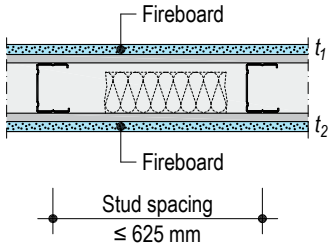


Scheme drawings

Single-sided



Double-sided



Attachment of additional Fireboard cladding by screwing it onto the stud

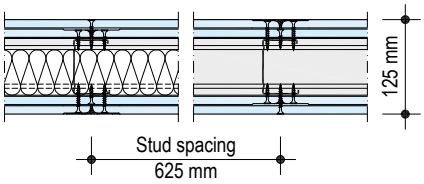
Existing partition Cladding per partition side mm	Insulation layer	Upgrade On F30 Fireboard single-sided mm	On F60 Fireboard single-sided mm	Fireboard double-sided mm	On F90 Fireboard single-sided mm	Fireboard double-sided mm
≥ 12.5 GKB	Without or with mineral wool in the cavity	t_2 15	t_2 20	t_1 12.5 + t_2 12.5	t_2 30	t_1 15 + t_2 15
≥ 2x 12.5 GKB		–	–	–	t_2 15	t_1 12.5 + t_2 12.5
≥ 12.5[1)] GKF		–	t_2 15	t_1 12.5 + t_2 12.5	t_2 20	t_1 12.5 + t_2 12.5

1) Alternative possible: 1x 12.5 mm gypsum fibre board or 1x 12.5 mm cementitious board or 1x 10 mm calcium silicate board

- The existing wall must satisfy the requirements of the DIN 4103-1.
- t_1 = minimum thickness of the required cladding on wall side 1
- t_2 = minimum thickness of the required cladding on wall side 2

Note	Design upgrade of metal stud partitions with Fireboard also possible in same way for systems W111.de, W112.de, W113.de, W115.de and W116.de.
Note	plus Extension of the fire resistance Proof of Usability see page 5.

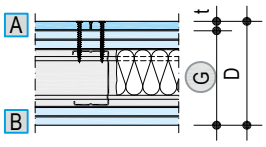
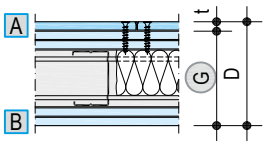
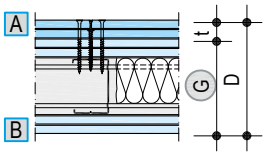
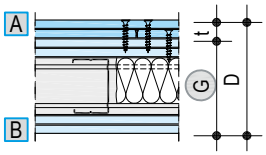
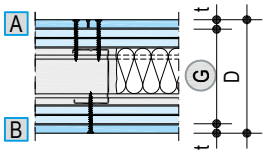
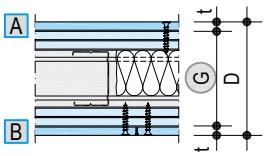
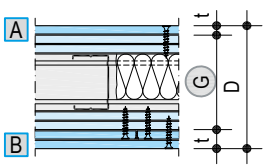
Sound insulation improvement of existing stud partitions with additional direct cladding



Existing/basic wall G = W112.de with screw fastening near the lap R_w = 49.7 dB

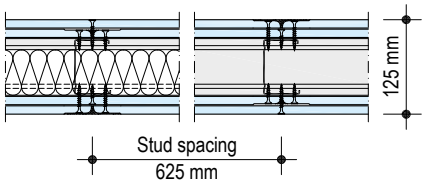
- 2x 12.5 mm Knauf Wallboard
- Profile CW 75; a = 625 mm
- Insulation layer 60 mm Thermolan TI 140 T
- 2x 12.5 mm Knauf Wallboard
- Fastening of the cladding
  - 1st layer TN 3.5 x 25; a = 750 mm
  - 2nd layer TN 3.5 x 35; a = 250 mm

Upgrading with doubling-up Silentboard (applied horizontally)

	Upgrading measures on wall side A	Upgrading measures on wall side B	Thickness of additional application t in mm	Wall thickness D in mm	Sound reduction index R_w (improvement index ΔR_w in dB)
	**Doubling-up** ■ 1x 12.5 mm Silentboard ■ XTN 3.9 x 55; a = 200 mm ■ Flange centre or screw fastening removed from the lap	–	12.5	137.5	**55.5 (6)**
	**Doubling-up** ■ 1x 12.5 mm Silentboard ■ Knauf screw “Gypsum board screws” 5.5 x 38; a = 200 mm; row spacing 500 mm	–	12.5	137.5	**56.4 (7)**
	**Doubling-up** ■ 2x 12.5 mm Silentboard ■ 1st layer XTN 3.9 x 55; a = 600 mm ■ 2nd layer TN 4.5 x 70; a = 200 mm ■ Flange centre or screw fastening removed from the lap	–	25	150	**57.5 (8)**
	**Doubling-up** ■ 2x 12.5 mm Silentboard ■ 1st and 2nd layer Knauf screw “Gypsum board screws” 5.5 x 38; a = 200 mm; row spacing 500 mm	–	25	150	**57.9 (8)**
	**Doubling-up** ■ 1x 12.5 mm Silentboard ■ XTN 3.9 x 55; a = 200 mm ■ Flange centre or screw fastening removed from the lap	**Doubling-up** ■ 1x 12.5 mm Silentboard ■ XTN 3.9 x 55; a = 200 mm ■ Flange centre or screw fastening removed from the lap	12.5 + 12.5	150	**58.9 (9)**
	**Doubling-up** ■ 1x 12.5 mm Silentboard ■ Knauf screw “Gypsum board screws” 5.5 x 38; a = 200 mm; row spacing 500 mm	**Doubling-up** ■ 1x 12.5 mm Silentboard ■ Knauf screw “Gypsum board screws” 5.5 x 38; a = 200 mm; row spacing 500 mm	12.5 + 12.5	150	**60.9 (11)**
	**Doubling-up** ■ 1x 12.5 mm Silentboard ■ Knauf screw “Gypsum board screws” 5.5 x 38; a = 200 mm; row spacing 500 mm	**Doubling-up** ■ 2x 12.5 mm Silentboard ■ 1st and 2nd layer Knauf screw “Gypsum board screws” 5.5 x 38; a = 200 mm; row spacing 500 mm	12.5 + 25	162.5	**62.7 (13)**

Note If divergent wall constructions are to be upgraded with the measures described here, the listed sound reduction improvement measures may not be implemented. However, the absolute value of the sound reduction index can be scheduled for assessment.

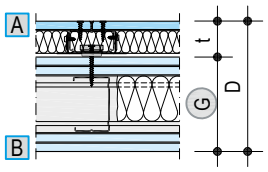
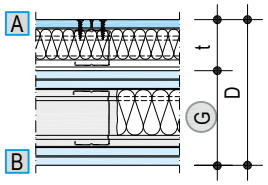
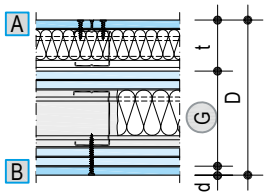
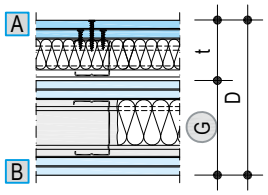
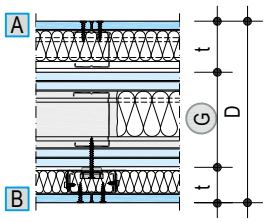
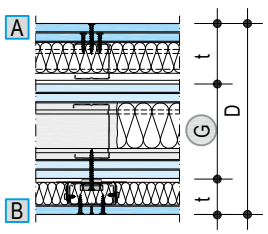
Sound insulation improvement of existing stud partitions with furring/ doubling-up



Existing/basic wall G = W112.de with R_w = 49.7 dB

- 2x 12.5 mm Knauf Wallboard
- Profile CW 75; a = 625 mm
- Insulation layer 60 mm Thermolan TI 140 T
- 2x 12.5 mm Knauf Wallboard
- Fastening of the cladding
  - 1st layer TN 3.5 x 25; a = 750 mm
  - 2nd layer TN 3.5 x 35; a = 250 mm

Upgrading with furring / doubling-up with Silentboard cladding (applied horizontally)

