

SHORT VERSION



SYSTEM SOLUTIONS

SHORT VERSION

Please note, this document is not capable with all kinds of installation or the thereof resulting product variants.

If there is further technical information required, whether it is about the installation or applicaton itself, make sure you get in contact with our technical sales team accordingly.

In case of further norms or registrations being requested by the site or installer, please get in contact upront further progress.

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The systems and applications described are installation types for indoor use and should only be carried out under controlled humidity and temperature conditions.

More detailed information can be found in the chapters Installation and system conditions.

Installations for external areas are not covered in this document.

System A - Concealed Systems

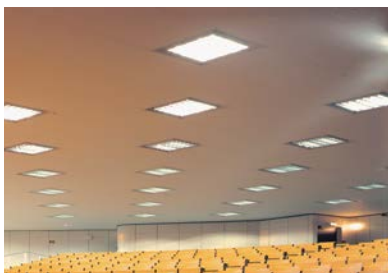
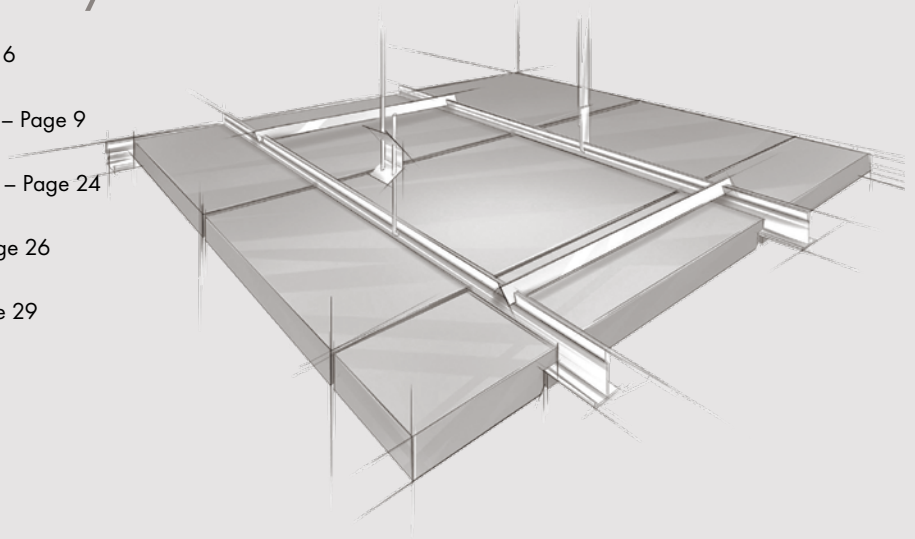
System A 1.1: THERMATEX® non-accessible – Page 6

System A 1.2: THERMATEX® demountable T-profile – Page 9

System A 1.3: THERMATEX® demountable Z-profile – Page 24

System A 2.1: HERADESIGN® non-accessible – Page 26

System A 2.2: HERADESIGN® demountable – Page 29



System A utilises concealed suspension profiles. The ceiling tiles can be demountable or non-accessible, according to the construction variation used. Dependent on individual requirements the ceiling void can either be accessible or non-accessible. The concealed profiles create a smooth, monolithic appearance.

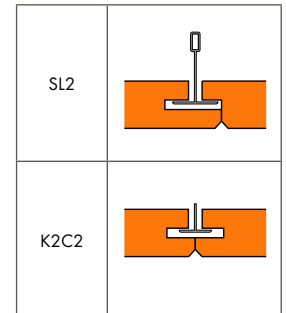
System A 1 - THERMATEX®

Product Range

Product	Thickness [mm]	Weight [kg/m ²]	Edge configuration	Module [mm]	
Product programme THERMATEX®	THERMATEX® Plain/ Fine Stratos / Star	15 19	4.0 5.3	Finesse* K4C4	600/600; 625/625; 300/1200; 400/1200-1250*; 312.5/1250
	THERMATEX® Fine Stratos micro perforated	15 19	4.0 5.3	Finesse* K4C4	600/600; 625/625; 300/1200; 312.5/1250; 400/1200-1250*
	THERMATEX® Mercure	15 19	4.0 5.3	Finesse* K4C4	600/600; 300/1200; 400/1200-1250*
	THERMATEX® Alpha HD	19	5.2	Finesse	600/600; 625/625
	THERMATEX® Acoustic	19	4.6	Finesse	600/600; 625/625; 600/1200; 625/1250
	THERMATEX® dB Acoustic	24	8.4	Finesse	600/600; 625/625
	THERMATEX® Acoustic RL	19	5.4	Finesse	on request
	THERMATEX® Aquatec	19	5.2	Finesse	600/600; 625/625
	THERMATEX® Plain Hygena	15 19	4.0 5.3	Finesse	600/600; 625/625

* Special formats on request

Edge configurations



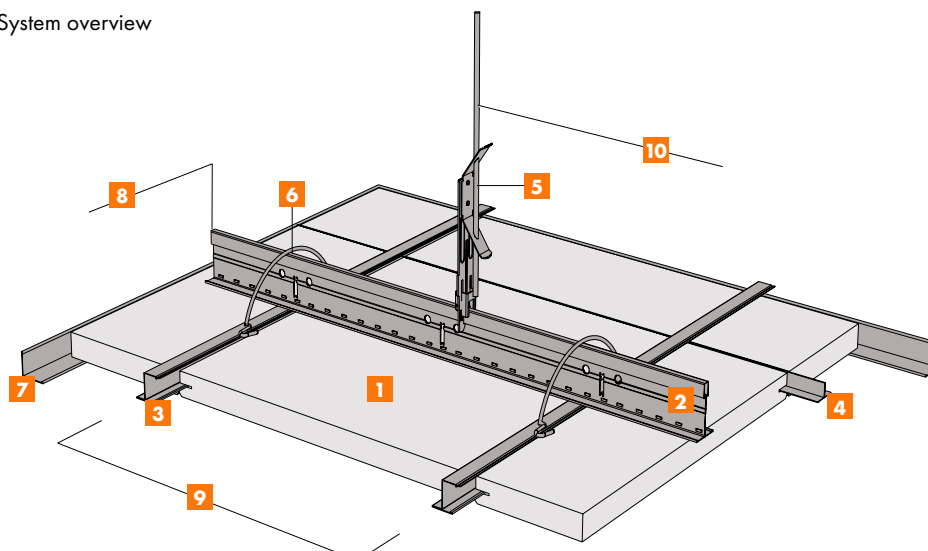
The current installation guide for suspended ceilings with concealed construction System A, does not include applications for fire rated ceilings. In the case of a fire rated ceiling, specific documents, guidelines and test certificates should be adhered to. No changes can be made to the execution of the approved construction.

For applications with increased risk of corrosion (e.g. humidity, condensation or chemical contamination), metal components with special corrosion protection are required.

System A 1.1 - THERMATEX® non-accessible

System A 1.1 differs from the other concealed systems in that it uses tiles with a K4C4 edge configuration. Due to this, tiles cannot be demounted. T24/38 main runners are installed as the load bearing grid structure using conventional hangers, to which the Z-profiles are fixed with wire clips (see system diagram figure 1.1).

Figure 1.1 - System overview



Tiles

The tiles have the same K4C4 edge configuration on all four edges (Figure 1.2). Nevertheless, the installation should be carried out in one direction.

Figure 1.2



Material requirements/ key

The quantities and installation times stated in Table 1.1 are for guideline only. They do not allow for waste or project specific scenarios.

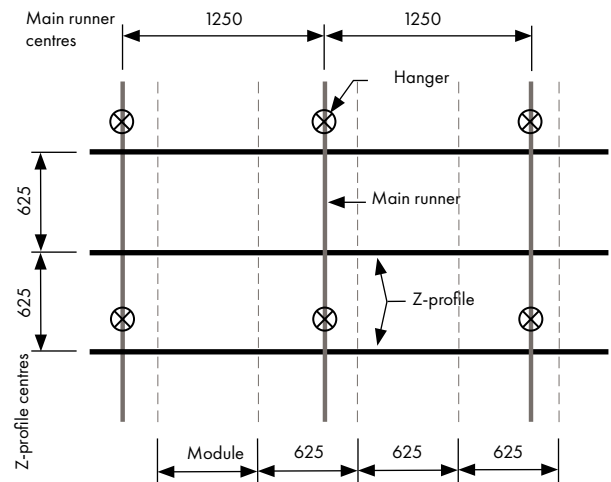
Table 1.1 - Requirements for every m² ceiling

Product description	Unit	Module mm			
		600 x 600	625 x 625	300 x 1200	312.5 x 1250
Mineral tiles	1 Pcs.	2.78	2.56	2.78	2.56
Main runner T24/38 - 3600/3750	2 Lin. m	0.80	0.80	0.80	0.80
Z-main profile	3 Lin. m	1.67	1.60	3.34	3.20
T-cross profile	4 Pcs.	2.78	2.56	2.78	2.56
Splice for main runner	Pcs.	0.42	0.40	0.84	0.80
Hanger	5 Pcs.	0.64	0.64	0.64	0.64
Wire clips	6 Pcs.	1.34	1.28	2.67	2.56
Perimeter profile	7 Lin. m	0.60	0.60	0.60	0.60
Perimeter wedge	Pcs.	0.30	0.30	0.30	0.30
Main runner centres	8 m	1.25	1.25	1.25	1.25
Z-profile centres	9 m	0.60	0.62	0.30	0.32
Hanger centres	10 m	1.25	1.25	1.25	1.25
Installation time	min	35	35	40	40

Grid structure (Figure 1.3)

The main runners (T 24/38 Ventatec grid) are installed using quick hangers or other suitable, alternative hangers at 1250 mm centres (hanger centres max. 1250 mm). These are fixed to the soffit using approved fixings, dependent on the type of soffit. The grid is aligned and levelled. The Z-profiles are fixed to the installed main runners, using wire clips, dependent on the tile width. During the installation, the long edge of the tile with all-round GN edges is pushed or lay-on the Z-profile. The short edges of the tiles are reinforced or connected with T-profiles.

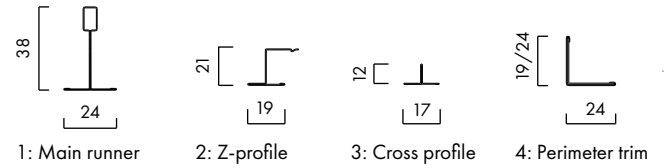
Figure 1.3



Profiles (Figure 1.4)

- 1: Main profile T24/38 universal main runner
L = 3600 / 3750 mm
- 2: Z-profile Z19/21 Z-profile butt cut
L = 4.00 m
- 3: Cross profile T17/12 cross tee butt cut
L = 600 / 625 mm
- 4: Perimeter trim L19/24 or L24/24 L-wall angle
L = 3.00 m

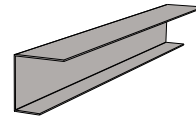
Figure 1.4



Splices (Figure 1.5)

For a level and stable connection of the Z-profiles, splices (L = 150 mm) should be used.

Figure 1.5



Wire clips (Figure 1.6)

The Z-profiles are fixed to the main runners with wire clips. The clip must be fully pushed onto the upper leg of the Z-profile.

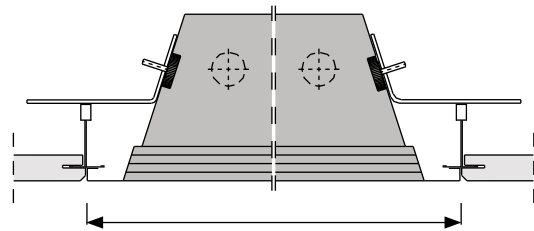
Figure 1.6



Light fittings (Figure 1.7)

The symmetrical ceiling tile (edge K4C4) enables a symmetrical light fitting to be used in system A 1.1:

Figure 1.7

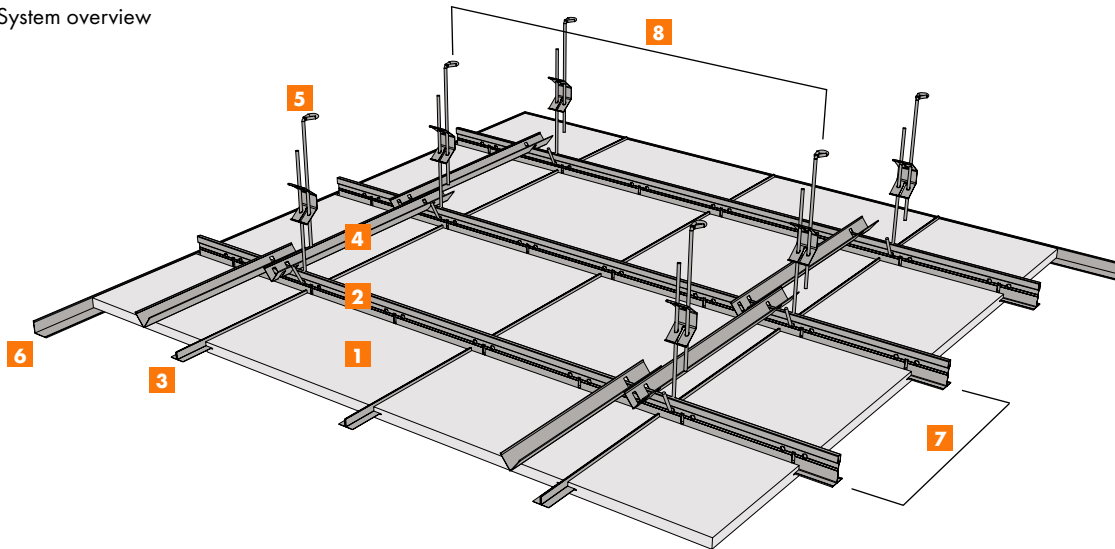


Axis dimension = aperture = size of light fitting

System A 1.2 - THERMATEX® demountable, T-profile

System A 1.2, the most commonly used system is described below. The handling of the tiles etc. is almost identical in all of the systems. Any deviations with regards to the grid construction and other details are described in the data sheets of each system variation. System A 1.2 is a suspended ceiling construction with concealed profiles consisting of T-profile main runners, L-profile reinforcement profiles and tiles with an Finesse edge configuration that are demountable.

Figure 2.1 - System overview



Material requirements/ Key

The quantities and installation times stated in Table 2.1 are for guideline only. They do not allow for waste or project specific scenarios.

Table 2.1 - Requirements for every m² ceiling

Product description	Unit	Module mm			
		600 x 600	625 x 625	300 x 1200	312,5 x 1250
Mineral tiles	1 Pcs.	2.78	2.56	2.78	2.56
T-main runner T24/38 - 3600/3750	2 Lin. m	1.67	1.60	3.34	3.20
L-cross profile	3 Pcs.	5.56	5.12	5.56	5.12
Spacer bar	4 Pcs.	1.39	1.28	2.78	2.56
Hanger	5 Pcs.	1.39	1.28	2.78	2.56
Perimeter profile	6 Lin. m	0.60	0.60	0.60	0.60
Perimeter wedge	7 Pcs.	0.30	0.30	0.30	0.30
Main runner centres	7 m	0.60	0.63	0.30	0.32
Hanger centres	8 m	1.20	1.25	1.20	1.25
Installation time	8 min	30	30	35	35

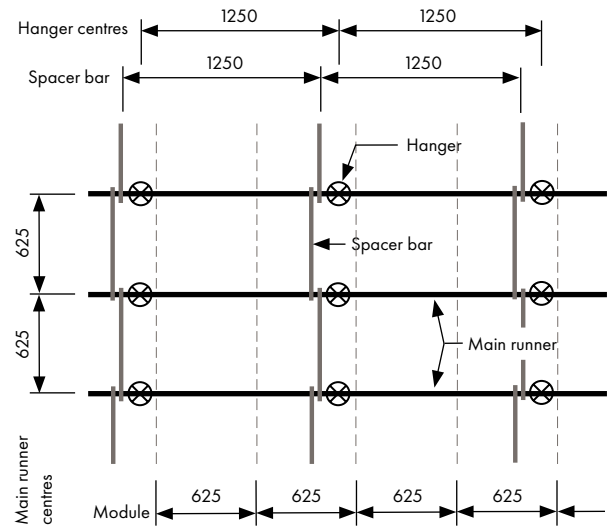
Note

A minimum void depth of 100 mm is required to enable the ceiling tiles to be installed easily without any problems.

Grid structure

The main runners (T-profiles) are installed with quick hangers at 1250 mm centres, depending on the tile width. These are fixed to the soffit using suitable, approved fixings dependent on the soffit type. The installed profiles are aligned, levelled and fixed in the chosen module size with spacer bars at twice the length of each tile.

Figure 2.2



Tiles

As shown in Figure 2.3, the edge configurations for the long and short edges of tiles are different. To secure the tiles in the system (support them on the main runners), the tiles feature an SL2 edge (demountable, Figure 2.4). This edge is pushed onto the T-profile concealing the grid at the same time. On the opposite side, the tile simply sits on the main runner. The tiles can be installed or demounted by gentle lifting and shifting the tiles.

The long edges feature a K2C2 edge (grooved, Figure 2.5) and are reinforced with L-profiles.

The following tile types are available in the Finesse format:

Tile	Thickness	Weight
THERMATEX® (Standard)	19 mm	5.3 kg/m ²
THERMATEX® Acoustic	19 mm	4.6 kg/m ²
THERMATEX® Alpha HD	19 mm	4.7 kg/m ²

The full range of available formats can be found in the price list. Please contact your local sales office regarding availability and minimum order quantities.