	Upgrading measures on wall side A	Upgrading measures on wall side B	Thickness of additional application t in mm	Wall thickness D in mm	Sound reduction index R_w (improvement index ΔR_w in dB)
	**Furring W623.de** ■ 1x 12.5 mm Silentboard ■ Damping Universal Bracket with profile CD 60/27; a = 625 mm ■ 30 mm Thermolan TP 120 A ■ XTN 3.9 x 23; a = 200 mm	–	57.5	182.5	**64.4 (15)**
	**Furring W625.de** ■ 1x 12.5 mm Silentboard ■ Profile CW 50; a = 625 mm ■ 40 mm Thermolan TI 140 T ■ XTN 3.9 x 23; a = 200 mm	–	67.5	192.5	**67.9 (18)**
	**Furring W625.de** ■ 1x 12.5 mm Silentboard ■ Profile CW 50; a = 625 mm ■ 40 mm Thermolan TI 140 T ■ XTN 3.9 x 23; a = 200 mm	**Doubling-up** ■ 1x 12.5 mm Silentboard ■ XTN 3.9 x 55; a = 200 mm ■ Flange centre or screw fastening removed from the lap	67.5 + 12.5	205	**71.5 (22)**
	**Furring W626.de** ■ 2x 12.5 mm Silentboard ■ Profile CW 50; a = 625 mm ■ 40 mm Thermolan TI 140 T ■ 1st layer XTN 3.9 x 23; a = 600 mm ■ 2nd layer XTN 3.9 x 38; a = 200 mm	–	80	205	**72.7 (23)**
	**Furring W625.de** ■ 1x 12.5 mm Silentboard ■ Profile CW 50; a = 625 mm ■ 40 mm Thermolan TI 140 T ■ XTN 3.9 x 23; a = 200 mm	**Furring W623.de** ■ 1x 12.5 mm Silentboard ■ Damping Universal Bracket with profile CD 60/27; a = 625 mm ■ 30 mm Thermolan TP 120 A ■ XTN 3.9 x 23; a = 200 mm	57.5 + 67.5	250	**75.4 (26)**
	**Furring W626.de** ■ 2x 12.5 mm Silentboard ■ Profile CW 50; a = 625 mm ■ 40 mm Thermolan TI 140 T ■ 1st layer XTN 3.9 x 23; a = 600 mm ■ 2nd layer XTN 3.9 x 38; a = 200 mm	**Furring W623.de** ■ 1x 12.5 mm Silentboard ■ Damping Universal Bracket with profile CD 60/27; a = 625 mm ■ 30 mm Thermolan TP 120 A ■ XTN 3.9 x 23; a = 200 mm	57.5 + 80	262.5	**79.5 (30)**

Notes

If divergent wall constructions are to be upgraded with the measures described here, the listed sound reduction improvement measures may not be implemented. However, the absolute value of the sound reduction index can be scheduled for assessment.

Application of furring in acc. with system data sheet Knauf Furring and Lining W61.de

Sound insulation, wall breaks/tapers

Wall breaks with a length of 625 mm

Variant	Wall break Design			Partition types Sound reduction index Drywall partition with **50 dB**			Drywall partition with **60 dB**			Drywall partition with **65 dB**			Drywall partition with **70 dB**		
See page 60 for corresponding drawings		Sound reduction index in dB		Resulting sound reduction index in dB Area share of the wall break											
				8 %	14 %	25 %	8 %	14 %	25 %	8 %	14 %	25 %	8 %	14 %	25 %
1	■ 1x 15 mm Diamant on both sides ■ 20 mm mineral wool TP 120 A ■ Connection “Post” 2x L-angle 13/30/08 ■ Connection “Wall” 2x L-angle 13/30/08 ■ Wall break thickness 50 mm	R_w	**45.5**	49.4	49.0	48.4	55.0	53.2	51.1	55.9	53.7	51.4	56.3	53.9	51.5
2	■ 1x 12.5 mm Silentboard on both sides ■ 12 mm mineral wool TPE 12-2 ■ Connection “Post” 2x L-angle 13/30/08 ■ Connection “Wall” 2x L-angle 13/30/08 ■ Wall break thickness 38 mm	R_w	**46.5**	49.6	49.3	48.8	55.7	54.0	52.0	56.8	54.7	52.3	57.3	54.9	52.5
3	■ 1x 15 mm Fireboard (cover layer) + 2 mm galvanized sheet metal on both sides ■ 12 mm mineral wool TPE 12-2 ■ Connection “Post” U profile 18/30/08 ■ Connection “Wall” 2x L-angle 13/30/08 ■ Wall break thickness 48 mm	R_w	**50.3**	50.0	50.0	50.1	57.8	56.6	55.1	59.8	58.0	55.9	60.8	58.6	56.2
4	■ 1x 12.5 mm Silentboard on both sides ■ 20 mm mineral wool TP 120 A ■ Connection “Post” 2x L-angle 13/30/08 ■ Connection “Wall” 2x L-angle 13/30/08 ■ Wall break thickness 47 mm	R_w	**50.2**	50.0	50.0	50.0	57.7	56.6	55.0	59.8	57.9	55.8	60.7	58.5	56.1
5	■ 12.5 mm Diamant (cover layer) + 12.5 mm Silentboard on both sides ■ 30 mm mineral wool TP 120 A ■ Connection “Post” UD profile 28/27 ■ Connection “Wall” UD profile 28/27 ■ Wall break thickness 78 mm	R_w	***52***	*50.1*	*50.2*	*50.4*	*58.5*	*57.6*	*56.3*	*61.0*	*59.4*	*57.4*	*62.2*	*60.1*	*57.8*
6	■ 1x 12.5 mm Silentboard (cover layer) + 2 mm galvanized sheet metal on both sides ■ 20 mm mineral wool TP 120 A ■ Connection “Post” 2x L-angle 13/30/08 ■ Connection “Wall” 2x L-angle 13/30/08 ■ Wall break thickness 47 mm	R_w	**56.8**	50.3	50.5	51.0	59.6	59.4	59.0	63.4	62.5	61.2	65.9	64.2	62.2

■ ***Sound reduction index values*** represented in italics are derived values from measurements on divergent constructions.
■ Insulation materials from Knauf Insulation

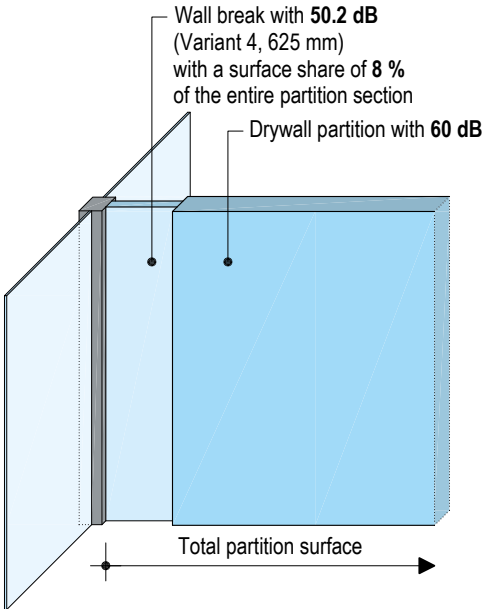
Sound insulation, wall breaks (Continuation)

Wall breakes with a length of 312.5 mm

Variant	Wall break Design			Partition types Sound reduction index Drywall partition with **50 dB**			Drywall partition with **60 dB**			Drywall partition with **65 dB**			Drywall partition with **70 dB**		
See page 60 for corresponding drawings		Sound reduction index in dB		Resulting sound reduction index in dB Area share of the wall break **4 %**	**8 %**	**14 %**	**4 %**	**8 %**	**14 %**	**4 %**	**8 %**	**14 %**	**4 %**	**8 %**	**14 %**
4	■ 1x 12.5 mm Silentboard on both sides ■ 20 mm mineral wool TP 120 A ■ Connection “Post” 2x L-angle 13/30/08 ■ Connection “Wall” 2x L-angle 13/30/08 ■ Wall break thickness 47 mm	R_w	**47.8**	49.9	49.8	49.6	57.9	56.5	55.0	60.1	57.9	55.9	61.2	58.5	56.2
6	■ 1x 12.5 mm Silentboard (cover layer) + 2 mm galvanized sheet metal on both sides ■ 20 mm mineral wool TP 120 A ■ Connection “Post” 2x L-angle 13/30/08 ■ Connection “Wall” 2x L-angle 13/30/08 ■ Wall break thickness 47 mm	R_w	**54.9**	50.1	50.2	50.4	59.6	59.3	58.8	63.6	62.6	61.4	66.5	64.5	62.7