Figure 2.3

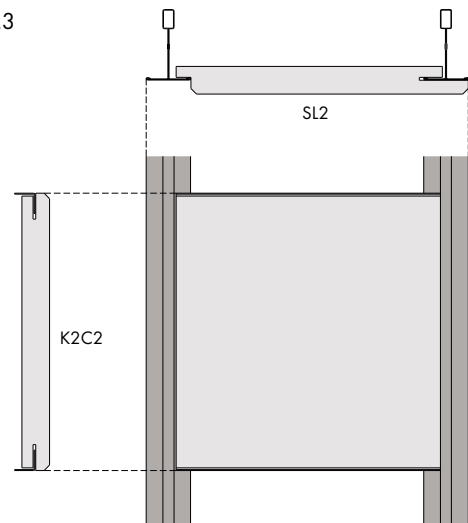


Figure 2.4

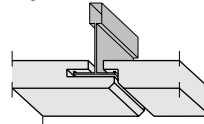
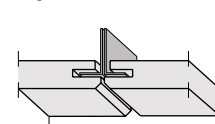


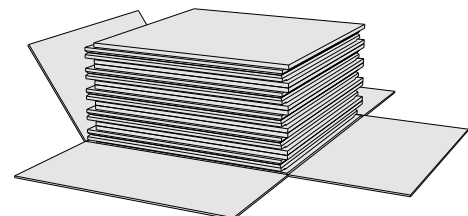
Figure 2.5



Packaging

To remove the tiles from the packaging, open the packaging on all sides and remove completely (Figure 2.6).

Figure 2.6



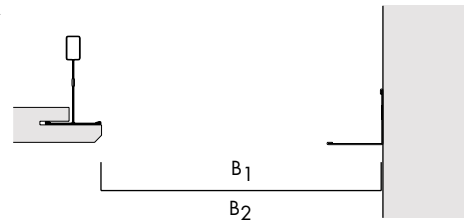
Cut tiles

The following steps are an example for cutting the first row.

Step 1 (Figure 2.7):

The dimensions between the main runner and perimeter trim/wall should be measured before the installation. To avoid further work, this should always be done at the start (B1) and end (B2) of every element (to account for angled walls, unevenness etc...).

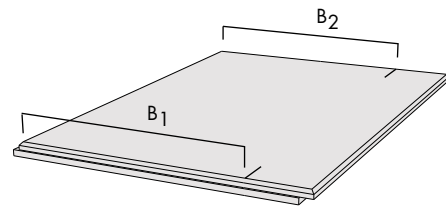
Figure 2.7



Step 2 (Figure 2.8):

The dimensions are transferred to the tile. This can be done on the face side of the tile, but always ensure that you use clean tools. For the last tile and when cutting the last row, a 10mm gap is necessary for the perimeter wedges (page 12).

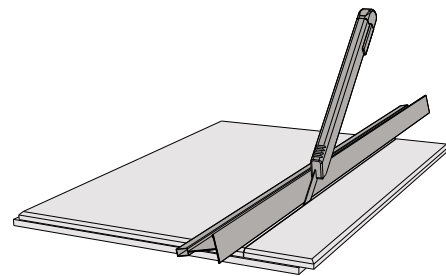
Figure 2.8



Step 3 (Figure 2.9):

For an exact cut, please use a suitable metal guide. The cut should only be scored a few millimetres deep and serves to mark the exact position of the cut. The metal guide is then no longer required.

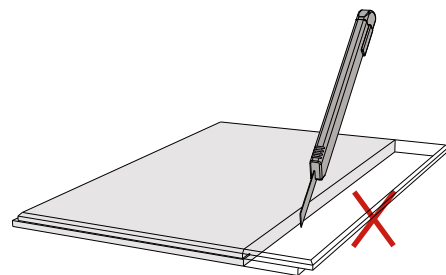
Figure 2.9



Step 4 (Figure 2.10):

The tile is cut along the scored line to the required width/length and the off-cut disposed of.

Figure 2.10



Note

The SL2 edge configuration has two different long edges. Take care when cutting the first tile to ensure the long edge with the concealed edge is removed (Figure 2.14).

Similarly with the last tile, ensure the shiplap edge is disposed of (Figure 2.15).

Cutting tiles

Cutting to fit at perimeters

Dependent on the direction of installation, different tolerances are required. Especially when cutting the first tile and all tiles in the first row, an exact cut is required.

For the installation of a room (Figure 2.11), the following tolerances are permitted / required:

Start:	no gap, fits exactly
Left:	no gap, fits exactly
Right:	10 mm
End:	10 mm

Last tile in a row

To install cut tiles and the last tile in a row, the one from last tile must be left out. This tile is then installed after the cut tile.

To make handling easier, the dimension between the wall and the tile edge of the third from last tile is measured (=X, Figure 2.12).

As the last tile is installed with a perimeter wedge, a 10 mm gap is required (Figure 2.13). The exact size of the cut tile is calculated as follows:

$$Y = X - \text{module} - 10 \text{ mm}$$

First row

The cut tiles of the first row need to be cut to the exact size. It is important that the shiplap (AW) edge is removed and the recessed edge used (Figure 2.14). This considerably eases the further installation and handling of individual elements.

Last row

Correspondingly (see cutting of first row), the recessed edge is removed when cutting the last tile. As the tiles are installed with perimeter wedges, a 10 mm gap is required (Figure 2.15).

Figure 2.11

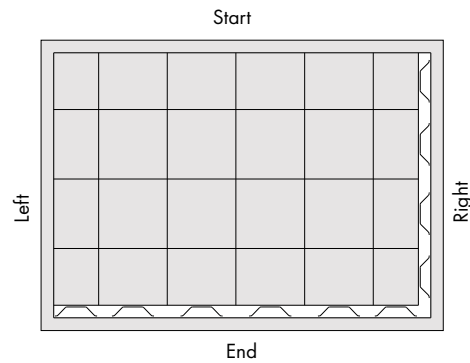


Figure 2.12

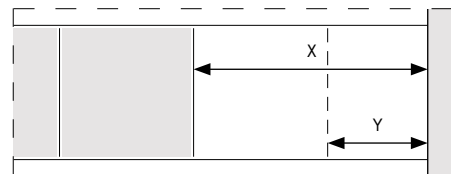


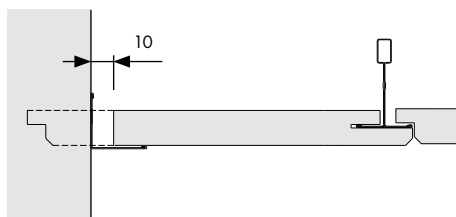
Figure 2.13



Figure 2.14



Figure 2.15



Perimeter trims

A wide range of white, galvanized steel perimeter trims are available for the connection and support of functional ceilings with perimeter walls (solid and light-weight partition).

Figure 2.16
RW L 19/24 - 3000

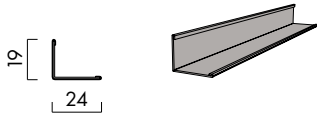


Figure 2.17
RW L 24/24 - 3000

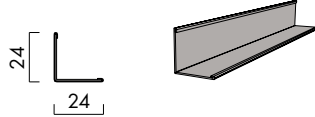
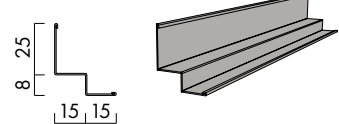


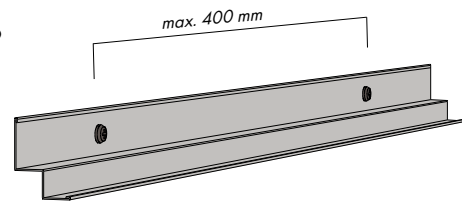
Figure 2.18
SRW 25/15/8/15 - 3000



Fixing

The perimeter trims should be fixed with suitable plugs and screws. For solid walls, the fixings should not exceed more than 400 mm centres (Figure 2.19). Connections to light-weight partition walls can be made using a standard wall angle (max. 625 mm centres) with at least one screw and in between with a threaded bolt. Screws without a flat head (e.g. bugle headed screws) are unsuitable for fixing as incorrect installation can lead to deformation of the perimeter trim.

Figure 2.19

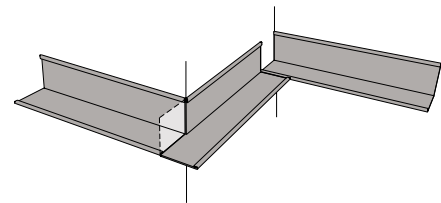


Corner finish with L-shaped wall angle

Mitring the corners is the smartest, but also the most time consuming and technically demanding corner finish. This is even harder to implement in rooms that aren't square. In most cases, the best results are achieved by a simple butt cut, with the ends pushed together (Figure 2.20).

In the case of an external corner, it is necessary to notch the vertical leg of the trim otherwise it overlaps where the tile should lie. Corners of varying angle can be easily adapted with this method. Tin snips are suitable for the cutting of the profiles.

Figure 2.20
RWL - butt cut



When forming corners with L-shaped wall angles it is not recommended to use preformed mouldings / accessories for internal and external corners as the result is not aesthetically pleasing.

Corner finish with SRW shadow trim

Mitred corners (Figure 2.21) should only be formed using a mitre saw. Butt cut corner finishes with shadow trim are not possible.

For this reason, for corner finishes of SRW profiles, we recommend the use of preformed mouldings / accessories for internal and external corners (Figure 2.22).

Figure 2.21
SRW - mitred

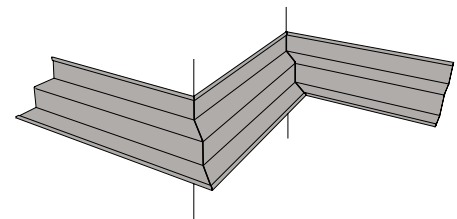
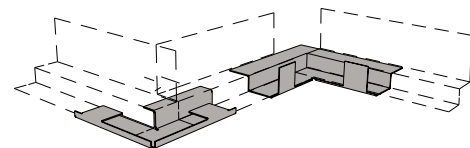


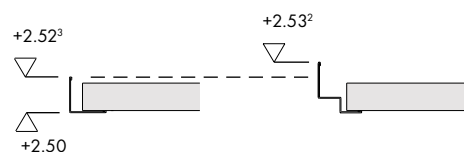
Figure 2.22
Preformed moulding



Perimeter trim installation

Due to different combination possibilities of the perimeter trim, for example, L-shaped wall angle or shadow trim, there are different installation heights (marked from the back) of the perimeter trim for the same under edge ceiling height (e.g. 2.50 m – Figure 2.23).

Figure 2.23



Main profiles

System A2 uses T24/38 - main runners as main profiles (Figure 2.24). These are identical to System C, exposed lay-in system main profiles. The profiles are available in 3600 mm and 3750 mm lengths, however, profiles should be selected according to the punches that match the tile size (hanger centres).

Installation

Unlike the classic grid construction of a lay-in system (System C), the main runners have to be installed at a higher height than the lower horizontal leg of the perimeter trim (Figure 2.25).

Tile thickness Height difference

15 mm	$\Delta H = \text{approx. } 8 \text{ mm}$
19 mm	$\Delta H = \text{approx. } 9 \text{ mm}$

Due to the edge configuration, the main runner opposite the under edge of the tile is set back by this dimension.

Lay out

The main runners are set out in modules (e.g. 600 mm or 625 mm, Figure 2.26) dependent on the room layout (see chapter: Room layout).

Cut profiles

With an exposed grid construction, such as System C, the distance of the punches (X and Y, Figure 2.27) is decisive for a suitable installation of the cross profiles. This is not applicable here. However, in order to ensure that the position of the hangers does not vary too much, the cut distance from X and Y should only differ by a few centimetres.

$$X = Y \pm 1 - 2 \text{ cm}$$

Figure 2.24

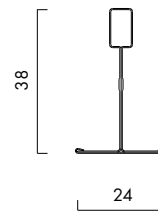


Figure 2.25

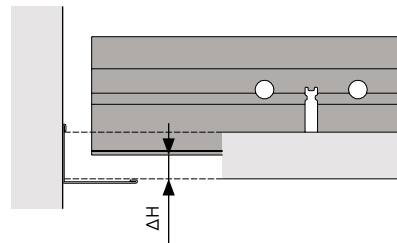


Figure 2.26

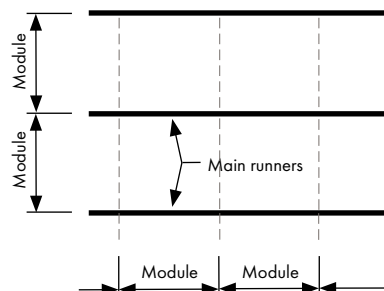
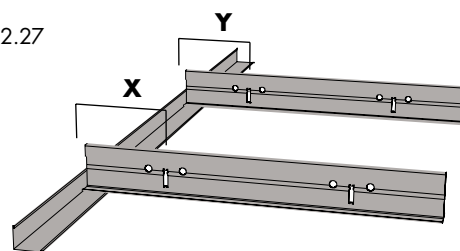


Figure 2.27



Spacer bars

To connect the main runners, different spacer bars can be used. These are available for different module sizes from 300 / 312.5 / 600 / 625 mm. The application does not differ in the system variations, only with regards to demounting, when more force is required.

Variant 1 and variant 3 (Figure 2.28) produce a strong, stable connection which is hard to detach when lifting tiles.

For ease of demounting in the areas around hangers (increased risk of damage), variant 2 is more suitable as it is built with more "play".

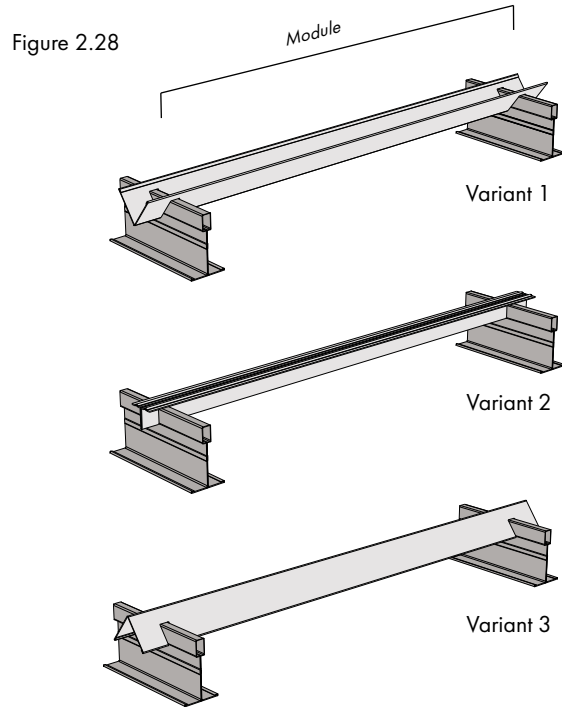


Figure 2.28

Lay out

Spacer bars are always situated directly alongside the hangers. The hangers should be at 1200 mm or 1250 mm centres, which also apply to the spacer bars (Figure 2.29).

This ensures that only every second tile is lay between the hangers and the spacer bars (Figure 2.30).

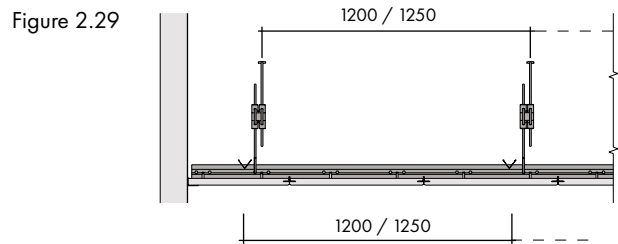


Figure 2.29

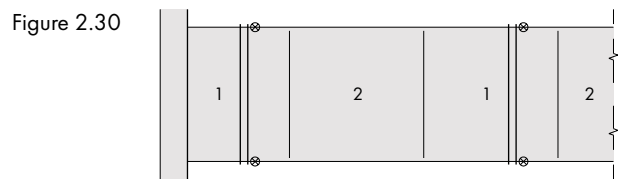


Figure 2.30

Cross profiles

L-profiles are used to reinforce the tiles (Figure 2.31) and are pushed into the K2C2 edge after the tiles have been laid (see chapter: Handling). The length of these is determined according to the tile width (tile width = profile length).

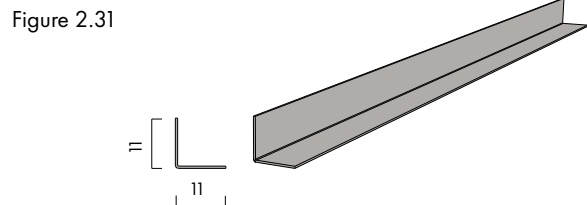


Figure 2.31

Hangers

Types of hangers

There are a variety of hangers available for the suspension of the grid system (Figure 2.32).

- 1: SHD butterfly hanger with hook
- 2: SoS quick hanger with loop
- 3: Ventatec Clip clip-on butterfly hanger
- 4: Wire wire min. 2mm thick
- 5: Ano + Anu Nonius top and bottom parts
- 6: BS 10 Hanger Clickfix II
- 7 and 8: direct hanger (not well suited)

When selecting a hanger, consideration should be given to achieving a slim design around the upstand of the profile.

Hanger height

A minimum void depth of 100 mm (Figure 2.33) is required to enable easy installation of the tiles.

Due to this reason, direct hangers are not well suited.

Distance from perimeter

The first and last hangers of the main runners are always in the area of the first or last tile (cut tile). This means the hanger can be situated no more than 50 cm from the perimeter of the ceiling (Figure 2.34).

Quick hangers with hooks

If the system is installed to our recommendations, every second tile is blocked by spacer bars and hangers. In order that the tiles in these areas can also be removed (risk of damage in these areas cannot be eliminated), it is necessary to lay the hangers out correctly.

The hooks are set out as in Figure 2.35 and all hangers should continue in the same layout, otherwise the tiles can be damaged when trying to remove them (Figure 2.36).

Figure 2.32

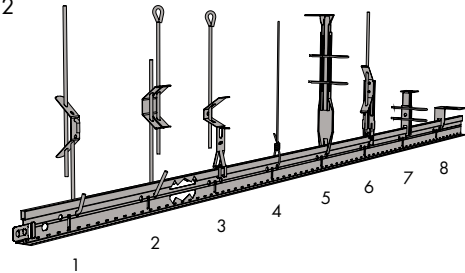


Figure 2.33

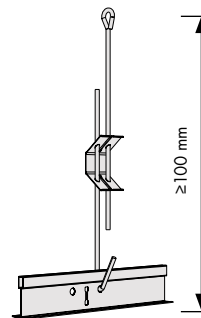


Figure 2.34

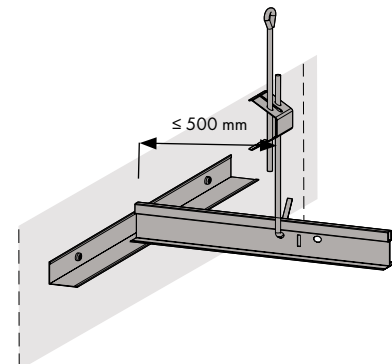


Figure 2.35

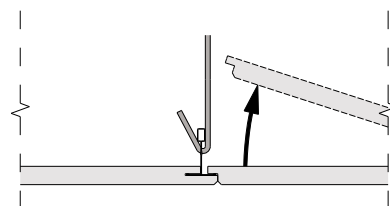
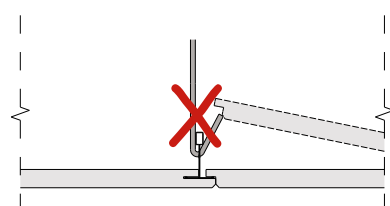


Figure 2.36

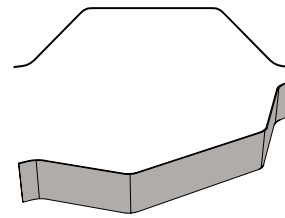


Perimeter wedges

As in accordance with the chapter Cut tiles, as a basic rule, at least one perimeter wedge should be installed per cut edge. This is always the case with the last tile in a row and all the tiles in the last row (cut tiles).

Depending on the tightness of the wedges, it may be necessary to loosen them (with pliers), otherwise lots of force is required to install them which can lead to damaging the tiles.

Figure 2.37



Room layout / ceiling symmetry

Layout

The ceiling is set out from the middle of the room in modules (module width = B).

In the example shown (Figure 2.38), there are three complete rows and a cut tile.

Note

If the cut tile is less than half the tile width ($B/2$), it will appear aesthetically poor and therefore should be avoided.

Correction

It is aesthetically more pleasing and more efficient to install a ceiling with larger cut tiles. If, as described above, the ceiling is set out from the middle of the room but results in an unfavourable symmetry, the ceiling layout should be moved over by half a module width ($B/2$, Figure 2.39).

This always results in a cut tile width greater than half the module width.

Second direction

When complete, the layout continues in the other direction. The procedure is similar to that detailed above. Starting from the middle of the room, the layout continues in modules. If this results in a cut perimeter tile of less than half a tile width, the ceiling layout should be moved over by half a tile width resulting in a large cut perimeter tile (Figure 2.40).

Main runner layout

The installation of the main runners can be done according to this layout. The main runners can be installed both in room width or room length direction (Figure 2.41).

Figure 2.38

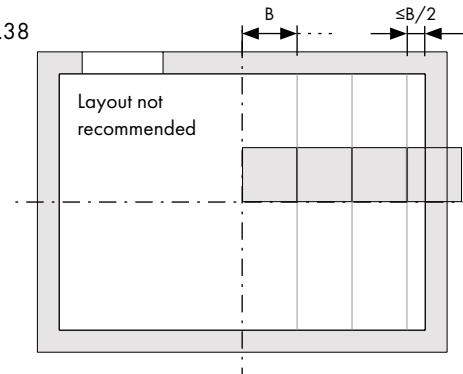


Figure 2.39

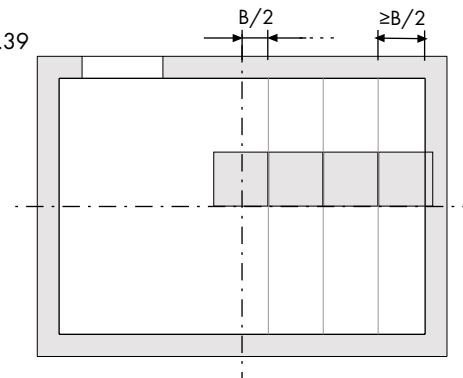


Figure 2.40

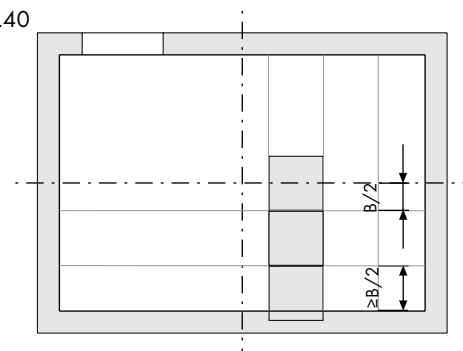
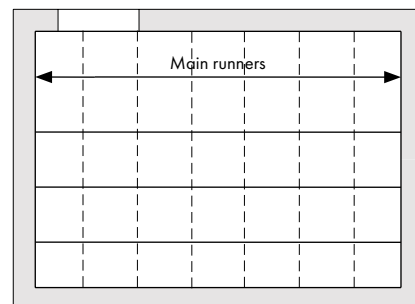


Figure 2.41



Installation

Step 1

All necessary preparations are to be completed including installation of the perimeter trim and hangers, main runners cut to length and mounted and spacer bars fitted (not necessary at the beginning for the entire room, but at least the row to be installed).

Note:

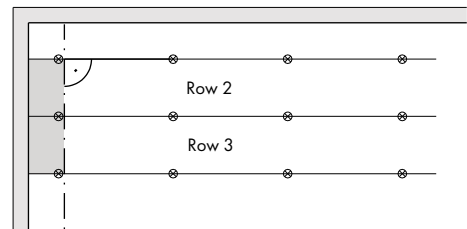
Every one of the last tiles in a row (cut tiles), is installed with a perimeter wedge.

Step 2

As it can be difficult to align an individual main runner, we do not recommend to begin with the cut tiles (row 1). The second and third rows should be started instead (Figure 2.42). Special attention should be given to the first tiles (cut tiles) of these rows, as they will later determine the face joint pattern.

The cut tiles must be cut to the exact size and installed in alignment as well as at right angles to the main runners (Figure 2.42).

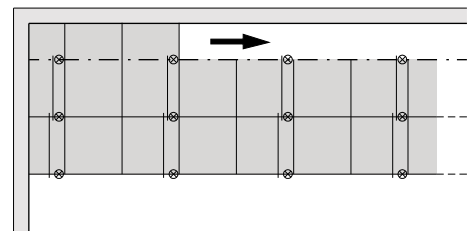
Figure 2.42



Step 3

The cut tiles of the first row are then subsequently installed. These must be cut to the exact size required and installed without perimeter wedges (Figure 2.43). The installation of the cut tiles as the second step in the installation has the advantage that the first main runners are held in place by the other rows (2 and 3) and can not be moved. Cutting the tiles to the exact size required is therefore easier to achieve.

Figure 2.43



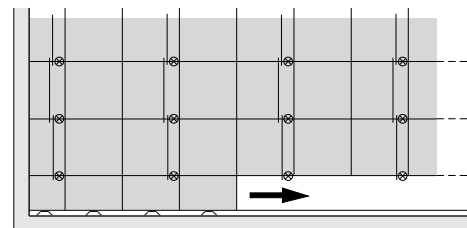
Step 4

The remaining rows are completed step by step.

Step 5

The last row is installed with a cut tile (Figure 2.44). This is not however cut to fit exactly, but 10mm smaller as the measured size and then installed with a perimeter wedge.

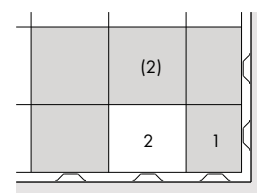
Figure 2.44



Step 6

The corner tiles are the last to be installed (Figure 2.45). As these are installed with perimeter wedges on two sides, it is easier to install them as the penultimate tile. The one from last tile in a row should then be installed as the last tile. Should the installation of perimeter wedges cause a problem, they can also be installed over adjacent tiles (2).

Figure 2.45

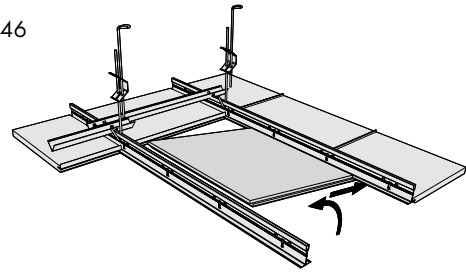


Handling

Step 1

To insert the tile, an area between the hangers is selected. This reduces the risk of damage due to careless handling. In addition, it also provides sufficient space to install the reinforcement profiles. If the tile is taken in both hands on the left and right (K2C2 sides), it can then be guided over the main runner into the ceiling void and the supporting area (similar to Tegular 24/90 BE) and the opposite edge (SL2) pushed onto the main runner (Figure 2.46). The tiles can then be set down.

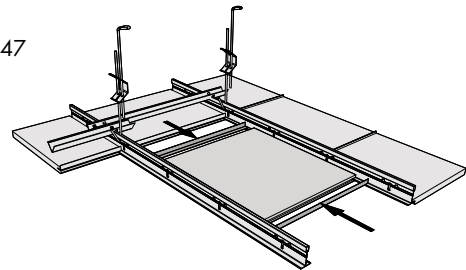
Figure 2.46



Step 2

During the installation, the tiles can be briefly installed without reinforcement profiles, easing the handling of the tiles. As a permanent solution, every tile edge (K2C2 edge) requires an L-reinforcement profile to be installed. This can easily be installed at this point (Figure 2.47).

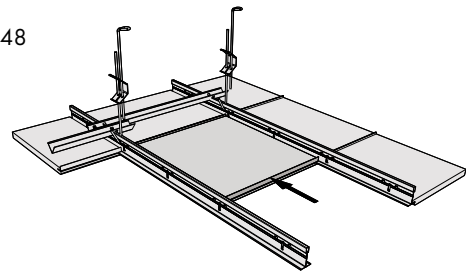
Figure 2.47



Step 3

Finally, the tile including the reinforcement profile is pushed against the existing tile (Figure 2.48). This should be done without too much force to ensure that the joint pattern is not moved and to ensure that the tiles are not too tightly packed and remain demountable.

Figure 2.48



Installation and removal of individual tiles

In principle, every tile in this system is directly demountable. However, there is risk of damage to the tiles in the areas around hangers and the spacer bars must also be removed. If the ceiling is to be reinstalled with the present layout, the following procedure is recommended.

Starting at the first tile of a row (cut tile), every second tile can be removed without any problem as no hangers, nor spacer bars, are present behind the tile.

Removal

To demount the tile, it is sufficient to slightly lift the tile on one side (similar to Tegular 24/90 BE) until it can be pushed over the main runner. The tile and reinforcement profile can then be removed.

Installation

Step 1

Insert the reinforcement profile into the K2C2 edge, however it should be displaced by 4 or 5 cm (=X, Figure 2.49). This is necessary so that the reinforcement profile sits on the main runner and doesn't hinder the further installation. Prepared like this, the tile can be manoeuvred into the ceiling void and the protruding reinforcement profile lay onto the main runner (Figure 2.50).

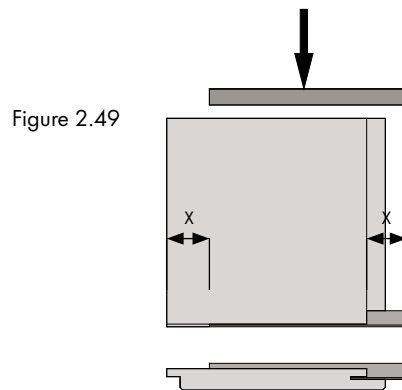
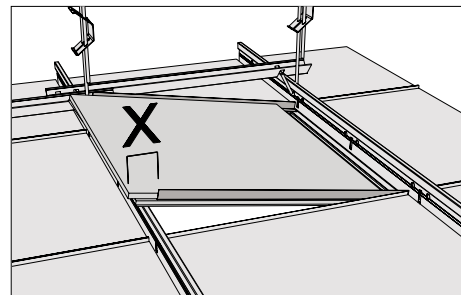


Figure 2.49

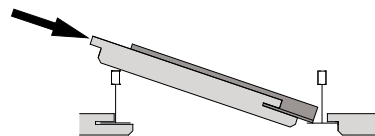
Figure 2.50



Step 2

Finally, the tiles are pushed in the direction of the protruding reinforcement profile and the SL2 edge onto the main runner (Figure 2.51 and 2.52). With a low angle (tiles only slightly lifted) this should be possible without any problems. The tile then only has to be let go.

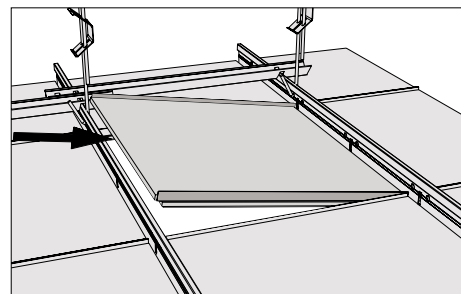
Figure 2.51



Note

Should one of the reinforcement profiles slip during the installation, hindering the further installation of tiles, remove the tile and the reinforcement profile and repeat the installation.

Figure 2.52

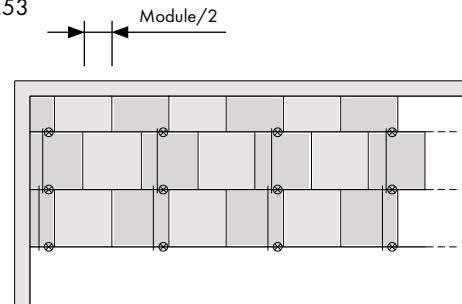


Installation – staggered formation

To install the tiles with staggered joints (without cross joints) the installation should follow as for the conventional system. The only difference is the lay out of the tiles, which are shifted half a tile width in every row (Figure 2.53).

Special attention should be given when installing the first tile in every row, as this determines the tile pattern and joint position. Due to the staggered layout, the resulting cut tiles can be both bigger and smaller than half the tiles width.

Figure 2.53



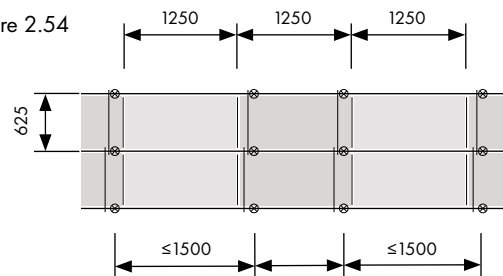
Installation of large format tiles

If large format tiles (600 x 1200 or 625 x 1250 mm) are to be installed, this should already be taken into account when installing the hangers.

It is important to ensure that every other tile is installed without a hanger or spacer bar behind.

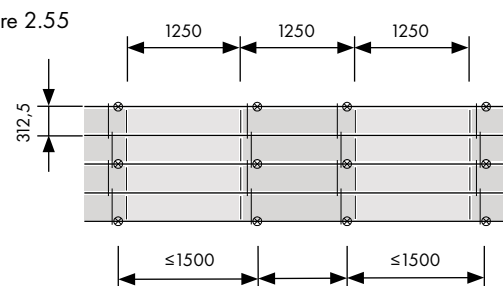
Therefore, the hanger centres (Figure 2.54) alternate between approx. 1500 mm and 1000 mm. The spacer bars are installed immediately adjacent to the hangers.

Figure 2.54



For tile widths of 300 mm or 312.5 mm, the main runner centres must be reduced accordingly (Figure 2.55). Hanger and spacer bar centres alternate as described above.

Figure 2.55



Light fittings / additional loads

General

There are various methods of fixing integrated services, dependent on their size and weight. Generally, in every case, further provisions needs to be made to meet the required load transfer. No loading should be applied to the tiles. The only exception to this is loads less than 0.3 kg where no additional provisions for load transfer are necessary.

Modular lighting

Due to the asymmetrical edge configuration of system A 1.2 (Figure 2.3), as a rule, standard light fittings can not be used. In system A 1.2 (main profiles max. 625 mm and hanger centres max. 1250 mm) light fittings up to 6.0 kg can be installed without additional hangers. For the other systems it is necessary to install additional hangers.

Fixtures and fittings

If fixtures such as down lighters or loud speakers etc. are not directly supported from the soffit, reinforcement should be provided to the reverse side of the tile (Figure 2.58) that transfers the weight to the grid system (according to the loading ability of the grid system with additional hangers).

When screw fixing, a suitable, sufficiently load-bearing, non-combustible board or pattress (Image 2.59) or element width profiles should be used.

Apertures

The maximum aperture size can not be exactly defined. We recommend, depending on the type of tile, to keep a border of at least 80 mm. The bigger the aperture and the bigger the tile, the more susceptible they are to damage and breakage. In every case, careful handling of the tiles is essential.

The cutting can be carried out with a Stanley knife or another suitable tool.

To ensure a central installation with the SL2 edge configuration, the offset between the face and reverse side of the tile should be taken into account.

Figure 2.56

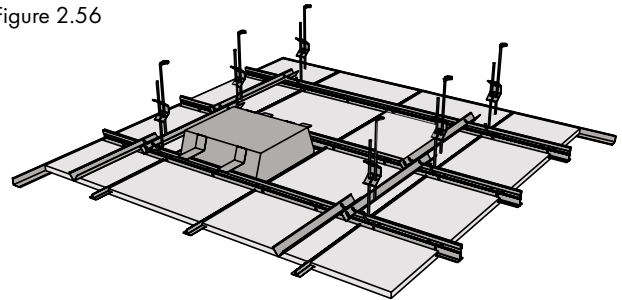


Figure 2.57

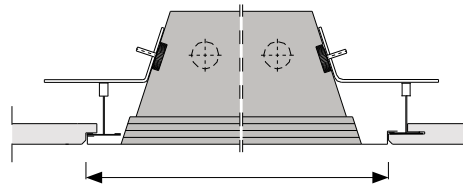


Figure 2.58

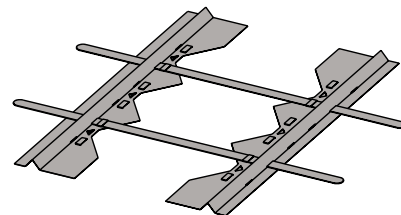
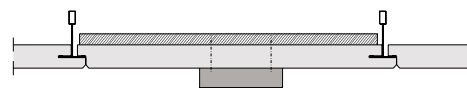


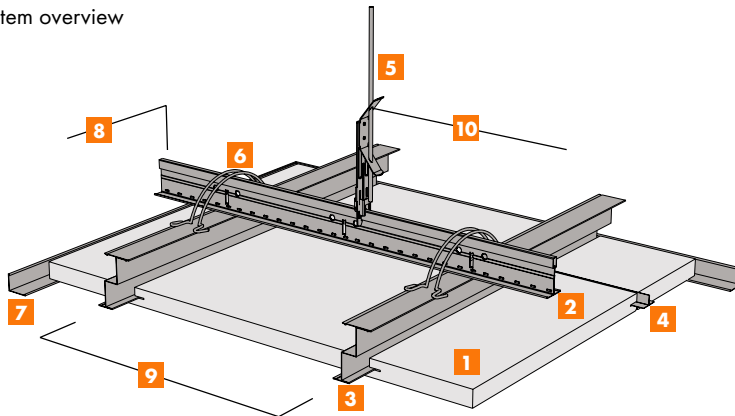
Figure 2.59



System A 1.3 - THERMATEX® demountable, Z-profile

System A 1.3 is constructed similarly to system A 1.1, but is demountable. T24/38 main runners are installed as the load bearing grid structure, using conventional hangers, to which the Z-profiles are fixed with wire clips (see system overview Figure 3.1). The tiles are demountable due to the SL2 edge configuration. The K2C2 edge is reinforced with an L-section. T-profiles as used in System A 1.1 can not be used.