Insulation materials from Knauf Insulation

Example:



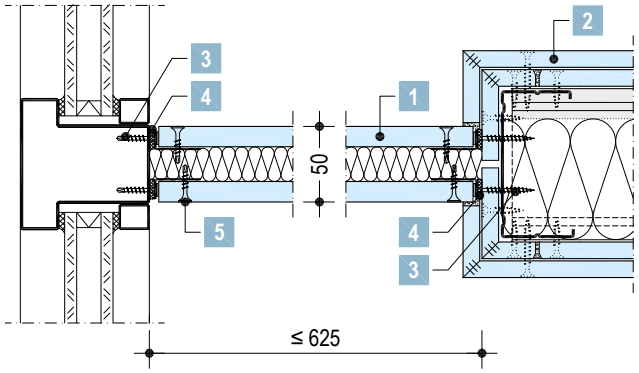
Resulting sound reduction index R_w = 57.7 dB

Scheme drawings

Scale 1:5 I Dimensions in mm

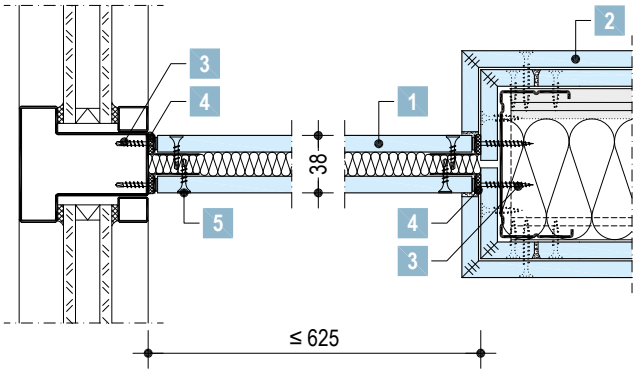
Alternative 1

Connection to façade | Connection to metal stud partition



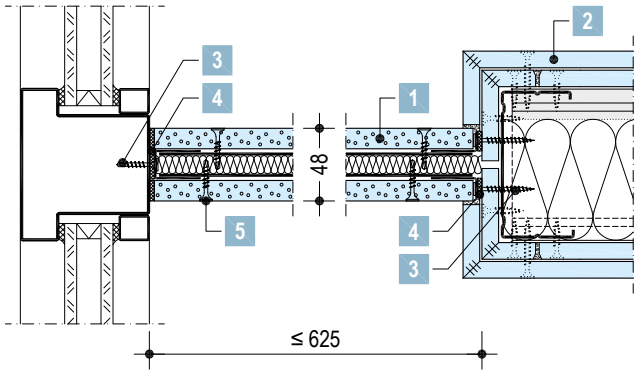
Alternative 2

Connection to façade | Connection to metal stud partition



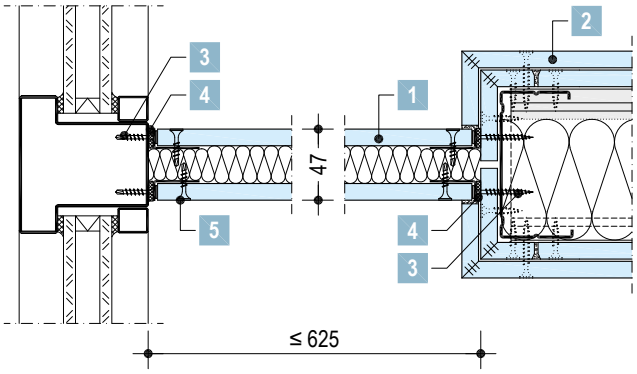
Alternative 3

Connection to façade | Connection to metal stud partition



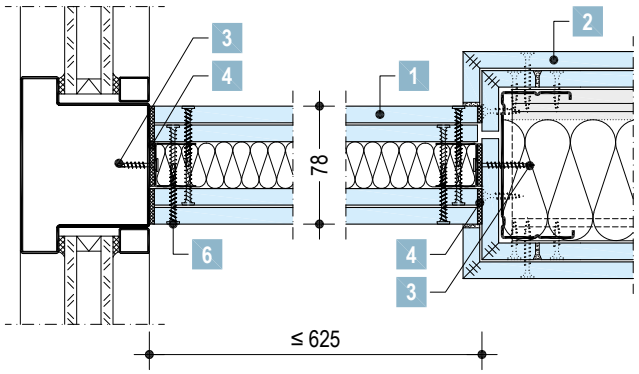
Alternative 4

Connection to façade | Connection to metal stud partition



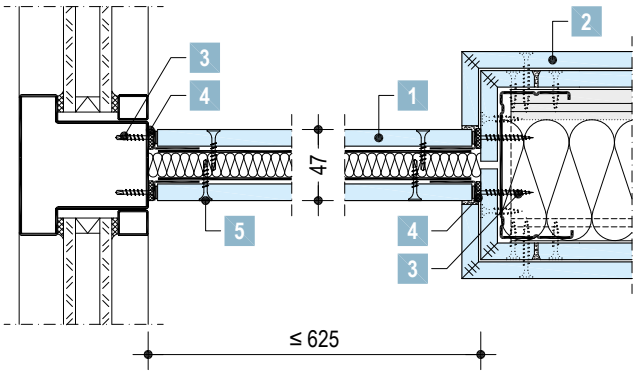
Alternative 5

Connection to façade | Connection to metal stud partition



Alternative 6

Connection to façade | Connection to metal stud partition



Legend

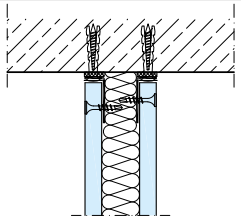
1. Wall breaks, for design see pages 58 and 59
2. Metal stud partitions with joint section
3. Suitable fasteners: Spacing ≤ 500 mm
4. Suitable sealing e.g. Trennwandkitt acoustical sealant
5. Drywall Screw TB
6. Diamant Screw XTB

Notes

Partition height ≤ 4 m (larger partition heights on request)

No vertical board joints are permissible

Maximum spacings of the fasteners for perimeter runners (U / UD / angles) on the connection to the floor and ceiling ≤ 500 mm



Fire protection – Wall breaks F30 to F90

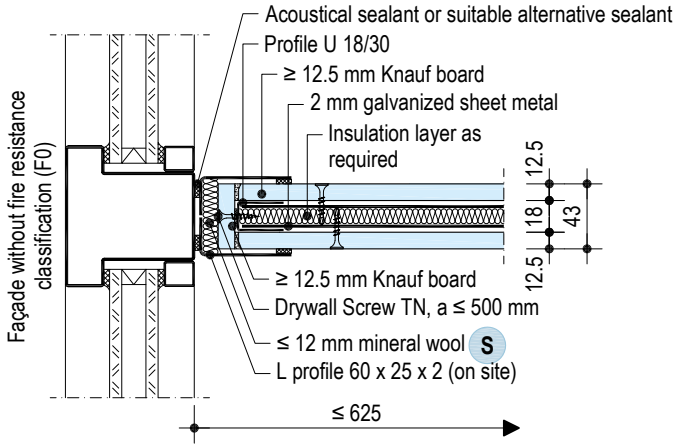
Details

Scale 1:5 I Dimensions in mm

W112.de-SO-H3 F30 – Loose connection to façade F0

Horizontal section

Sound reduction index acc. to variant 6 of the page 60

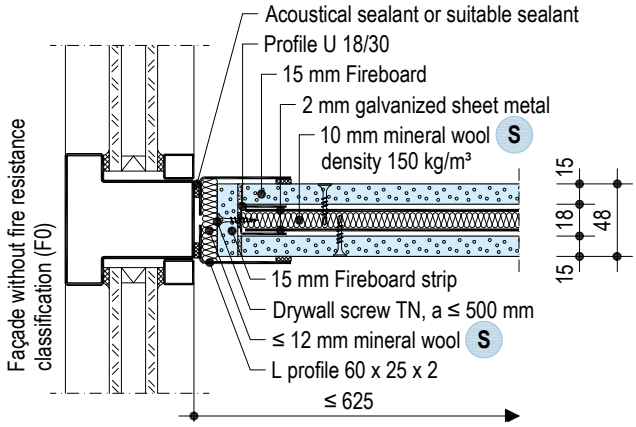


plus **Extension of the fire resistance Proof of Usability**
Prior consultation in acc. to page 5 recommended

W112.de-SO-H1 F90 – Loose connection to façade F0

Horizontal section

Sound reduction index acc. to variant 3 of the page 60

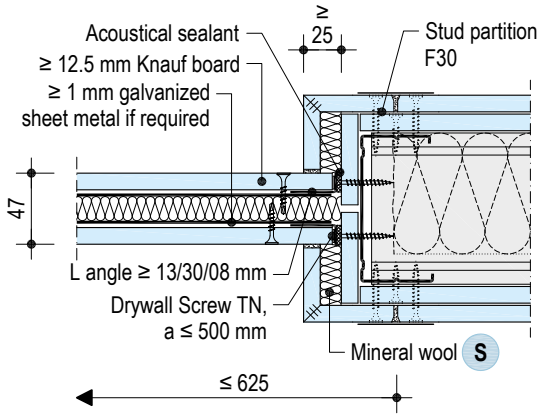


plus **Extension of the fire resistance Proof of Usability**
Prior consultation in acc. to page 5 recommended

W112.de-SO-H4 F30 – Connection to stud partition W112.de

Horizontal section

Sound reduction index acc. to variant 6 of the page 60

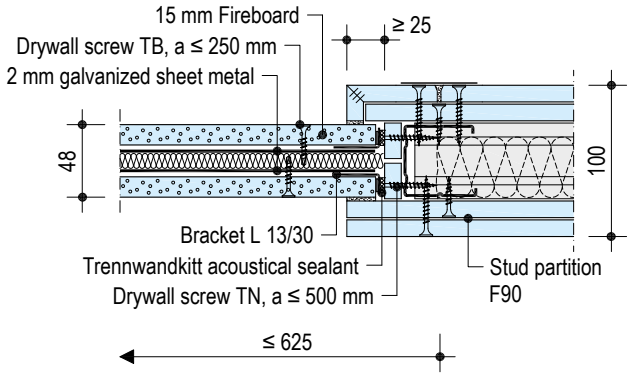


plus **Extension of the fire resistance Proof of Usability**
Prior consultation in acc. to page 5 recommended

W112.de-SO-H2 F90 – Connection to stud partition W112.de

Horizontal section

Sound reduction index acc. to variant 3 of the page 60



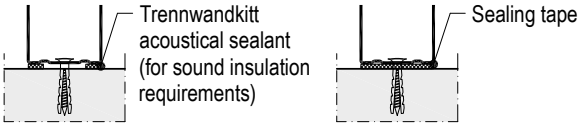
plus **Extension of the fire resistance Proof of Usability**
Prior consultation in acc. to page 5 recommended

Notes	
	Maximum partition height ≤ 4.00 m Connection to façade / partition acc. to the details above. Connection to floor / ceiling and design of the wall breaks acc. to to variant 3 (F90) or alt. variant 6 (F30) from page 60. If necessary, additional measures for covering of the connection joints can be required (edge progile, corner strip or similar).

General

Apply a suitable sealant to the rear side of runners for the connection to flanking constructional components. Ensure a carefully applied seal for sound insulation requirements analogue to the specifications of the DIN 4109-33:2016-07 section 4.1.1.3 (e.g. Trennwandkitt acoustical sealant) (Recommendation: always with Trennwandkitt acoustical sealant).

If a deflection of the ceiling ≥ 10 mm can be expected, install deflection heads.



Place the CW studs into the UW runners arranged along the length at the required axial spacing and align them. Anchor perimeter runners to the floor and ceiling. Anchor wall perimeter runners with suitable dowels to flanking walls. Use suitable spacings and fasteners in accordance with the tables below.

Use suitable fasteners:

- Solid flanking constructional components: Knauf Drehstiftdübel nailable plugs with masonry or Knauf Deckennagel ceiling steel dowels with reinforced concrete
- Non-solid flanking constructional components: Anchors specially suited for the building material, e.g. Knauf Universalschraube FN multi-purpose screws for wooden substrates, metal stud partitions, etc.

Max. permissible fastener spacings – supporting fastening of perimeter runner (UW) connection to basic floor and suspended ceiling

Without fire resistance

Partition height m	Knauf Ceiling Steel Dowels (with reinforced concrete) **1x** mm	Knauf Drehstiftdübel nailable plug **1x** mm	Knauf multi-purpose screw FN (with wooden substrate screw-in depth > 24 mm, suspended ceiling) **1x** mm
W111.de, W112.de, W113.de, W115.de, W115V.de, W116.de			
≤ 3.00	1000	1000	1000
> 3.00 to ≤ 6.50	1000	500	500
> 6.50 to ≤ 12.00	500	–	Verify the stability of the anchoring substrate and select suitable fasteners (for 2 kN/m).

- Constructional anchoring of the wall connection profiles (CW) to the flanking walls at centres of 1000 mm (min. 3 anchoring points)

With fire resistance

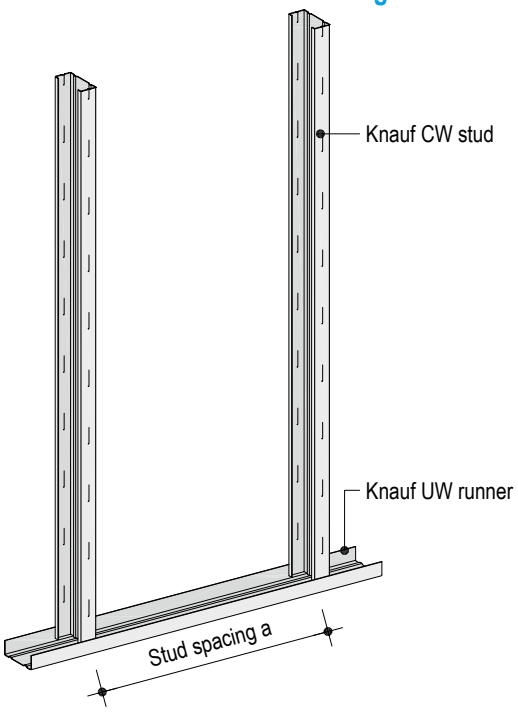
Partition height m	Knauf Ceiling Steel Dowels (with reinforced concrete) **1x** mm	Knauf Drehstiftdübel nailable plug **1x** mm	Knauf multi-purpose screw FN (with wooden substrate screw-in depth > 24 mm, suspended ceiling) **1x** mm
W111.de, W112.de, W113.de, W115.de, W115V.de, W116.de			
≤ 3.00	1000	1000	1000
> 3.00 to ≤ 5.00	1000	500	500
> 5.00 to ≤ 6.50	500	500	500
W112.de, W115.de, W115V.de, W116.de > 6.50 to ≤ 7.00 **W113.de** > 6.50 to ≤ 9.00	500	–	Verify the stability of the anchoring substrate and select suitable fasteners (for 2 kN/m).