Figure 3.1 - System overview



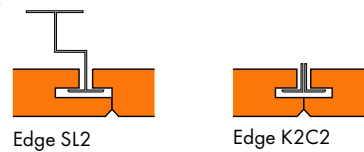
Finesse tiles (Figure 3.2)

The tiles have different edge configurations.

SL2: demountable (installed with Z-profiles)

K2C2: grooved (installed with L-profiles)

Figure 3.2



Material requirements/ key

The quantities and installation times stated in Table 3.1 are for guideline only. They do not include waste or project specific scenarios.

Table 3.1 - Requirements for every m² ceiling

Product description	Unit	Module mm			
		600 x 600	625 x 625	300 x 1200	312.5 x 1250
Mineral tiles	1 Pcs.	2.78	2.56	2.78	2.56
Main runner T24/38 - 3600/3750	2 lin. m	0.80	0.80	0.80	0.80
Z-profile	3 lin. m	1.67	1.60	3.34	3.20
L-cross profile	4 Pcs.	5.56	5.12	5.56	5.12
Splice for Z-profile	5 Pcs.	0.42	0.40	0.84	0.80
Hanger	5 Pcs.	0.64	0.64	0.64	0.64
Wire clip	6 Pcs.	2.67	2.56	5.34	5.12
Perimeter profile	7 lin. m	0.60	0.60	0.60	0.60
Perimeter wedge	8 Pcs.	0.30	0.30	0.30	0.30
Main runner centres	8 m	1.25	1.25	1.25	1.25
Z-profile centres	9 m	0.60	0.62	0.30	0.32
Hanger centres	10 m	1.25	1.25	1.25	1.25
Installation time	9 min	35	35	40	40

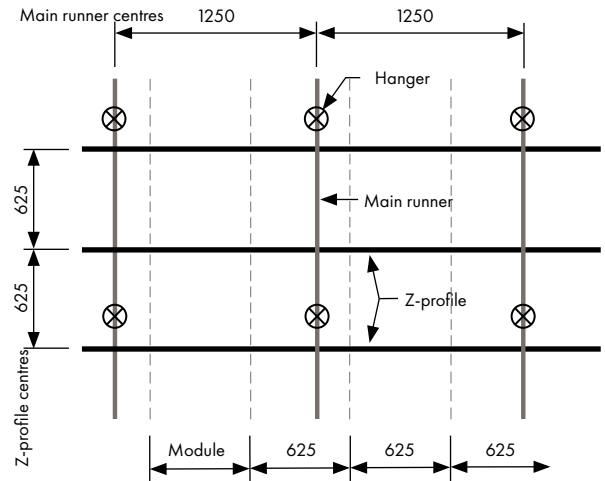
Note

The main runners can impede the installation and/ or demounting of tiles. When this is the case, the tile can be inserted into an adjacent module and pushed into the correct position.

Grid installation (Figure 3.3)

The main runners (T 24/38 main profiles) are installed using quick hangers or other suitable, alternative hangers at 1250 mm centres (hanger centres max. 1250 mm). These are fixed to the soffit using approved fixings, dependent on the type of soffit. The grid is aligned and levelled. The Z-profiles are fixed to the installed main runners, using wire clips, dependent on the tile width. During the installation, the SL2 edge of the tile is pushed or lay-on the Z-profile. The short edges of the tiles are reinforced with L-profiles.

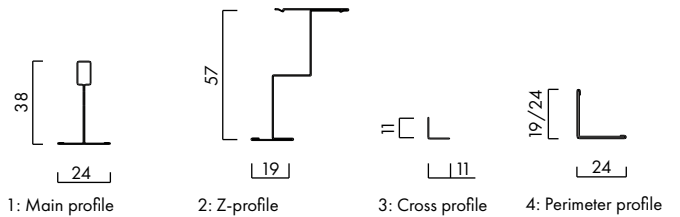
Figure 3.3



Profiles (Figure 3.4)

- 1: Main profile T24/38 main runner
L = 3600 / 3750 mm
- 2: Z-profile Z19/57/34 Z-profile butt cut
L = 4.00 m
- 3: Cross profile L 11/11 cross tee butt cut
L = 600 / 625 or 300 / 312.5 mm
- 4: Perimeter profile L19/24 or L24/24 Ventatec L-wall angle
L = 3.00 m

Figure 3.4



Splices (Figure 3.5)

For a level and stable connection of the Z-profiles, splices (L = 150 mm) should be used.

Figure 3.5

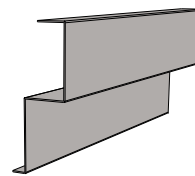


Figure 3.6



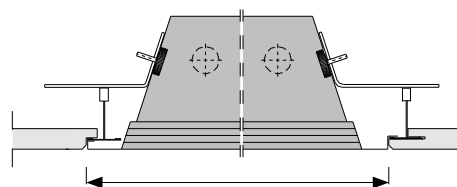
Wire clips (Figure 3.6)

The Z-profiles are fixed to the main runners with wire clips. The clip must be fully pushed onto the upper leg of the Z-profile. For the installation of profiles, one wire clip at the start is sufficient and then following adjustment and tile installation, a second should be installed at every junction.

Light fittings (Figure 3.7)

An asymmetrical light fitting is required due to the SL2 edge configuration. A standard light fitting is not possible:
Axis dimension = aperture = size of light fitting

Figure 3.7

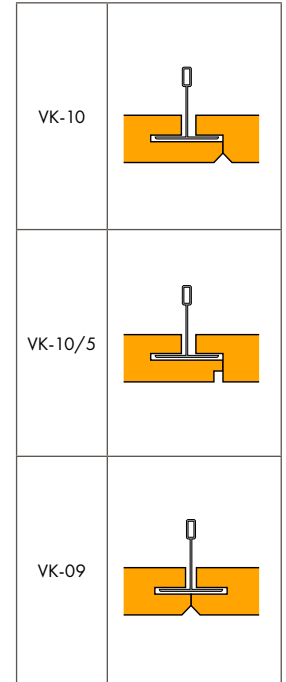


System A 2 - HERADESIGN®

Product Range

Product	Thickness [mm]	Weight [kg/m ²]	Edge configuration	Module [mm]		
Product programme HERADESIGN®	HERADESIGN® superfine	35	VK-10 VK-10/5	600/600; 600/1200		
	HERADESIGN® fine	35				
	HERADESIGN® micro	35				
	Product programme A2	HERADESIGN® superfine A2	25	VK-09	600/600; 600/1200	
		HERADESIGN® fine A2	25			
		HERADESIGN® superfine	25 35			11.3 15.0
		HERADESIGN® fine	25 35			12.4 16.3
HERADESIGN® micro	25 35	15.0 19.0				
HERADESIGN® macro	25	15.0				
HERADESIGN® plano	25	15.0				

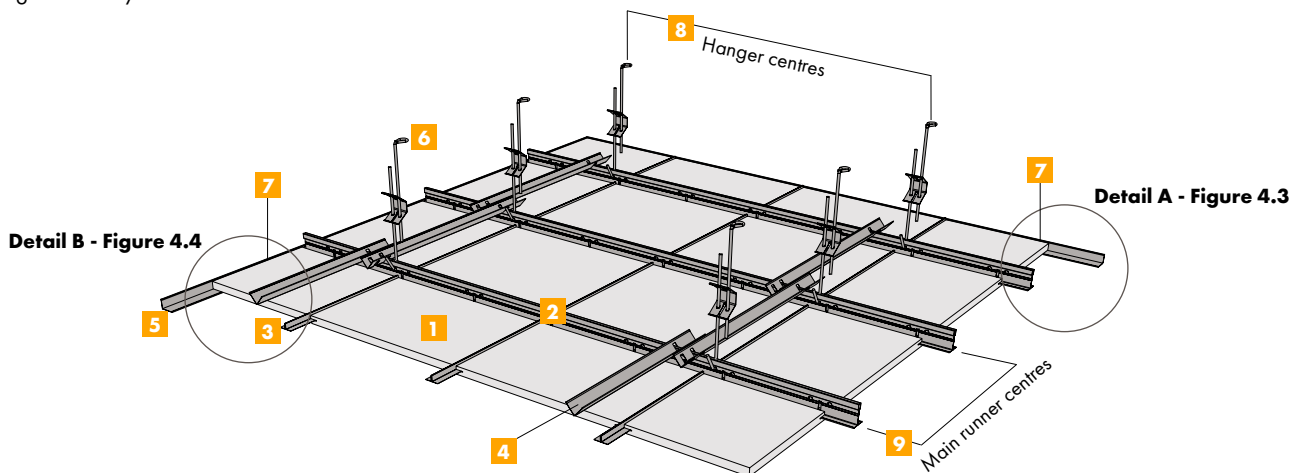
Edge configurations



System A 2.1 - HERADESIGN® non-accessible

System A 2.1 is a HERADESIGN® suspended ceiling with concealed T-profiles. The push-in installation and the use of tiles with a VK 09 edge configuration mean the tiles are non-accessible. Using suitable hangers, the T35/38 main runners (DONN® DX35) are installed as main profiles (see system overview Figure 4.1).

Figure 4.1 - System overview A2.1

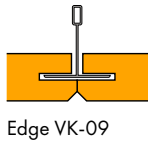


VK tiles (Figure 4.2)

The tiles have the following edge configuration:

VK-09: grooved and beveled on all sides, 5 mm bevel

Figure 4.2



Edge VK-09

Material requirements/ key

The quantities and installation times stated in Table 4.1 are for guideline only. They do not allow for waste or project specific scenarios.

Note

Cross bracing: If the cross profiles are not anchored in the main runners (butt cut T-profiles pushed together), the system must be cross braced with spacer bars (see system overview, No. 4). The spacer bars are lay out so that over every second tile a spacer bar is present at maximum 1250 mm centres.

Access to the ceiling void: Access to the ceiling void is via integrated maintenance openings. For every maintenance opening, the two main runners each require an additional hanger around the middle of the tile.

For the implementation requirements see DIN 18168 part 1 "Light-weight ceiling linings and suspended ceilings", or DIN-EN13964 "Suspended ceilings – requirements and test methods".

Table 4.1 – Requirements for every m² ceiling

	Product description	Article number	Module [mm]	
			600 x 600	600 x 1200
1	HERADESIGN® Wood wool tile		2.78 Pcs.	1.39 Pcs.
2	Main runner	DX35 XH 370 W	1.70 lin. m	1.70 lin. m
3	Cross profile	DCT 60	2.78 Pcs.	1.39 Pcs.
4	Spacer bar	DMK 60/62.5	1.39 Pcs.	1.39 Pcs.
5	Perimeter trim		0.40 lin. m	0.40 lin. m
6	Hanger		1.38 Pcs.	1.38 Pcs.
7	Perimeter wedges	DCC 8	0.80 Pcs.	0.80 Pcs.

All figures are estimates and do not include waste.

Table 4.2 – maximum permitted weight for every m² ceiling when using Nonius hangers

8 Hanger centres	Module [mm]	
	600 x 600	600 x 1200
	9 Main runner centres	
	600 mm	600 mm
800 mm	30.0 kg	30.0 kg
1000 mm	30.0 kg	30.0 kg
1200 mm	20.0 kg	20.0 kg
Note: The load per m ² must be distributed evenly (no extra point loads permitted). Deflection after loading is in accordance with class 1 (L/500) of EN 13964 when the grid structure is installed as shown.		
For other constructions, loads or hanger centres, please contact Knauf Ceiling Solutions.		

Installation

Install the perimeter trim **5** at the required height.
Lay out the modules with equal perimeter fields.

Install the hangers **6** or stagger sliders with slotted metal strips and hang and align the main runners **2**.

Stagger the profile joints and an additional hanger must be installed next to each joint. Starting in the middle of the room, insert the HERADESIGN® acoustic tiles in fields. The tiles in the first row and the first tile of each further row should be cut to fit exactly. This prevents the tiles shifting when the following tiles are inserted. The last tile should be cut and installed with a perimeter wedge. In order to slide the tiles in, the profiles must be pushed apart.

Install spacer bars **4** and cross profiles **3** as cross bracing. Install perimeter tiles with a 10 mm gap on the perimeter trim **5** and fix with perimeter wedges **7**.

If a mineral wool overlay is required, it must be in tile format and installed step by step with the tiles.

Note

For suspended ceilings that are subject to vibrations and for large suspension heights, or where the hangers are fixed to steel or wood substructures, an adequate number of hangers must be set diagonally in both directions in order to minimise the swaying of the ceiling. Ceiling statics are necessary.

Mineral wool or film overlays are installed step by step with the acoustic tiles. Film joints and connections must be taped. PE films up to 30 µm thick do not impair acoustic absorption of the absorber and serve as trickle protection.

The corrosion protection of all metal parts must be in accordance with the prevailing conditions in the room. Tiles which are damaged, soiled or have colour deviations may not be installed.

Figure 4.3 - Perimeter connection Detail A

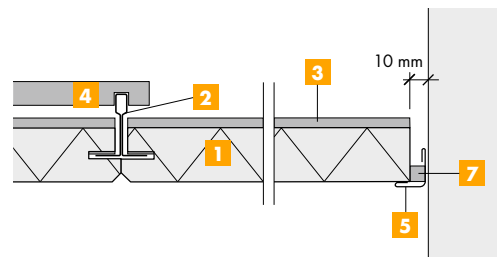
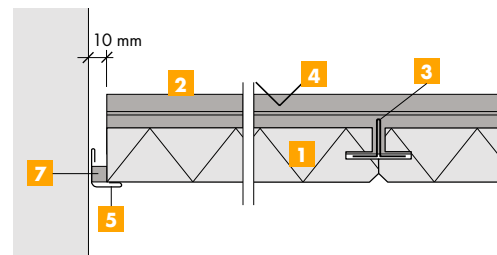


Figure 4.4 - Perimeter connection Detail B

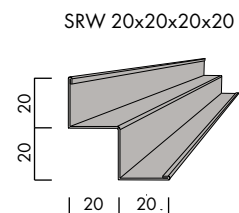
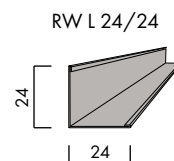


Perimeter profiles

Formats

For the perimeter of ceilings, various wall connection profiles are available, including:

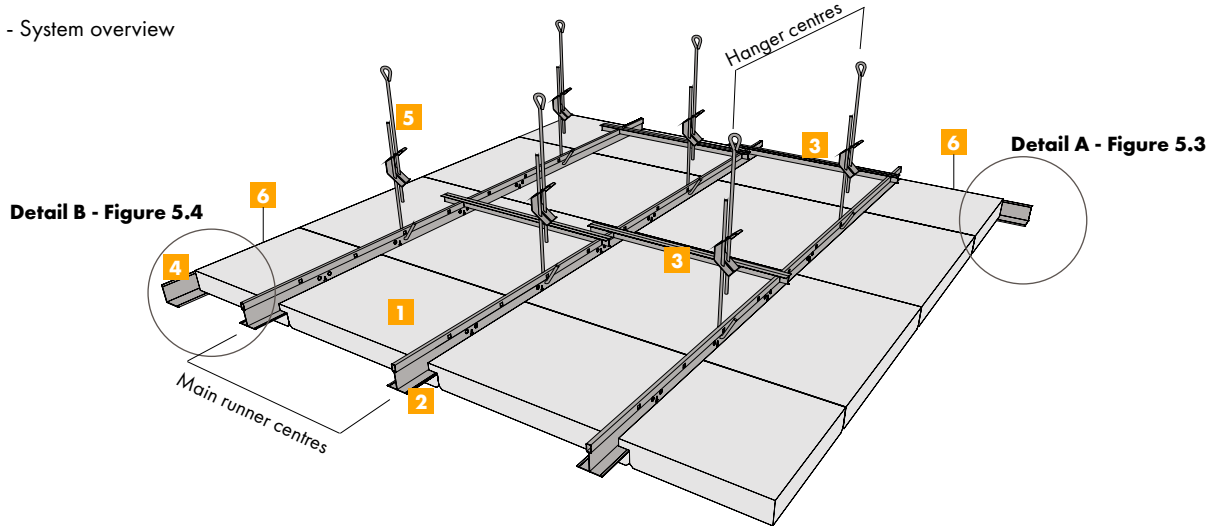
	Thickness	Length	Article number
Wall angle 24/24	0.5 mm	3.00 m	RW L24/24
Shadow trim 20/20/20/20 20x20x20x20	0.7 mm	3.00 m	SRW



System A 2.2 - HERADESIGN® demountable

System A 2.2 is similarly constructed to system A 2.1, but is demountable. The VK-10 and VK-10/5 edge configurations of the ceiling tiles make the system demountable (Minimum suspension height = 150 mm). Using suitable hangers, the T35/38 main runners (DONN® DX35) are installed as main profiles (see system overview Figure 5.1).

Figure 5.1 - System overview

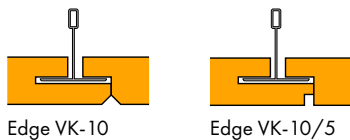


VK tiles (Figure 5.2)

The tiles have different edge configurations

- VK-10:** long side grooved and all-round bevel, 5 mm bevel
- VK-10/5:** long side grooved and all-round square edge with 5 mm gap

Figure 5.2



Material requirements / key

The quantities and installation times stated in Table 5.1 are for guideline only. They do not allow for waste or project specific scenarios.

Note

Cross bracing: As there are no cross profiles between the main runners, spacer bars must be used to cross brace the system. The spacer bars are lay out so that over every second tile a spacer bar is present at maximum 1250 mm centres. Every second tile is then immediately demountable.

Access to the ceiling void: Every second tile is demountable. Determine the movable end of the tile and then push the tile upwards and diagonally remove from the grid. For larger access openings, remove the spacer bars from surrounding tiles and demount the tiles. When reinstalling the tiles, ensure the spacer bars are also reinstalled.

For the implementation requirements see DIN 18168 part 1 "Lightweight ceiling linings and suspended ceilings", or DIN-EN 13964 "Suspended ceilings – requirements and test methods"

Table 5.1 - Requirements for every m² ceiling

Product description	Article number	Module	
		600 x 600	600 x 1200
1 HERADESIGN® Wood wool tile		2.78 Pcs.	1.39 Pcs.
2 Main runner	DX35 XH 370 W	1.70 lin. m	1.70 lin. m
3 Spacer bar	DMK 60/62.5	1.39 Pcs.	1.39 Pcs.
4 Perimeter trim		0.40 lin. m	0.40 lin. m
5 Hanger		1.38 Pcs.	1.38 Pcs.
6 Perimeter wedge	DCC 8	0.80 Pcs.	0.80 Pcs.

All figures are estimates and do not include waste.

Table 5.2 - maximum permitted weight for every m² ceiling when using Nonius hangers

Hanger centres	Module [mm]	
	600 x 600	600 x 1200
	Main runner centres	
	600 mm	600 mm
800 mm	30.0 kg	30.0 kg
1000 mm	30.0 kg	30.0 kg
1200 mm	20.0 kg	20.0 kg
Note: The load per m ² must be distributed evenly (no extra point loads permitted). Deflection after loading is in accordance with class 1 (L/500) of EN 13964 when the grid structure is installed as shown.		
For other constructions, loads or hanger centres, please contact Knauf Ceiling Solutions.		

Installation

Install the perimeter trim **4** at the required height.
Lay out the modules with equal perimeter fields.

Install the hangers **5** or stagger sliders with slotted metal strips and hang and align the main runners **2**.

Stagger the hanger and grid joints and install an additional hanger at every joint. Starting in the middle of the room, insert the HERADESIGN® acoustic tiles in fields.

The tiles in the first row and the first tile of each further row should be cut to fit exactly. This prevents the tiles shifting when the following tiles are inserted. The last tile should be cut and installed with a perimeter wedge.

Install spacer bars **3** and cross profiles as cross bracing. Install perimeter tiles with a 10 mm gap on the perimeter trim **4**, and fix with perimeter wedges **6**.

If a mineral wool overlay is required, it must be in tile format and installed step by step with the tiles so that the acoustic tiles can be pushed upwards for access to the ceiling void.

Note

For suspended ceilings that are subject to vibrations and for large suspension heights, or where the hangers are fixed to steel or wood substructures, an adequate number of hangers must be set diagonally in both directions in order to minimise the swaying of the ceiling. Ceiling statics are necessary.

The corrosion protection of all metal parts must be in accordance with the prevailing conditions in the room. Tiles which are damaged, soiled or have colour deviations may not be installed.

Minimum suspension height: To install the tiles without any problem, a minimum suspension height of 14 cm is required with wire hangers or flat hangers or 19 cm for suspensions with sliders or Nonius hangers.

Suspension height: Distance between under edge of T-profile to the under edge of soffit. For mineral wool overlays, the minimum suspension height must be increased by the thickness of the mineral wool.

Figure 5.3 - Perimeter connection Detail A

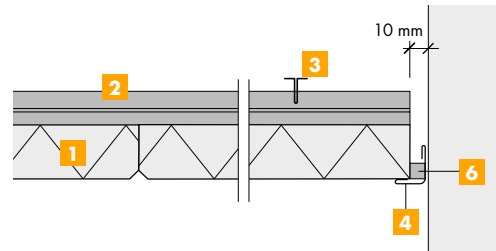
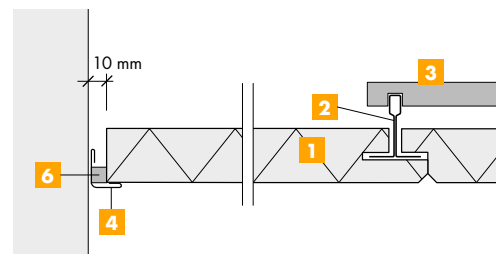


Figure 5.4 - Perimeter connection Detail B

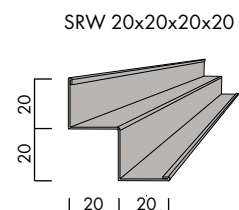
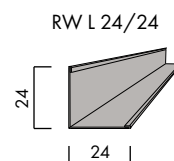


Perimeter profiles

Formats

A variety of profiles are available for the perimeter connection of the suspended ceiling:

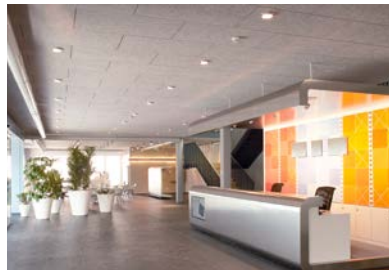
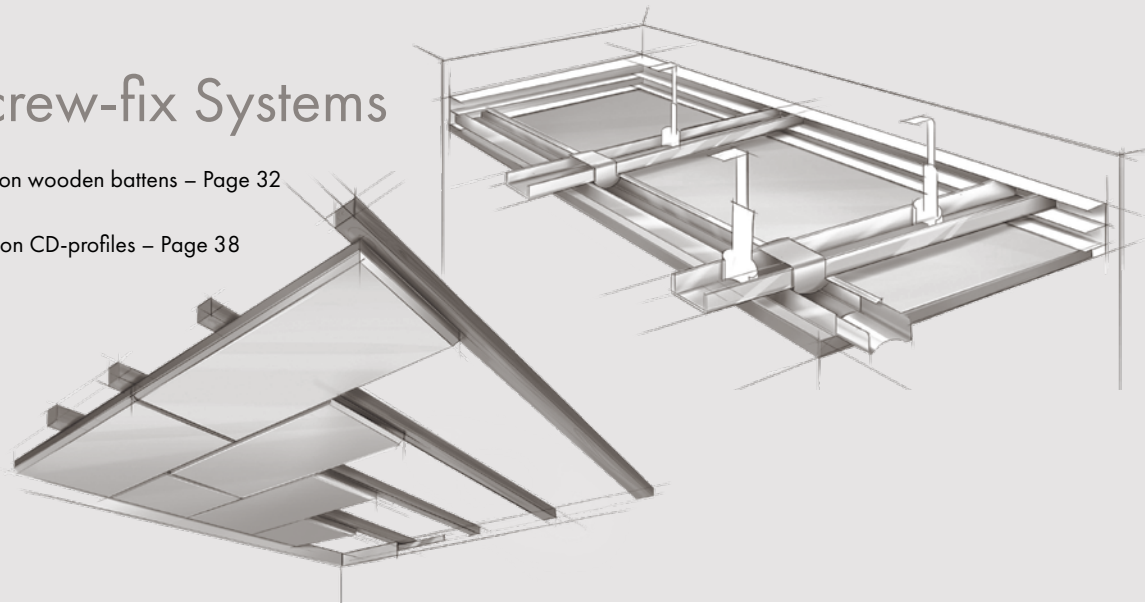
	Thickness	Length	Article number
Wall angle 24/24	0.5 mm	3.00 m	RW L24/24
Shadow trim 20/20/20/20 20x20x20x20	0.7 mm	3.05 m	SRW



System B - Screw-fix Systems

System B 2.1: HERADESIGN® on wooden battens – Page 32

System B 2.2: HERADESIGN® on CD-profiles – Page 38



Product Range

	Product	Thickness [mm]	Weight [kg/m ²]	Edge configuration ²⁾	Main profile centres [mm]	Tile size ¹⁾ [mm]
Product programme	HERADESIGN® superfine	15	7.8	GK AK-00 AK-01	300; 312,5 400; 416,6 ¹⁾	600/600 600/1200 625/625 625/1250
	HERADESIGN® fine	15	8.2			
	HERADESIGN® superfine	25 / 35	11.3 / 15.0	GK AK-00 AK-01 AK-02 AK-03	600; 625 600; 625	
	HERADESIGN® fine	25 / 35	12.4 / 16.3			
	HERADESIGN® macro	25	12.4			
	HERADESIGN® micro	25 / 35	15.0 / 19.0			
HERADESIGN® plano	25	15.0	AK-00, AK-01, AK-02, AK-03 AK-01, SK-04, SK-06, VK-09			
Product programme A2	HERADESIGN® superfine A2	15	12.0	GK AK-00 AK-01	300; 312,5 400; 416,6 ¹⁾	
	HERADESIGN® fine A2	15	13.0			
	HERADESIGN® superfine A2	25	18.0	GK AK-00 AK-01 AK-02 AK-03	600; 625	
	HERADESIGN® fine A2	25	19.0			
Product programme plus ³⁾	HERADESIGN® superfine plus	40 (15/25) 50 (25/25)	10.1 13.6	AK-01 plus	600 ³⁾	600/1200
	HERADESIGN® fine plus	40 (15/25) 50 (25/25)	10.5 14.7			
	HERADESIGN® micro plus	50 (25/25)	17.3			
	HERADESIGN® plano plus	50 (25/25)	17.3			

Edge Configurations

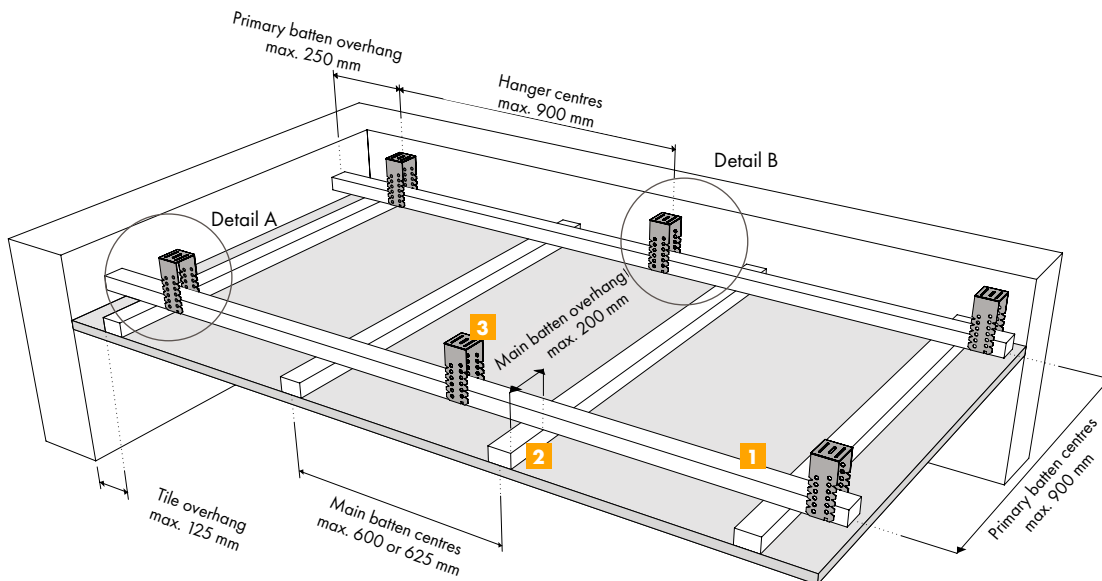
GK ²⁾	
AK-00 ²⁾	
AK-01	
AK-02/5	
AK-02/10	
AK-02/20	
AK-03	

- 1) Alternatively, for tile sizes 600/1200 and 625/1250, batten centres can be 1/3 of the tile length. 15 mm tile thickness: Not suitable for external applications or swimming pools.
- 2) Note: GK edge configuration – square edge, no bevel. Increased care required by installation. Due to the permissible tolerances of the tile thickness of ± 1 mm and no bevel, height differences between the tiles may be visible. Additional painting of the tile edges is recommended. Note: Knauf Ceiling Solutions is not a kit provider in terms of EN 13964.
- 3) Note: Observe the screw pattern for HERADESIGN® plus.

System B 2.1 - HERADESIGN® tiles on wooden battens

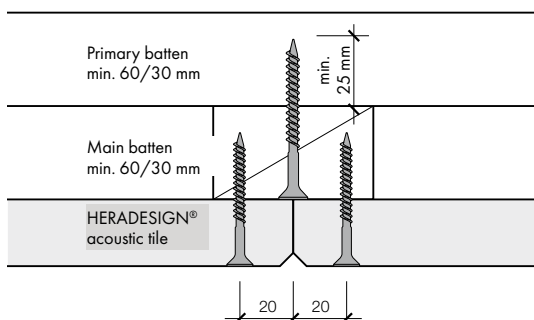
Sizes and dimensions

The HERADESIGN® acoustic tiles are screw-fixed with HERADESIGN® screws onto wooden battens with a cross-section of minimum 30/60 mm. Batten centres maximum 600 or 625 mm. The primary battens should be at maximum 900 mm centres (ball impact resistant version). The hangers are fixed to the soffit in 900/900 modules.

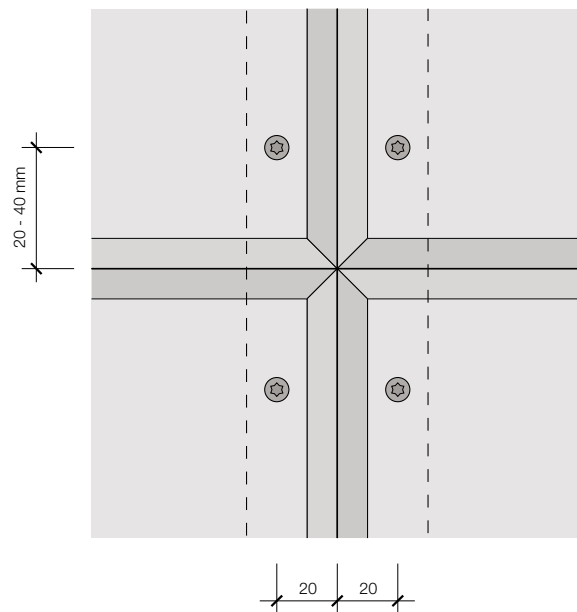


Connecting the primary battens / main battens

The main battens are fixed to the primary battens 60/30 or 60/40 with $\geq 4.5 \times 55$ mm screws according to DIN 7997. Screw depth minimum 25 mm. Number of screws according to static requirements. Recommended: Two per connection point. However, according to DIN 18168/T1 one single screw is permitted ($\geq 5 \times 55$ mm)



Screws



The minimum cross-section of the primary batten is 60/40 mm or 60/30 mm according to DIN 18168 or EN 13964, if the primary and main battens have the same cross-section.

Maximum centres of the substructure for deflection class 1 according to EN 13964 (max. deflection L/500)

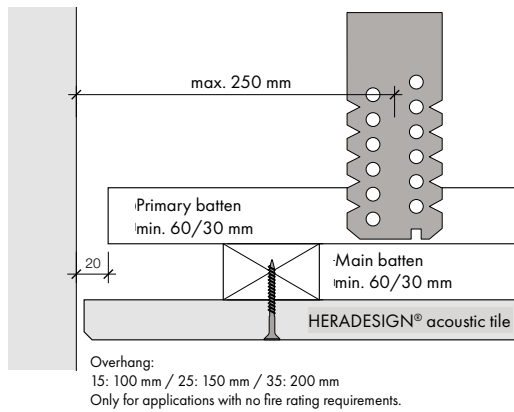
Primary battens cross-section (w/h) 60/30, 60/40 mm	Main battens max. 600 or 625 mm centres	Maximum load (incl. own weight of the ceiling in kN/m ²)		
		Maximum hanger centres		
		750 mm	900 mm	1150 mm
Centres	Cross-section w/h			
max. 600 mm	60/30, 60/40	0.55 kN/m ²	0.45 kN/m ²	0.35 kN/m ²
max. 900 mm	60/30, 60/40	0.35 kN/m ²	0.25 kN/m ²	

Max. hanger load: 0.40 kN. With a permissible hanger load of 0.25 kN, the additional loads must be multiplied by 0.6, i.e. reduced. Wood quality class S 10 as per EN 1912. For F 30, EI 30 ceilings, or ceilings that are ball impact resistant the centres and cross sections must be according to the test certificate.