- Constructional anchoring of the wall connection profiles (CW) to the flanking walls at centres of 1000 mm (min. 3 anchoring points); with partition height > 5.00 m at spacing of max. 500 mm

Reduced maximum permissible spacings with edge fixing on floor constructions

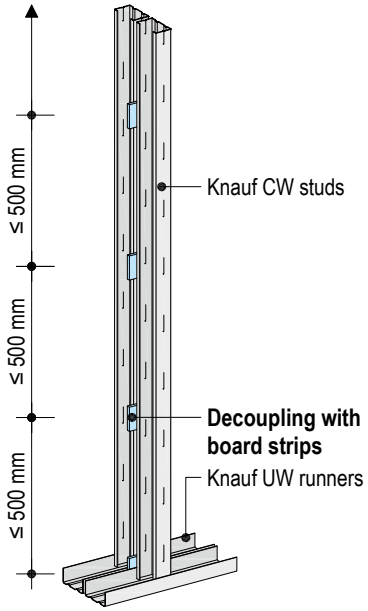
Supporting fastening of perimeter runner (UW) on floor constructions		
Anchoring substrate	Fastener	Fastener spacing
Pre-fab floor screeds	Knauf Universalschraube FN multi-purpose screw	Halved – compared to above table
Flowing screed	Knauf Drehstiftdübel nailable plug	Halved – compared to above table
Wooden planks / floorboards (screw-in depth 15 – 24 mm)	Knauf Universalschraube FN multi-purpose screw	Halved – compared to above table

W111.de / W112.de / W113.de Single metal stud frame



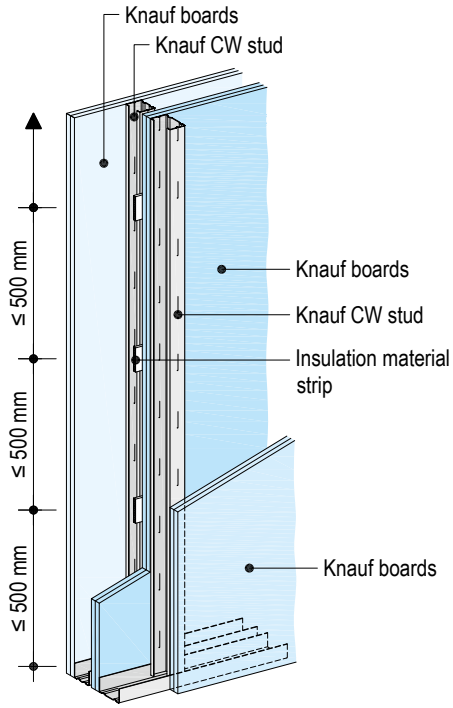
W115.de Decoupled double stud partition

- Decoupling of the CW stud by self-adhesive insulation strip pieces on the entire partition height, spacing ≤ 500 mm



W115V.de Double metal stud frame – With interior cladding

Apply furring acc. to system data sheet Knauf Furring and Linings W61.de



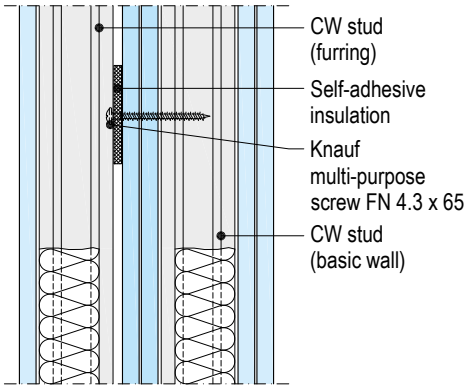
Decoupled furring design

- Decoupling of the furring by self-adhesive insulation strip pieces on the entire partition height, spacing ≤ 500 mm

Furring screw fastened to the basic wall design

- Screw fastening of the CW stud of the furring to the CW studs of the basic wall with Knauf multi-purpose screws FN 4.3 x 65 mm, axial spacing ≤ 1500 mm (min. 3 anchoring points)
- Self-adhesive insulation strip pieces on the entire partition height, axial spacing ≤ 500 mm
- The insulation strip pieces are always required in the area of the Knauf Universalschraube multi-purpose screw FN.
- By screw fastening the furring to the basic wall, the sound reduction index of the system is reduced by -3 dB overall.

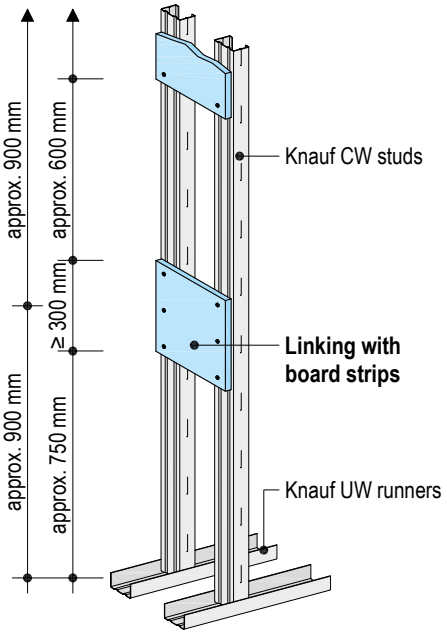
Scheme drawing



W116.de Linked double stud partition

Linking of the CW studs with Knauf board strips ≥ 300 mm in height on the entire wall height:

- Spacing approx. every 900 mm
- The thickness of the link is dependent on the wall cavity **h**
  - **h ≤ 300 mm:** 12.5 mm Knauf boards
  - **h > 300 mm to ≤ 500 mm:** ≥ 20 mm Knauf boards / ≥ 18 mm Diamant (with double-layer linking: individual board thickness ≥ 12.5 mm)



Profile extensions

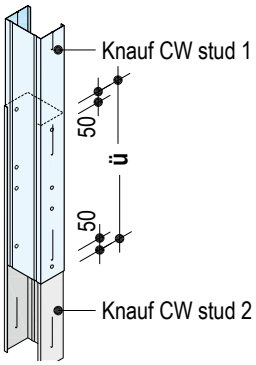
plus Scheme drawings I Dimensions in mm

Knauf recommendation: Use floor-to-ceiling profiles.

- Stagger the heights of the profile joints (alternating upper and lower wall half).
- With fire protection requirements a maximum or 2 profile joints per stud is permitted.

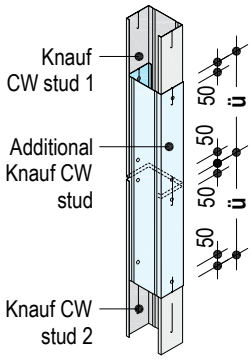
Alternative 1

2 CW studs interlaced to form a box.



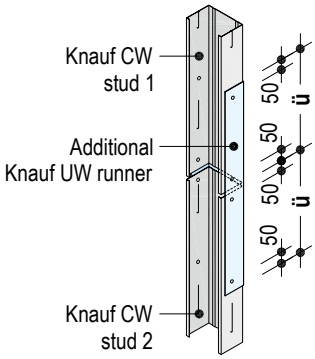
Alternative 2

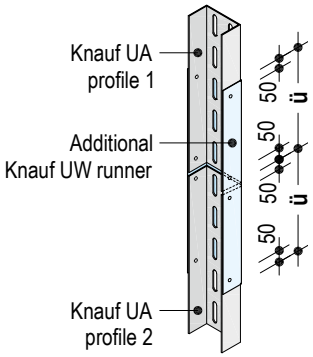
CW studs butt jointed, interlaced with additional CW stud.



Alternative 3

2 CW studs or 2 UA profiles butt jointed, connected with additional UW runner.





Options 1 to 3:

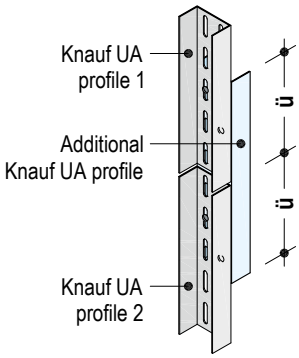
In the overlap area **ü**, connect the profiles of each flange and side with 4 rivets/screws/crimp connections.