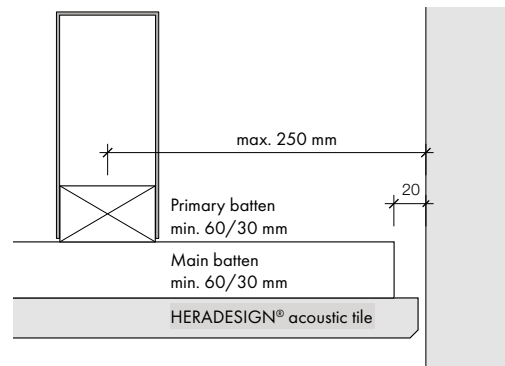
Material requirements

Component	Centres	Unit	Approx. material requirements for every m ² ceiling *)	Comments
1 Primary batten 60/30 mm	C = 600 mm	lin. m	1.7	For 4000 mm lengths
	C = 900 mm		1.1	
2 Main batten 60/30 mm	600 mm	lin. m	1.7	
	625 mm		1.6	
3 Hanger	C = 600 mm	pcs.	2.4	Permitted hanger load max. 0.4 kN
	C = 900 mm		2.0	

Perimeter connection Detail A

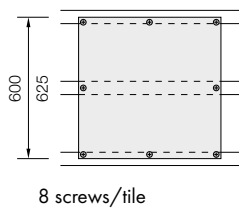


Perimeter connection Detail B



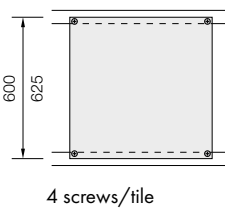
Screw pattern

for 15 mm tiles



Screw pattern

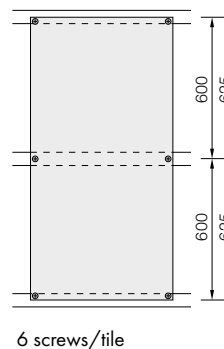
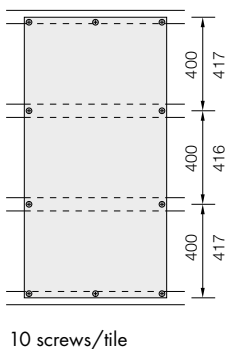
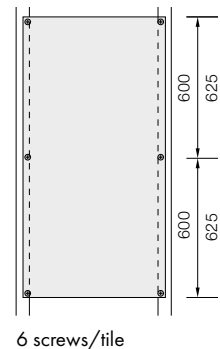
for 25 mm and 35 mm tiles



Screw pattern

Product programme plus

for 40 mm and 50 mm tiles



Ball impact resistant fixing as per EN 13964, Annex D or DIN 18032 / part 3

Installation type	Thickness [mm]	Edge configuration	Main batten centres [mm]	Primary and main batten cross section	Primary batten and Nonius hanger centres ^{6*)} [mm]
Ceiling	35/25	AK-01	600; 625	≥ 60/30	900
Wall	35	AK-01	600; 625	≥ 60/30	900
Wall ^{7*)}	25	AK-01	300; 312.5	≥ 60/30	900

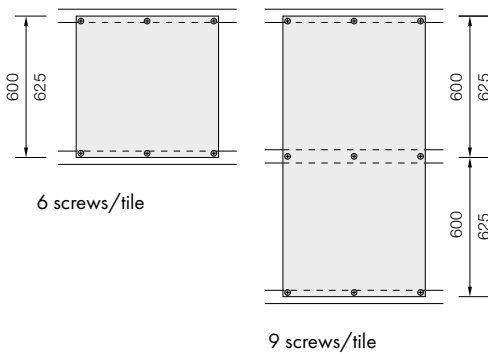
^{6*)} without additional loads. For additional loads, as per Table "Maximum centres of the substructure" for screw-fixing onto wooden battens.
^{7*)} For HERADESIGN[®] superfine A2 and HERADESIGN[®] fine A2

Note: pieces cut to size with a length of less than 500 mm must be supported on all four sides.

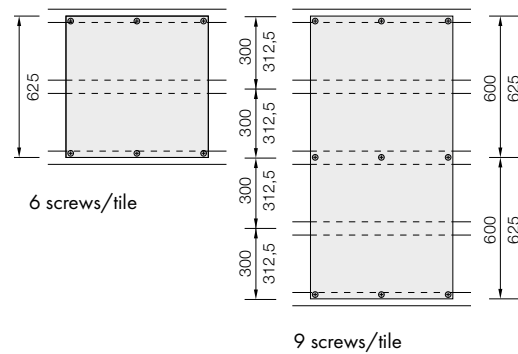
Screw patterns

For ball impact resistant fixing of HERADESIGN[®] acoustic tiles, at least three screws must be used per tile width and support.
 Max. screw centres ≤ 315 mm. This also applies to covered external applications, for EI30 suspended ceilings and vibrating constructions.

Ceiling installation: 25 mm and 35 mm tiles
 Wall installation: 35 mm tiles



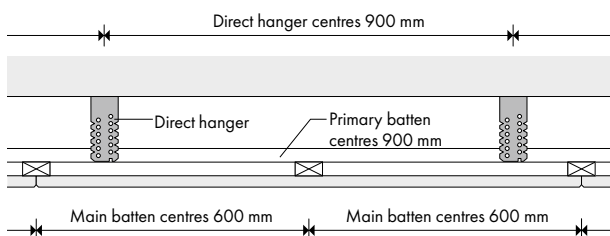
Wall installation: 25 mm tiles ^{*)}



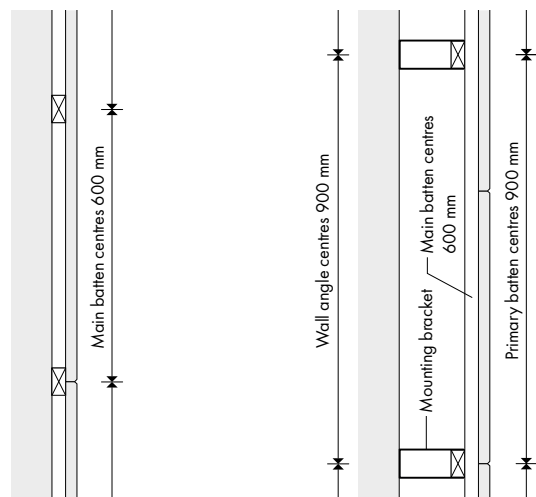
^{*)} For wall installation of 25 mm HERADESIGN[®] tiles, the main batten centres are reduced to 300 or 312.5 mm. The position and number of the screws remains the same.

Construction diagrams

Ceiling installation - cross grid
 (vertical section)



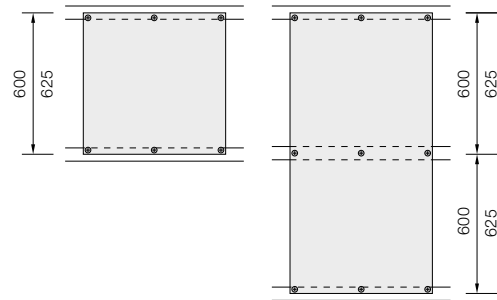
Wall installation – parallel grid **Wall installation – cross grid**
 (horizontal section) (horizontal section)



Construction requires structural support in the footing, limited wall height.

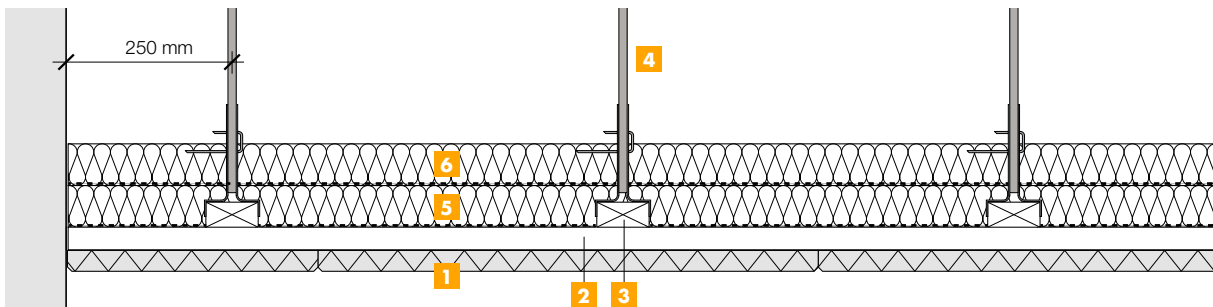
Fire resistance as per EN 1364-2, or EN 1363-1

HERADESIGN® suspended ceilings have been tested as an independent ceiling element for fire exposure from below. The test reports describe the installation procedure, test conditions and the test results of the tested construction. Any significant deviation in terms of size, construction, loading and spanning are not covered in the test report and have to be clarified with a fire expert. The fixing of the tiles and the substructure centres are as per the test certificate. For EI-30 constructions, the two mineral wool overlays must be lay cross-wise, i.e. at 90°. The mineral wool must be installed with butted and staggered joints.



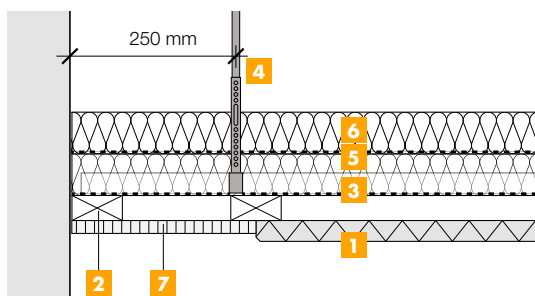
EI 30 HERADESIGN® suspended ceiling as independent fire protection

Wall connection without shadow gap



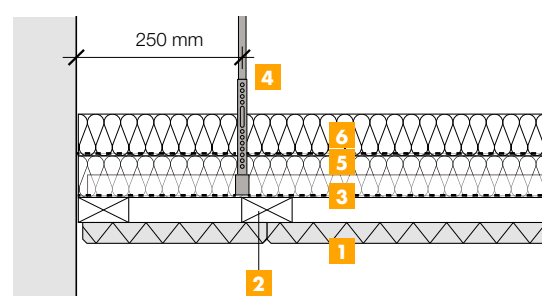
- 1 HERADESIGN® acoustic tile
- 2 Wooden batten 60 x 30 mm, main batten
- 3 Wooden batten 60 x 30 mm, primary batten
- 4 Nonius hanger
- 5 1st layer CNF board D9 glass fleece faced, mineral wool, 50 mm, fleece underneath
- 6 2nd layer CNF board D9 glass fleece faced, mineral wool, 50 mm (lay across), fleece underneath

Wall connection with plasterboard margin with or without shadow gap



- 1 HERADESIGN® acoustic tile
- 2 Wooden batten 60 x 30 mm, main batten
- 3 Wooden batten 60 x 30 mm, primary batten
- 4 Nonius hanger
- 5 1st layer CNF board D9 glass fleece faced, mineral wool, 50 mm, fleece underneath
- 6 2nd layer CNF board D9 glass fleece faced, mineral wool, 50 mm (lay across), fleece underneath
- 7 Plasterboard margin Knauf GKF, 15 mm

Wall connection with shadow gap



- 1 HERADESIGN® acoustic tile
- 2 Wooden batten 60 x 30 mm, main batten
- 3 Wooden batten 60 x 30 mm, primary batten
- 4 Nonius hanger
- 5 1st layer CNF board D9 glass fleece faced, mineral wool, 50 mm, fleece underneath
- 6 2nd layer CNF board D9 glass fleece faced, mineral wool, 50 mm (lay across), fleece underneath

Note: The classifications are only valid for the tested components. Changes to the ceiling construction are not permitted. For the exact tested construction please refer to the test certificate and data sheet for this construction.

Installation guidelines and advice

For the installation requirements see DIN 18168 "Lightweight ceiling linings and suspended ceilings", as well as EN 13964 "Suspended ceilings – requirements and test methods".

- Before starting installation, check the underlying structure for sufficient load-bearing capacity.
- Fix the wooden battens to the soffit or pre-installed hangers at the required centres with corrosion protected screws.
- The batten joints should be doubled and staggered.
- Distribute the battens symmetrically (equal edge fields).
- For large ceilings, begin installation from the centre of the room.
- HERADESIGN® tiles are pushed together, aligned and fixed according to the screw pattern with HERADESIGN® screws (DIN 7997) (head diameter ≥ 9 mm) to the battens. For each tile width and centre distance, two screws are required. For covered external areas, ceilings and walls in indoor swimming pools, vibrating constructions and for ball impact resistant systems, three HERADESIGN® screws are required.
- Note: Observe the necessary corrosion protection requirements.
- Square tiles: Observe the installation direction marked on the back when installing the tiles.
- Cross joints: four tile corners meet at one point, which means increased accuracy is required when installing!
- Screws: HERADESIGN® screw heads can be covered with standard colours. Screws in special colours on request.
- The screw heads must be set flush with the tile surface. This can be made easier by using screw couplings with adjustable depth stops or a depth stop as a prefix to screws (e.g.: FESTOOL depth stop DC UNI FF).
- After installation, unpainted screw heads must be covered with a paint supplied by the manufacturer or an equivalent as in chapter Application and Handling. Corrosion protection must be determined by the prevailing room conditions.
- Acoustic overlays or films are installed step by step with the installation of the acoustic tiles. Film joints and connections must be taped.
- A PE film with a thickness of up to 30 μm does not affect the sound absorption of the underlying absorber and is recommended as trickle protection for mineral wool overlays.
- Damaged or soiled tiles or tiles with colour deviations may not be installed. The full impression of the ceiling should continually be checked from below during installation.
- Tiles with edge configurations for T-profile installations are not suitable for screw fixing, as the tile size is smaller than the module.

HERADESIGN® screws

Stainless steel, universal drywall screws for attaching HERADESIGN® acoustic tiles to battens or CD-profiles 60/27/06 mm. Partial thread, screw head with Torx T20.

Maximum centres: 600 or 300 mm / 625 or 312 mm

Note: Not suitable for swimming pools and external applications.

Tile format	Screw requirement approx. pcs. for every m ² ceiling			
	600/600 mm	625/625 mm	600/1200 mm	625/1250 mm
Standard screw pattern - 25 and 35 mm tiles	12	11	9	8
Standard screw pattern - 15 mm tiles	23	21	14	13
Ball impact resistant version	17	16	13	12

Dimension [mm]		Screw head colour	For tile thicknesses [mm]	Packaging unit pcs./carton
Length	Ø			
35	4.5	unpainted / white / natural special colours on request	15	200
50	4.5		25	200
60	4.5		35	200

Corrosion protection:

For suitable corrosion protection of screws for applications in indoor swimming pools, underground car parks, covered external applications or other special applications, please contact your screw supplier or screw manufacturer. (Screw head diameter ≥ 9 mm).

* Only when using CD-profiles 27/60/0.6 mm



Mark out the ceiling module from the centre of the room, for example using a chalk line. Ensure the margins at the sides of the room are identical.



Align the battens using a spirit level or laser level and fix the battens to the hangers, e.g. quick hangers, using 2 screws per side.



Install the primary and main battens. Maximum centres according to the "Maximum centres of the substructure" table for screw-fixing onto wooden battens and the primary/main batten connection detail.



Install the acoustic tiles with the aid of a support. When fixing, press the tile onto the batten using the heel of your hand. There must be no gap between the tile and the wooden batten. For large ceiling areas, begin tile installation from the centre of the room. Observe the installation direction of square tiles!



Align the rows of tiles with an installation batten. Tile joints must be positioned centrally under the battens. No free tile joints are allowed.



Close possible gaps between the tiles using a wooden block and hammer. Only handle the acoustic tiles with clean hands (clean gloves are recommended) and clean tools.



Insert HERADESIGN® acoustic overlays or other acoustic overlays, step-by-step when installing the HERADESIGN® acoustic tiles. Absorber tiles that are pushed between the wooden battens are cut to size.

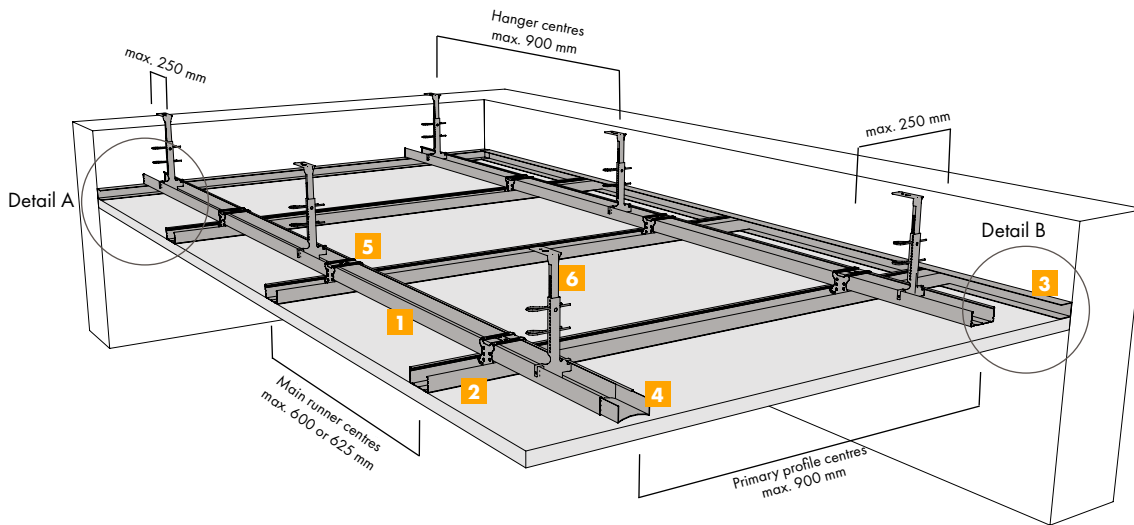


If coloured screws are not used, paint over the screw heads with the paint supplied or a suitable equivalent using a fine brush and suitable amount of paint. Screw heads must be flush with the tile surface.

System B 2.2 - HERADESIGN® tiles fixed to CD-profiles

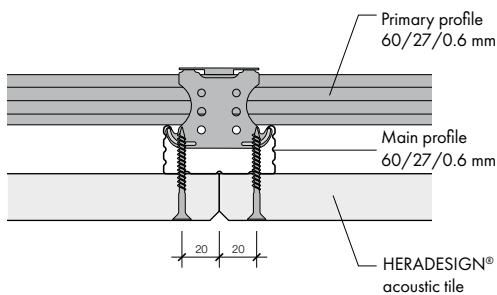
Size and dimensions

The HERADESIGN® acoustic tiles are screw-fixed with HERADESIGN® screws onto CD-profiles with a cross-section of 60/27/0.6 mm. CD-profile centres according to the table. The hangers are fixed to the soffit in 900/900 modules.



Connecting primary / main profiles

The CD-primary profile is connected to the CD-main profile using a cross connector. The tile joints, in the main profile direction, should always be below a CD-profile.



Overhang of the tile (fixing):

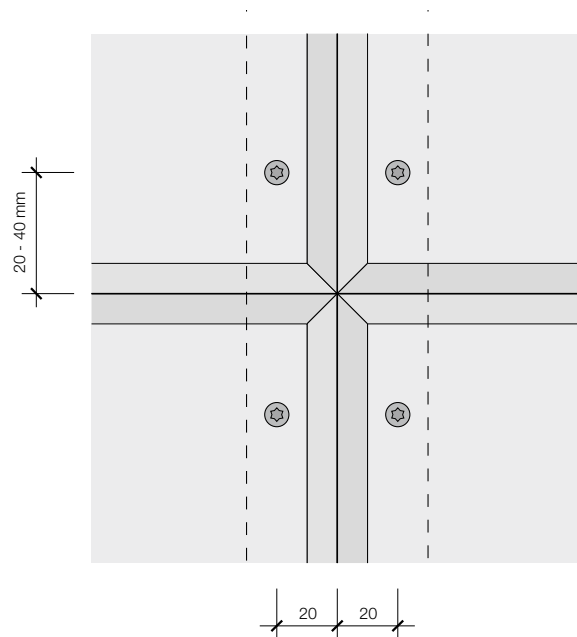
15: 100 mm

25: 150 mm

35: 200 mm

only for applications with no fire rating requirements

Screws



Maximum centres of the substructure for deflection class 1 according to EN 13964 (max. deflection L/500)

Primary profile 60/27/0,6 mm	Main profile 60/27/0,6 mm	Maximum load (incl. own weight of the ceiling in kN/m ²)		
		Maximum hanger centres		
centres	centres	750 mm	900 mm	1150 mm
600 mm	max. 625 mm	0.45 kN/m ²	0.35 kN/m ²	0.25 kN/m ²
900 mm	max. 625 mm	0.35 kN/m ²	0.25 kN/m ²	

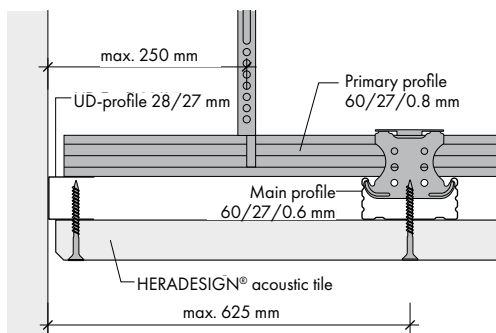
Max. hanger load: 0.40 kN. With a permissible hanger load of 0.25 kN, the additional loads must be multiplied by 0.6, i.e. reduced.
Wood quality class S 10 as per EN 1912. For F 30, EI 30 ceilings, or ceilings that are ball impact resistant the centres and cross sections must be according to the test certificate.

Material requirements

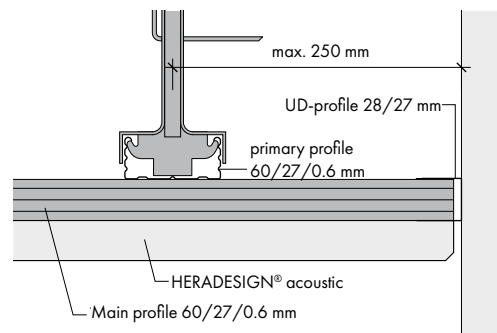
Component	Centres mm	Unit	Approx. material requirements/ m ² ceiling area ⁵⁾	Comments
1 CD-primary profile 60/27/0.6 mm	C = 600	lin. m	1.7	For 3600 mm profile lengths
	C = 900		1.3	
2 CD-main profile 60/27/0.6 mm	600 mm	lin. m	1.7	Centres the same as the tile width
	625 mm		1.6	
3 E-wall connection profile		lin. m	0.4 - 0.8	Dependent on plan/layout
4 CD-splice connector	C = 600	Pcs.	0.8	For 3600 mm profile lengths
	C = 900		0.7	
5 CD-cross connector	C = 600	Pcs.	3.0	
	C = 900		2.2	
6 CD-Nonius hanger	C = 600	Pcs.	2.4	Permitted hanger load: 0.4 kN
	C = 900		2.0	

Follow the manufacturer's guidelines! The stated figures are guideline only and do not allow for waste or project specific scenarios.

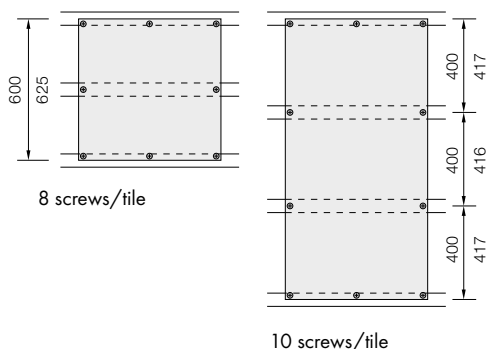
Perimeter connection Detail A



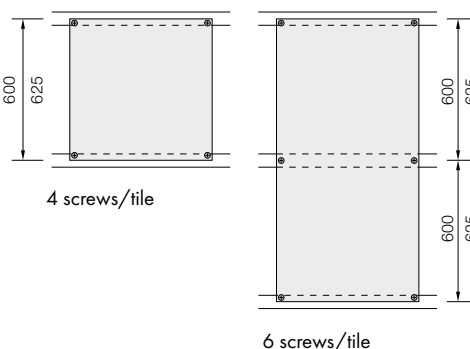
Perimeter connection Detail B



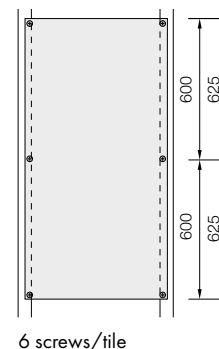
Screw pattern for 15 mm tiles



Screw pattern for 25 mm and 35 mm tiles



Screw pattern Product programme plus for 40 mm and 50 mm tiles



Ball impact resistant fixing as per EN 13964, Annex D or DIN 18032 / part 3

Installation	Thickness [mm]	Edge configuration	Main profile centres [mm]	Primary profile centres [mm]	Nonius hanger centres ^{6*)} [mm]
Ceiling	35/25	AK-01	600; 625	900	900
Wall	35	AK-01	600; 625	900	900
Wall ^{7*)}	25	AK-01	300; 312,5	900	750

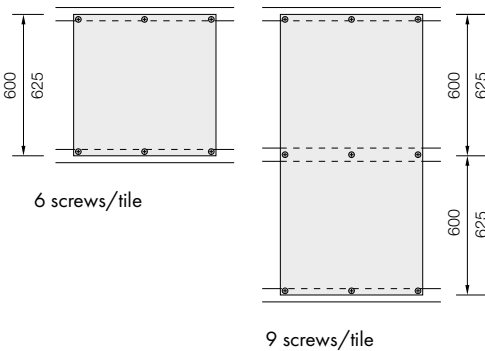
^{6*)} without additional loads. For additional loads, as per Table "Maximum centres of the substructure" for screw-fixing onto CD-profiles.
^{7*)} For HERADESIGN® superfine A2 and HERADESIGN® fine A2

Note: pieces cut to size with a length of less than 500 mm must be supported on all four sides.

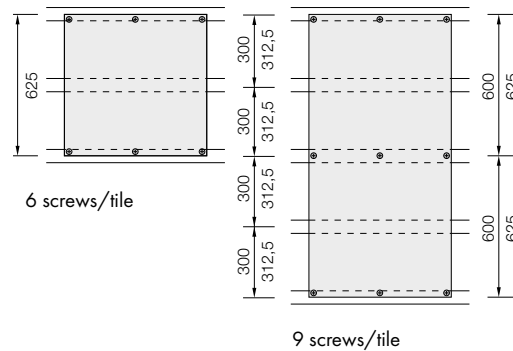
Screw patterns

For ball impact resistant fixing of HERADESIGN® acoustic tiles, at least three screws must be used per tile width and support.
 Max. screw centres ≤ 315 mm. This also applies to covered external applications, for EI30 suspended ceilings and vibrating constructions

Ceiling installation: 25 mm and 35 mm tiles
Wall installation: 35 mm tiles



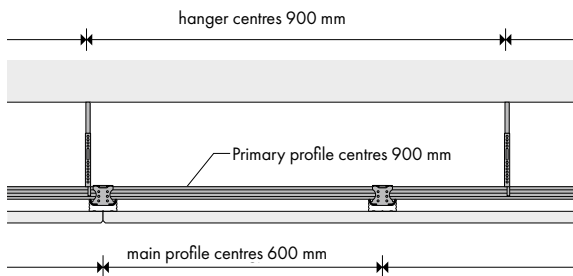
Wall installation: 25 mm tiles*)



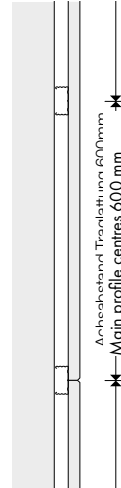
*) For wall installation of 25 mm HERADESIGN® tiles, the main batten centres are reduced to 300 or 312.5 mm. The position and number of the screws remains the same.

Construction diagrams

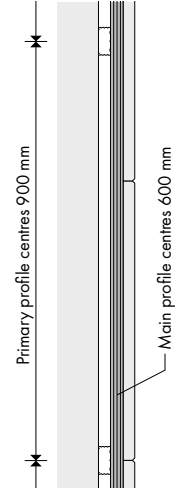
Ceiling installation cross grid
 (vertical section)



Wall installation parallel grid
 (horizontal section)



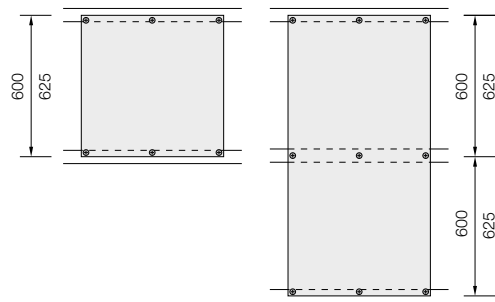
Wall installation parallel grid
 (horizontal section)



Cross connectors are to be screw fixed from the side. Construction requires structural support in the footing, limited wall height.

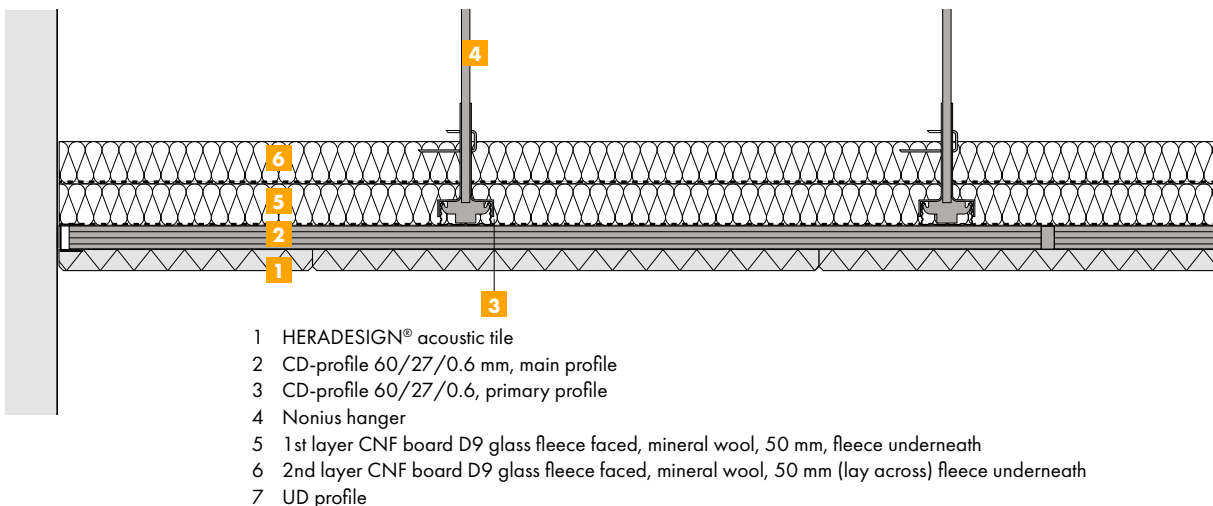
Fire resistance as per EN 1364-2, or EN 1363-1

HERADESIGN® suspended ceilings have been tested as an independent ceiling element for fire exposure from below. The test reports describe the installation procedure, test conditions and the test results of the tested construction. Any significant deviation in terms of size, construction, loading and spanning are not covered in the test report and have to be clarified with a fire expert. The fixing of the tiles and the substructure centres are as per the test certificate. For EI-30 constructions, the two mineral wool overlays must be lay cross-wise, i.e. at 90°. The mineral wool must be installed with butted and staggered joints.

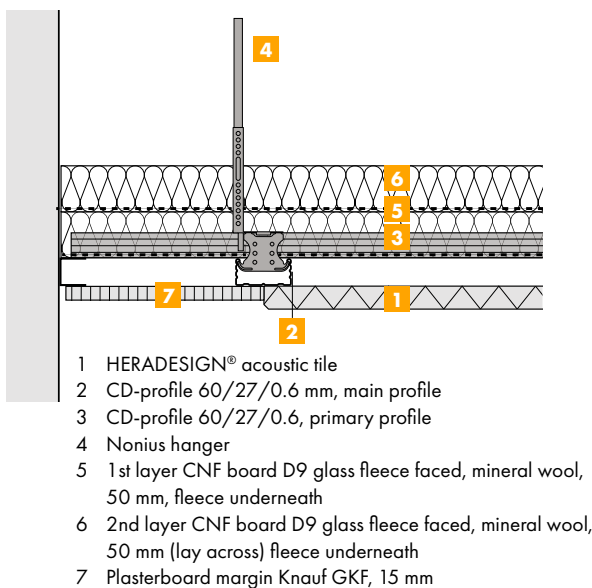


EI 30 HERADESIGN® suspended ceiling as independent fire protection

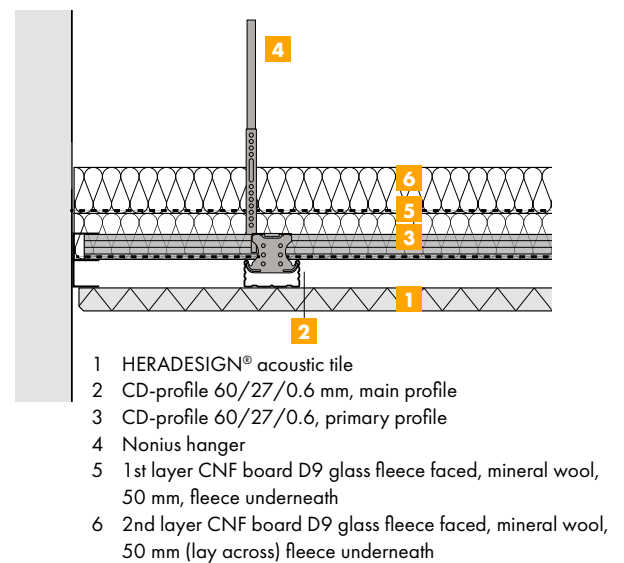
Wall connection without shadow gap



Wall connection with plasterboard margin with or without shadow gap



Wall connection with shadow gap



Note: The classifications are only valid for the tested components. Changes to the ceiling construction are not permitted. For the exact tested construction please refer to the test certificate and data sheet for this construction.

Installation guidelines and advice

For the installation requirements see DIN 18168 "Lightweight ceiling linings and suspended ceilings", as well as EN 13964 "Suspended ceilings – requirements and test methods".

- Before starting installation, check the underlying structure for sufficient load-bearing capacity.
- Install perimeter trims all around (with plugs at approx. 500 mm centres).
- Push the CD-profiles into the wall connection profiles and fix them to the preassembled hangers. Stagger the joints and place an additional hanger at each joint.
- Begin installation from the centre of the room.
- Distribute the cross profiles symmetrically (equal edge fields).
- Acoustic tiles are pushed together, aligned and fixed cross-wise to the profiles with HERADESIGN® screws. For each tile width and centre distance, two screws are required. For covered external areas, ceilings and walls in indoor swimming pools, vibrating constructions and for ball impact resistant systems, three HERADESIGN® screws are required.
- Note: Observe the necessary corrosion protection requirements.
- Square tiles: Observe the installation direction marked on the back when installing the tiles.
- Cross joints: four tile corners meet at one point, which means increased accuracy is required when installing!
- Screws: HERADESIGN® screw heads can be covered with standard colours. Screws in special colours on request.
- Screw heads should sit flush with the tile surface. The use of a screw holder with adjustable depth stop (e.g.: HERADESIGN® Bitholder easy) or a depth stop as attachment for screws (e.g.: FESTOOL depth stop DC UNI FF) can facilitate this.
- After installation, unpainted screw heads must be covered with a paint supplied by the manufacturer or an equivalent as in chapter Application and Handling. Corrosion protection must be determined by the prevailing room conditions.
- Acoustic overlays or films are installed step by step with the installation of the acoustic tiles. Film joints and connections must be taped.
- A PE film with a thickness of up to 30 µm does not affect the sound absorption of the underlying absorber and is recommended as trickle protection for mineral wool overlays.
- Damaged or soiled tiles or tiles with colour deviations may not be installed. The full impression of the ceiling should continually be checked from below during installation.
- Tiles with edge configurations for T-profile installations are not suitable for screw fixing, as the tile size is smaller than the module.

HERADESIGN® screws

Stainless steel, universal drywall screws for attaching HERADESIGN® acoustic tiles to battens or CD-profiles 60/27/06 mm. Partial thread, screw head with Torx T20.

Maximum centres: 600 or 300 mm / 625 or 312 mm

Note: Not suitable for swimming pools and external applications.

Tile format	Screw requirement approx. pcs for every m ² ceiling			
	600/600 mm	625/625 mm	600/1200 mm	625/1250 mm
Standard screw pattern - 25 and 35 mm tiles	12	11	9	8
Standard screw pattern - 15 mm tiles	23	21	14	13
Ball impact resistant version	17	16	13	12

Dimension [mm]		Screw head colour	For tile thickness [mm]	Packaging unit pcs./carton
Length	Ø			
35	4.5	unpainted / white / natural special colours on request	15	200
50	4.5		25	200
50	4.5		35 *	200
60	4.5		35	200

* Only when using CD-profiles 27/60/0.6 mm

Corrosion protection:

For suitable corrosion protection of screws for applications in indoor swimming pools, underground car parks, covered external applications or other special applications, please contact your screw supplier or screw manufacturer (screw head diameter ≥ 9 mm).



Mark out the ceiling module from the centre of the room, for example using a chalk line. Ensure the margins at the sides of the room are identical.



The CD-profile joints should be staggered. An additional hanger at every profile joint.



Align the CD-profiles using a spirit level or laser level.



Finished ceiling grid.



Install the acoustic tiles with the aid of a support. When fixing, press the tile onto the profile using the heel of your hand. There must be no gap between the tile and the profile. Begin tile installation from the centre of the room. Only handle the acoustic tiles with clean hands (clean gloves are recommended) and clean tools.