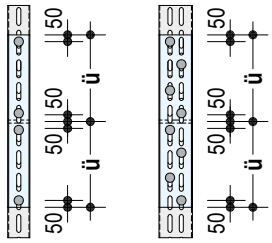
Crimping pliers for crimp connection

Alternative 4

2 UA profiles butt jointed with additional UA profile at the web side.
For **UA profiles under load** e.g. door framing or Sanistand installation

Screw fasten using 2x per UA profile with M8 carriage bolts or self-tapping screws ≥ Ø 4.5 mm





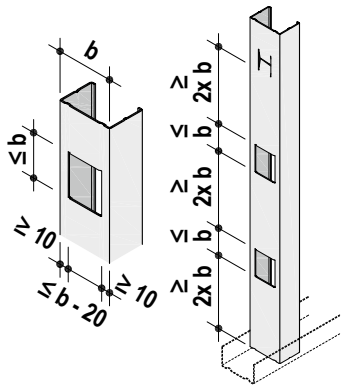
Profile extensions	
Knauf Profiles	Overlap **ü**
CW 50 / UA 50	≥ 500 mm
CW 70 / UA 70	≥ 700 mm
CW 75 / UA 75	≥ 750 mm
CW 100 / UA 100	≥ 1000 mm
CW 125 / UA 125	≥ 1250 mm
CW 150 / UA 150	≥ 1500 mm

Web cut-out / H punches

Scheme drawings I Dimensions in mm

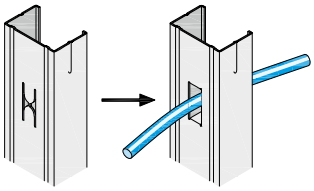
Web cut-out – on-site

- Maximum **2** web cut-outs per metal stud (for CW 50 maximum **1** web cut-out)
- Observe the dimensions in acc. with the drawing.
- Knauf CW studs / UA profiles **50/70/75/100/125/150**
- Cladding thickness per partition side
  - **≥ 18 mm** for CW 50
  - **≥ 12.5 mm** for ≥ UA 50 / CW 70
- Additional web cut-outs in the local load introduction area (cantilever loads / beam loads / dynamic loads) are not permissible.



H punches – factory-made

For **cable penetrations** in Knauf CW studs

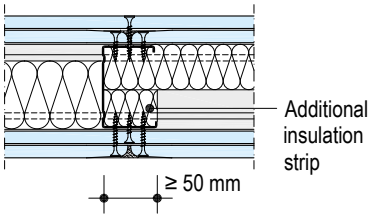


Insulation layer

Scheme drawing

Depending on the requirements for fire protection, sound insulation and thermal insulation, secure the insulation against sliding (compress up to approx. 10 mm) and tightly joint in the grid (or if necessary install insulation strips to prevent sliding in the stud profiles).

Additional insulation strips for deviation of the insulation material thickness > 20 mm from the stud web width.

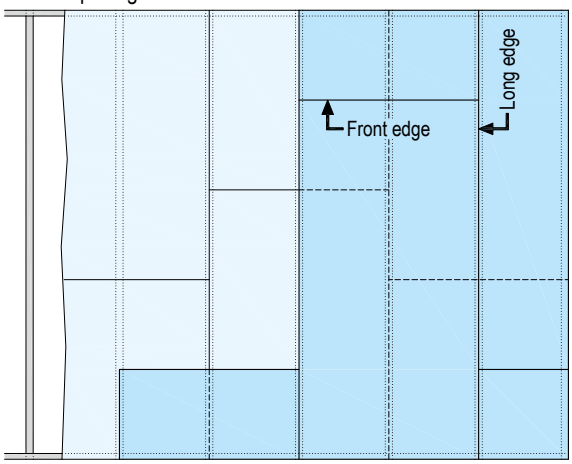


Installation schemes

Scheme drawings

Board layers vertical

- Board width: **1250** mm
- Stud spacing: 625 mm

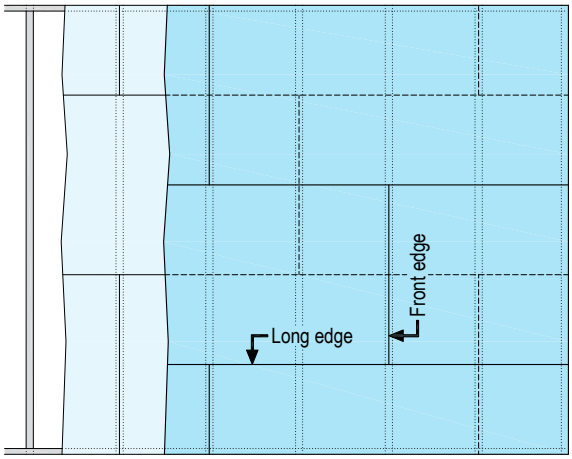


Lower/upper layer:

- Stagger the long edge joints by at least one stud spacing and arrange on the studs.
- If floor-to-ceiling boards are not used, stagger the front edge joints ≥ 400 mm in a cladding layer.
  - With fire resistance: single-layer ≥ 1000 mm
- Stagger the front edge joints between board cladding layers in case of multi-level cladding (approx. 250 mm).
- Front and long edge joints of cladding on opposing sides must also be staggered to one another.

Board layers horizontal (e. g. W116.de)

- Board width: **1250** mm
- Stud spacing: 625 mm

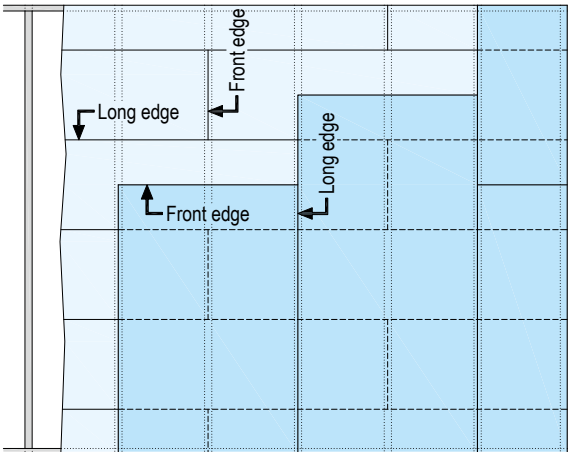


Lower/upper layer:

- Recommendation: Board length 2500 mm
- Front edge joints must be staggered by at least one stud spacing.
- Stagger the long joints between the cladding layers by at least half a board width.
- Board joints of cladding on opposing sides must also be staggered to one another.

Board layer 1 horizontal, board layer 2 vertical

- Board width: **625** mm (lower horizontal layer)
- Board width: **1250** mm (upper layer vertical)
- Stud spacing: 625 mm



Lower layer:

- Recommendation: Board length 2500 mm
- Front edge joints must be staggered by at least one stud spacing.

Upper layer:

- If floor-to-ceiling boards are not used, stagger the front edge joints by ≥ 400 mm.

Offset between lower and upper layer:

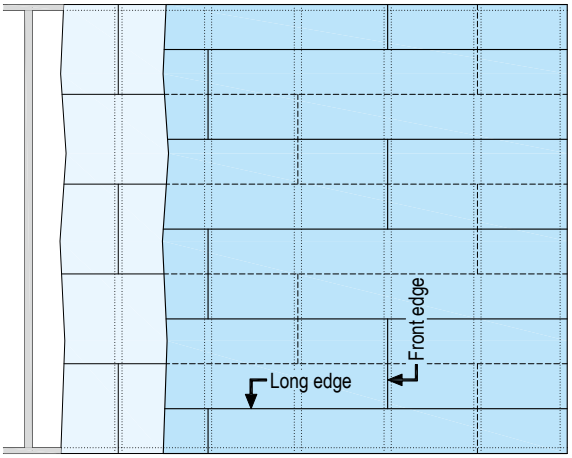
- Stagger the board joints of the upper layer by approx 312.5 mm to the board joints of the lower layer.

Offset of cladding on opposing sides:

- Board joints must also be staggered to one another.

Horizontal board layer

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



Lower/upper layer:

- Recommendation: Board length 2500 mm
- Front edge joints must be staggered by at least one stud spacing.
- Stagger the long joints between the cladding layers by at least half a board width.
- Board joints of cladding on opposing sides must also be staggered to one another.
- Recommendation: Board layer 2000 mm at 1000 mm stud spacing with 25 mm Solid Board cladding.

Fastening of the cladding

Scheme drawings I Dimensions in mm

Fasteners to be used

Cladding Thickness mm	Metal stud frame (penetration ≥ 10 mm) Metal gauge **s ≤ 0.7 mm** Drywall Screws **TN**	Diamant Screws **XTN**	Metal gauge **0.7 mm < s ≤ 2.25 mm** Drywall Screws **TB**	Diamant Screws **XTB**
12.5	TN 3.5 x 25	XTN 3.9 x 23	TB 3.5 x 25	XTB 3.9 x 38
15	–	XTN 3.9 x 33	–	XTB 3.9 x 38
18	–	XTN 3.9 x 33	–	XTB 3.9 x 38
25	TN 3.5 x 35	–	TB 3.5 x 45	–
2x 12.5	TN 3.5 x 25 + TN 3.5 x 35	XTN 3.9 x 23 + XTN 3.9 x 38	TB 3.5 x 25 + 3.5 x 35	XTB 3.9 x 38 + 3.9 x 55
	TN 3.5 x 25 +	XTN 3.9 x 38[1]	TB 3.5 x 25 +	XTB 3.9 x 55[1]
25 + 12.5	TN 3.5 x 35 + TN 3.5 x 55	–	TB 3.5 x 35 + 3.5 x 55	–
	TN 3.5 x 35 +	XTN 3.9 x 55[1]	TB 3.5 x 35 +	XTB 3.9 x 55[1]
3x 12.5	TN 3.5 x 25 + 3.5 x 35 + 3.5 x 55	XTN 3.9 x 23 + 3.9 x 38 + 3.9 x 55	TB 3.5 x 25 + 3.5 x 35 + 3.5 x 55	XTB 3.9 x 38 + 3.9 x 55 + 3.9 x 55
	TN 3.5 x 25 + 3.5 x 35 +	XTN 3.9 x 55[1]	TB 3.5 x 25 + 3.5 x 35 +	XTB 3.9 x 55[1]

1) Combined cladding (Knauf boards + Diamant)

- Always use Diamant Screws when cladding Diamant and Silentboard.
- Always use XTB Diamant Screws for Diamant Steel GKFI cladding.

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

Cladding	1st layer Vertical Board width 1250	Horizontal Board width 1250[2]	Board width 625	2nd layer Vertical Board width 1250	Horizontal Board width 1250[2]	Board width 625	3rd layer Vertical Board width 1250	Horizontal Board width 1250	Board width 625
1-layer	250	–	200	–	–	–	–	–	–
2-layer	750	610	600	250	250	200	–	–	–
3-layer	750	–	600	500	–	300	250	–	200[3]

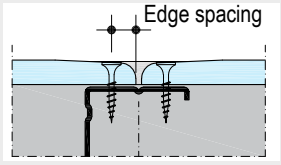
2) System W116.de

3) Upgrade with Silentboard

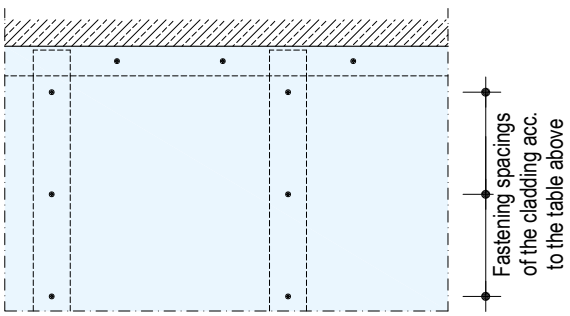
Notes

For optimum sound insulation arrange the screws as far as possible from the profile lap, i.e. with minimum spacing from edge (10 mm edge covered with board liner, 15 mm cut edge).

Arrange board joint on centre of profile flange

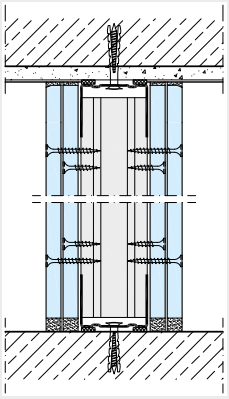


Screw fastening in UW runner



Note

Alternative screw fastening only in the CW stud up to partition height ≤ 6.50 m is permissible.



Note For details on jointing as well as coating and claddings, see brochure Knauf Jointing Competence Tro89.de

Fastening of the cladding (Continuation)

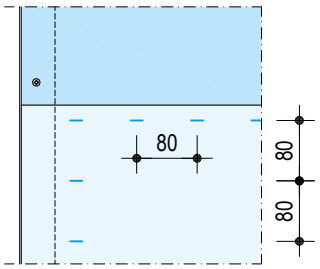
Scheme drawings I Dimensions in mm

Maximum fastener spacings, uppermost board layer stapled to the board layer below it

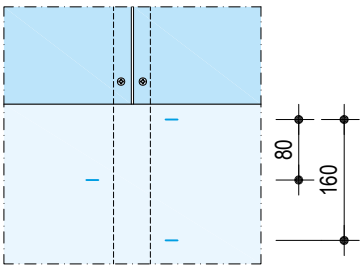
Cladding	1st layer	2nd layer	3rd layer
2-layer	250 (screwed)	80 (stapled)	–
3-layer	750 (screwed)	250 (screwed)	80 (stapled)

- Improved sound insulation by stapled top layer
- Staples can only be used exclusively on Diamant
- Vertical board layer; board width 1250 mm
- Lower board layer screw fastened; observe the reduced screw spacing.
- Observe the reduced partition heights (see pages 11 and 13).
- With stapled upper board layer: Only the screw fixed board layer may be used to transfer the load.
- Do not staple in the studs
- Curved Knauf boards may not be stapled.
- Steel staples compliant to DIN 18182-2, e.g. expanding staples from Haubold or Poppers-Senco; staple length = 2 board layers minus 2 mm

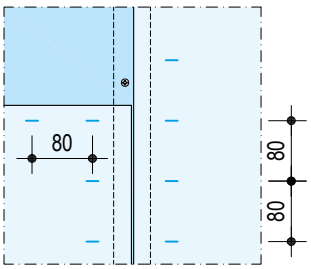
Perimeter studs



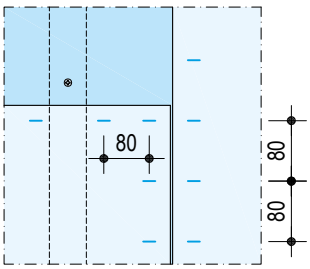
Field studs



Board joint - field studs



Board joint - “Non-supported joint”



Power socket installation with fire resistance requirements

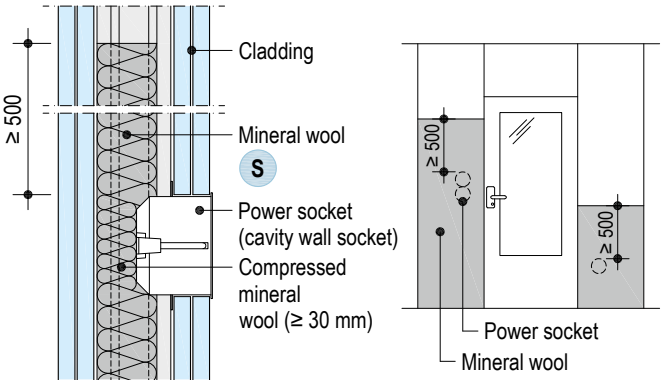
Power sockets, switch sockets, junction boxes, etc. may be installed at any position with Knauf partitions, except not directly opposite one another.

The lead through for a single electrical cable is permissible.

Openings must be sealed with gypsum mortar.

Insulation layers required for fire protection reasons must be retained, however, they may be compressed to a thickness of ≥ 30 mm.

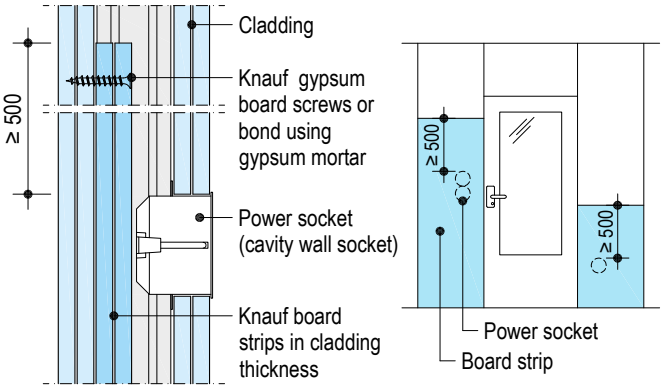
With mineral wool (only for single metal stud partitions)



Fill partition cavity with mineral wool (S) secured against sliding:

- The mineral wool must fully cover the following area:
  - Up to min. 500 mm above the highest power socket
  - Down to the floor and laterally to the next studs on each side
- The mineral wool area weight must be at least as follows:
  - **F30: ≥ 1.2 kg/m²** (e.g. 40 mm x 30 kg/m³)
  - **F60: ≥ 1.6 kg/m²** (e.g. 40 mm x 40 kg/m³)
  - **F90: ≥ 2.4 kg/m²** (e.g. 60 mm x 40 kg/m³)
- Compression of the mineral wool insulation layer up to a thickness of ≥ 30 mm is permissible.

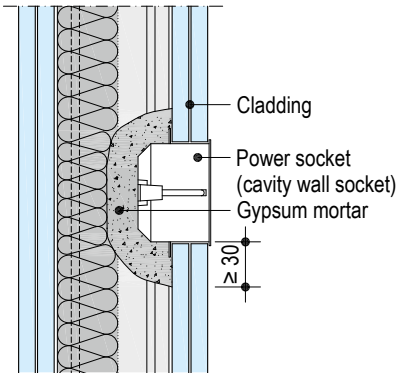
With board strips (only for single metal stud partitions)



- Application of board strips with the same thickness as the cladding (glue to rear of board or fasten with Knauf gypsum board screw).
- The board strips must fully cover the following area:
  - Up to min. 500 mm above the highest power socket
  - Down to the floor and laterally to the next studs on each side

Scheme drawings I Dimensions in mm

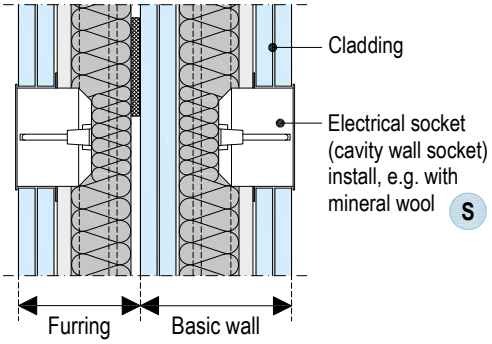
With gypsum mortar



- Enclose power sockets in gypsum mortar (gypsum bed ≥ 30 mm thick).

W115V.de Double metal stud frame with interior cladding

An opposite arrangement of electrical sockets in the basic wall and furring is permissible. Installation of electrical sockets in the basic wall as described above (with mineral wool, board strips or gypsum mortar).



Notes

plus Extension of the fire resistance Proof of Usability see page 5.

Built-in of e.g. cavity wall sockets not on the CW stud / UA profiles area.

Refer to the product data sheets for Knauf access panels for access panel installation.

Solutions for cable and pipe penetrations, refer to Fire Resistance with Knauf BS1.de.

Solutions for double stud partitions and power sockets located opposite one another see e.g. KAISER GmbH & Co. KG
www.kaiser-elektro.de

Power socket installation with sound insulation requirements

Notes for avoidance of performance losses in noise reduction measures

General

- Avoid rigid connections with the opposite partition cladding.

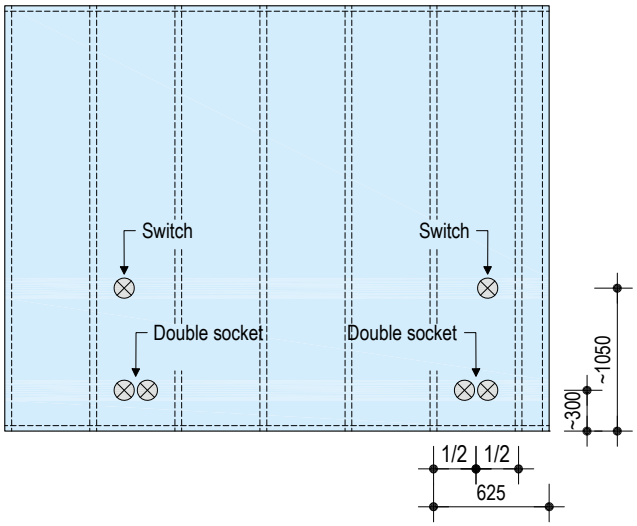
W111.de / W112.de / W113.de / W115.de / W116.de

- For partitions with sound insulation $R_w \leq 60$ dB:
  - Do not install power sockets opposite one another for each partition section.
  - Seal any remaining skips after installation of the sockets.
- Solutions for partitions with sound insulation $R_w \geq 60$ dB or for sockets positioned opposite one another see folder Sound insulation and room acoustics with Knauf (partly in German): Interior walls SS04.de in chapter Built-ins.

W115V.de

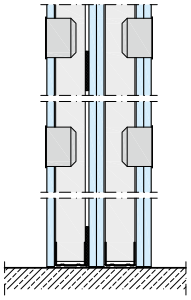
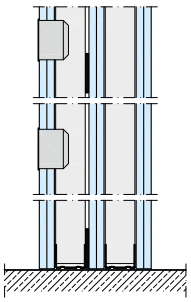
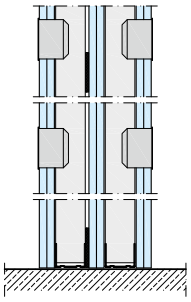
To examine the influence of electrical installations on the sound reduction index of the wall system W115V.de, commercially available cavity wall sockets as well as double electrical sockets and light switches were implemented in a standard construction scenario. A double electrical socket and a light switch including the corresponding cavity wall sockets and a hole for the cable feed-through were provided in each of the two stud partition sections. The tests were carried out on one side of the partition and on both sides directly opposite each other.

Sketch of the installation situation



Influence of sockets and switches on the sound reduction index of W115V.de double metal stud frame with interior cladding

Scheme drawings I Dimensions in mm

Installation situation		General deduction R_w
	■ Basic wall 2-layer ■ Furring 1-layer ■ Installation of commercially available power sockets and switches	**-1 dB**
	■ Basic wall 2-layer ■ Furring 2-layer ■ One-sided installation of commercially available power sockets and switches	**-1 dB**
	■ Basic wall 2-layer ■ Furring 2-layer ■ Double-sided installation on opposite sides of commercially available power sockets and switches	**-2 dB**

Information on Sustainability

Knauf Metal Stud Partitions

Information on sustainability of Knauf Metal Stud Partitions

Building assessment systems ensure the sustainable quality of buildings and constructional structures by a detailed assessment of ecological, economic, social, functional and technical aspects.

In Germany the following certification systems are of particular relevance:

- DGNB System
  Deutsches Gütesiegel Nachhaltiges Bauen
- BNB
  Bewertungssystem Nachhaltiges Bauen - Quality rating system for environmentally sustainable building)
- QNG
  Quality seal for sustainable buildings
- LEED
  Leadership in Energy and Environmental Design

Knauf products and Knauf Metal Stud Partitions can positively influence many of these criteria.

DGNB/BNB/QNG

Ecological quality

- Ecological performance evaluation of the building:
  Relevant environmental data are contained in the EPD for gypsum boards and fillers.
- Risks for the local environment:
  - Gypsum as an ecological material
  - Profiles are hot-dip galvanized and free of Chromium VI

Economic quality

- Building related life-cycle costs:
  Cost-effective Knauf Drywalling
- Flexibility and suitability for conversion:
  Flexible Knauf Drywalling

Technical quality

- Sound insulation:
  Exceeding the demands of the standard with Knauf sound installation
- Ease of dismantling and recycling:
  Possible with Knauf Drywalling

LEED

Materials and resources

- Building Life-Cycle Impact Reduction:
  Relevant ecological performance evaluation data are contained in the EPDs for gypsum boards and filler.
- Environmental Product Declarations:
  Relevant data are contained in the EPD for gypsum boards and fillers.
- Sourcing of Raw Materials:
  Recycled content in Knauf gypsum boards, e.g. board liner

Indoor Environmental Quality

- Low-Emitting Materials:
  Knauf products are regularly subject to VOC measurement.

Videos for Knauf systems and products can be found under the following link:
youtube.com/knauf

Find the right system for your requirements!
knauf.de/systemfinder

The Knauf Infothek App now provides all the current information and documents from Knauf Gips KG at any time and in every location in a clear and comfortable way.
knauf.de/infothek

Knauf Direct
Technical Advisory Service:

knauf-direkt@knauf.com

www.knauf.de

Knauf Gips KG Am Bahnhof 7, 97346 Iphofen, Germany

W11.de/eng/01.24/0/Dbl

The stated constructional and structural design specifications and characteristics of building physics of Knauf systems can only be ensured with the exclusive use of Knauf system components, or other products expressly recommended by Knauf.