Align the rows of tiles with an installation batten. Tile joints must be positioned centrally under the profiles. No free tile joints are allowed! When installing square tiles, observe the installation direction marked on the back of the tiles.



Insert HERADESIGN® acoustic overlays or other acoustic overlays, step-by-step when installing the HERADESIGN® acoustic tiles. Absorber tiles that are pushed between the CD-profiles are cut to size.

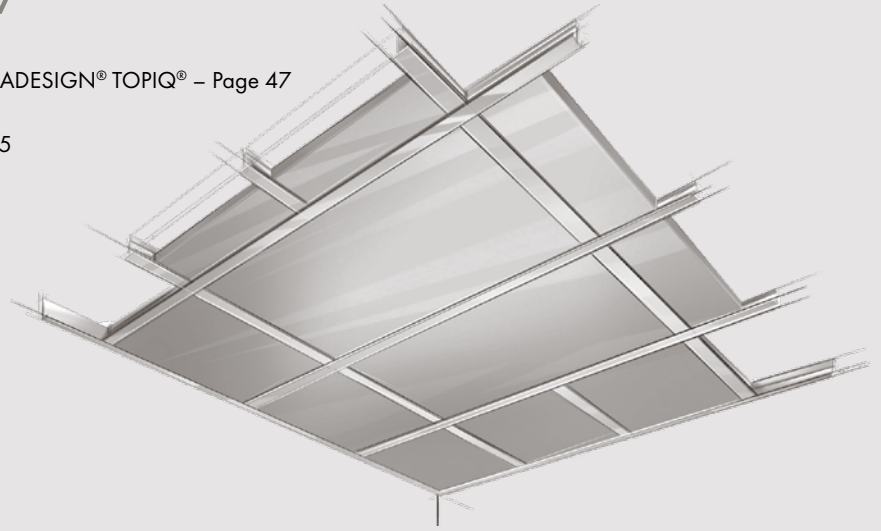


If coloured screws are not used, paint over the screw heads with the paint supplied or a suitable equivalent using a fine brush and suitable amount of paint. Screw heads must be flush with the tile surface.

System C - Exposed Systems

System C 1.1 / C 2.1 / C 3.1: THERMATEX® HERADESIGN® TOPIQ® – Page 47

System C 1.2: THERMATEX® Acoustic Vector – Page 65



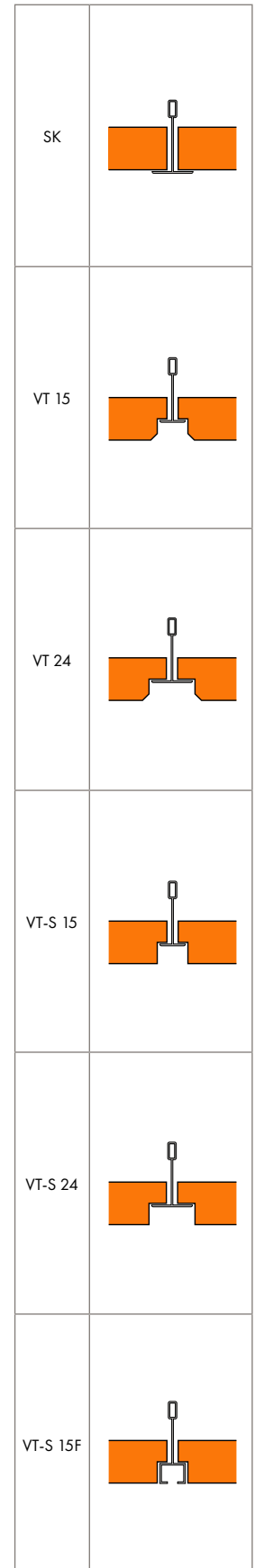
System C utilises the exposed grid structure as a proactive element in ceiling design. Square edged (Board) ceiling tiles lie flush in the construction, whilst recessed edged (Tegular) tiles emphasise the ceiling module. This very efficient construction system enables quick and easy installation and removal, easing maintenance work. Numerous international approvals and certificates certify the excellent properties of this ceiling construction, which offers many advantages and creates an exciting ceiling appearance.

Product Range System C 1.1 - THERMATEX®

Edge Configurations

Product	Thick-ness [mm]	Weight [kg/m ²]	Edge Configurations	Module [mm]
THERMATEX® Plain	15	4.0	Board	600/600; 625/625; 300/1200; 400/1200-1250* 600/1200; 312.5/1250; 625/1250* * special sizes on request
	19	5.3	Tegular 15/Tegular 24*	
THERMATEX® Fine Stratos	15	4.0	Board	600/600; 625/625; 300/1200; 400/1200-1250 600/1200; 312.5/1250; 625/1250* * special sizes on request
	19	5.3	Tegular 15/Tegular 24*	
THERMATEX® Fine Stratos micro perforated	15	4.0	Board	600/600; 625/625; 300/1200; 600/1200; 312.5/1250; 625/1250*; * special sizes on request
	19	5.3	Tegular 15/Tegular 24*	
THERMATEX® Star	15	4.0	Board	600/600; 625/625; 300/1200; 400/1200-1250 600/1200; 312.5/1250; 625/1250
	19	5.3	Tegular 15/Tegular 24	
THERMATEX® Laguna	15	4.0	Board Tegular 15*/Tegular 24	600/600; 625/625* * special sizes on request
THERMATEX® Laguna micro perforated	15	4.0	Board Tegular 15/Tegular 24	600/600; 625/625
THERMATEX® Mercure	15	4.0	Board	600/600; 300/1200; 600/1200
	19	5.3	Tegular 15/Tegular 24	
THERMATEX® Fine Fresko	15	4.0	Board	600/600; 625/625; 300/1200; 312.5/1250
	19	5.3	Tegular 15/Tegular 24	
THERMATEX® Fresko	15	4.0	Board	600/600; 625/625; 300/1200*; 600/1200; 312.5/1250*; 625/1250*; * special sizes on request
	19	5.3	Tegular 15/Tegular 24*	
THERMATEX® Alpha	19	3.3	Board Tegular 15/90/Tegular 24/90 Tegular 15/90 S	600/600; 625/625; 600/1200 ; 625/1250
THERMATEX® Alpha ONE	24	4.0	Board Tegular 15/90/Tegular 24/90 Tegular 15/90 S	600/600; 625/625; 600/1200 ; 625/1250
THERMATEX® Alpha black /coloured	19	3.0	Board Tegular 15/90 S on request	600/600; 625/625; 600/1200 ; 625/1250
THERMATEX® Acoustic	19	4.6	Board Tegular 15/Tegular 24 Tegular 15/90 Tegular 15/90 S	600/600; 625/625; 600/1200 ; 625/1250
THERMATEX® dB Acoustic	24	8.4	Board	600/600; 625/625; 600/1200; 625/1250
	30	10.5	Tegular 15/Tegular 24 Tegular 15/90 S	
THERMATEX® Silence	43	10.8	Board	600/600; 625/625
THERMATEX® Acoustic RL	19	5.4	Board Tegular 15/Tegular 24 on request Tegular 15/90 S on request	600/600; 625/625; 600/1200; 625/1250
THERMATEX® Thermofon	15	2.6	Board Tegular 15/90/Tegular 24/90	600/600; 625/625; 600/1200; 625/1250
THERMATEX® Aquatec	19	5.2	Board Tegular 15/90/Tegular 24/90	600/600; 625/625
THERMATEX® Thermaclean S	15	4.0	Board	600/600; 625/625
THERMATEX® Acoustic Hygena	19	4.6	Board	600/600; 625/625
THERMATEX® Alpha Hygena	19	3.0	Board Tegular 15/90/Tegular 24/90 Tegular 15/90 S	600/600; 625/625
THERMATEX® Thermofon Hygena	15	2.6	Board Tegular 15/90/Tegular 24/90	600/600; 625/625
THERMATEX® Schlicht Hygena	15	4.0	Board	600/600; 625/625 600/1200; 625/1250
	19	5.3	Tegular 15/90/Tegular 24/90	
THERMATEX® Varioline/- Metal / Wood /Motif	19	3.1	Board Tegular 15/90/Tegular 24/90 Tegular 15/90 S	600/600; 625/625; 600/1200; 625/1250

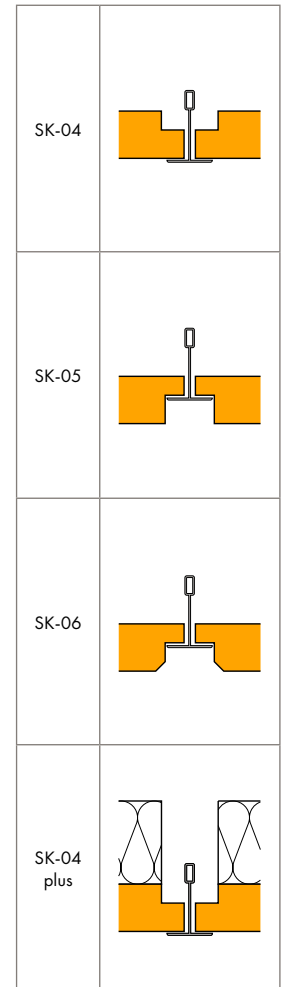
Product programme THERMATEX®



Product Range System C 2.1 - HERADESIGN®

Product	Thickness [mm]	Weight [kg/m ²]	Edge Configurations	Module [mm]	
Product programme HERADESIGN®	HERADESIGN® superfine	15	SK-04	600/600; 625/625	
	HERADESIGN® fine	15			8.2
	HERADESIGN® superfine	25	SK-04 SK-05 SK-06	600/600; 625/625; 600/1200; 625/1250	
		35			11.3 15.0
	HERADESIGN® fine	25			12.4
		35			16.3
	HERADESIGN® macro	25			12.4
HERADESIGN® micro	25	15.0			
	35	19.0			
HERADESIGN® plano	25	15.0	SK-04. SK-06	600/600; 600/1200	
Product programme A2	HERADESIGN® superfine A2	15	SK-04	600/600; 625/625	
	HERADESIGN® fine A2	15			13.0
	HERADESIGN® superfine A2	25	SK-04 SK-05 SK-06	600/600; 600/1200; 625/625; 625/1250	
	HERADESIGN® fine A2	25			18.0 19.0
Product programme plus	HERADESIGN® superfine plus	55 (15/40)	SK-04 plus	600/600; 600/1200	
		65 (25/40)			11.4 14.9
	HERADESIGN® fine plus	55 (15/40)			11.8
		65 (25/40)			16.0
HERADESIGN® micro plus	65 (25/40)	18.6			
HERADESIGN® plano plus	65 (25/40)	18.6			

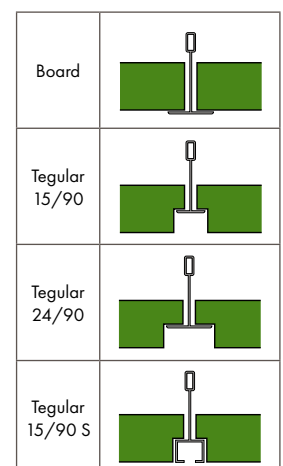
Edge Configurations



Product Range System C 3.1 - TOPIQ®

Product	Thickness [mm]	Weight [kg/m ²]	Edge Configurations	Module [mm]
Product programme TOPIQ®	TOPIQ® Prime	15	Board Tegular 15/90/Tegular 24/90 Tegular 15/90 S	600/600; 625/625; 600/1200; 625/1250
	TOPIQ® Efficient pro	20	Board Tegular 15/90/Tegular 24/90 Tegular 15/90 S	600/600; 625/625; 600/1200; 625/1250
	TOPIQ® Efficient pro Hygena	20	Board Tegular 15/90/Tegular 24/90 Tegular 15/90 S	600/600; 625/625; 600/1200; 625/1250

Edge Configurations



The following installation guidelines for lay-in /system C suspended ceilings do not include fire rated applications. For fire rated applications, appropriate certificates and guidelines should be adhered to. Only approved suspended ceilings can be used for fire rated applications and no changes can be made to the tested construction.

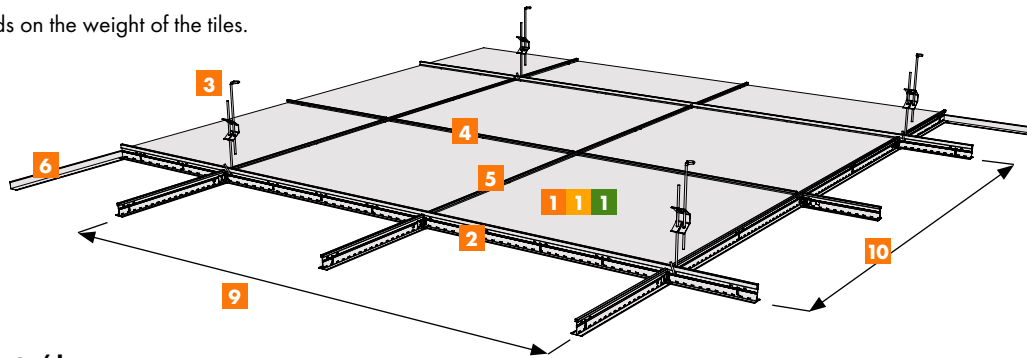
For applications with increased risk of corrosion (e.g. humidity, condensation or chemical contamination), metal components with special corrosion protection are required.

The edge dimensions of the different product brands (e.g.: THERMATEX® Tegular 24 and HERADESIGN® SK-06) may differ.

System C 1.1 - THERMATEX® / C 2.1 - HERADESIGN® / C 3.1 - TOPIQ®

Main runner centres 1200/1250 mm

The layout used depends on the weight of the tiles.



Material requirements/ key

The quantities and installation times stated are for guideline only. They do not allow for waste or project specific scenarios.

Product description	Unit	Module mm / requirement for every m ² ceiling									
		600 x 600	625 x 625	600 x 1200	625 x 1250	300 x 1200	312.5 x 1250	300 x 1800	300 x 2500	400 x 1200	400 x 2500
Mineral tiles	1 Pcs.	2.78	2.56	1.39	1.28	2.78	2.56	1.86	1.34	2.09	1.00
HERADESIGN® wood wool tiles	1 Pcs.	2.78	2.56	1.39	1.28						
AMF TOPIQ®	1 Pcs.	2.78	2.56	1.39	1.28						
T-main runner T24/38 - 3750	2 lin. m		0.80		0.80		0.80		3.34		2.50
T-main runner T24/38 - 3600	2 lin. m	0.84		0.84		0.84		3.34		0.84	
Quick hanger	3 Pcs.	0.67	0.67	0.67	0.67	0.67	0.67	1.85	1.85	0.67	1.67
T-Cross profile 300/312,5	lin. m							0.56	0.40		
T-Cross profile 400	lin. m										0.40
T-Cross profile 600/625	4 lin. m	0.84	0.80								
T-Cross profile 1200/1250	5 lin. m	1.67	1.60	1.67	1.60	3.34	3.20			2.50	
Hold down clip DFK (optional)	Pcs.	5.56	5.12	2.78	2.56	5.56	5.12	3.70	2.67	4.16	2.00
L-wall angle RW/RWU metal	6 lin. m	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Perimeter wedge RF metal	Pcs.	1.20	1.20	1.20	1.20	1.20	1.20				
Hanger centre	9 m	1.25	1.20	1.25	1.20	1.25	1.20	1.80	1.80	1.25	1.50
Main runner centres	10 m	1.20	1.25	1.20	1.25	1.20	1.25	0.30	0.30	1.20	0.40
Perimeter trim fixing centres	m	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Installation time	min	25	25	23	23	33	33	33	33	33	33

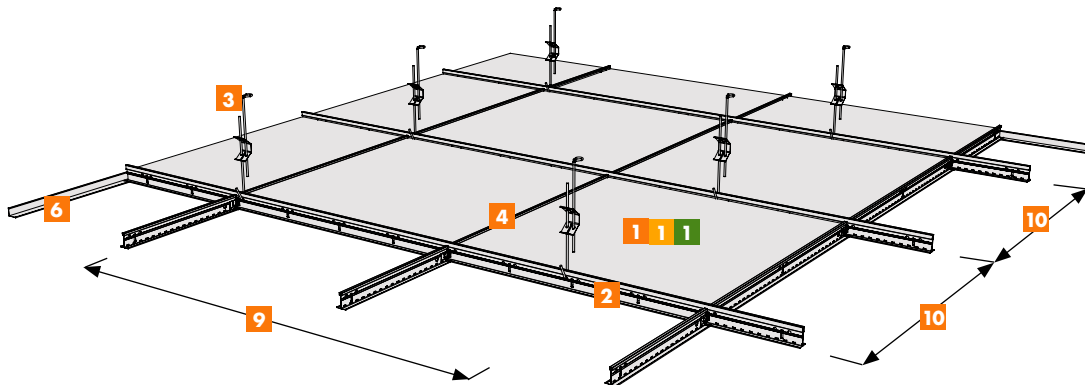
Grid structure T24/38 grid construction, 1.5 kg/m² including hangers.

Note

Not all surface/thickness/edge combinations are possible. Please refer to the price list for the availability of stock items and minimum quantities. To enable easy installation of the THERMATEX® ceiling tiles (thickness 15 mm to 19 mm) a minimum void depth of 150 mm is required. For installation of thicker tiles (THERMATEX® dB Acoustic as well as HERADESIGN® in 24 mm to 35 mm) we recommend increasing this correspondingly.

Main runner centres 600/625 mm

The layout used depends on the weight of the tiles.



Material requirements/ key

The quantities and installation times stated are for guideline only. They do not allow for waste or project specific scenarios.

Product description		Unit	Module mm / requirement for every m ² ceiling			
			600 x 600	625 x 625	600 x 1200	625 x 1250
Mineral tiles	1	Pcs.	2.78	2.56	1.39	1.28
HERADESIGN® wood wool tiles	1	Pcs.	2.78	2.56	1.39	1.28
AMF TOPIQ®	1	Pcs.	2.78	2.56	1.39	1.28
T-main runner T24/38 - 3750	2	lin. m		1.60		1.60
T-main runner T24/38 - 3600	2	lin. m	1.67		1.67	
Quick hanger	3	Pcs.	1.85	1.78	1.85	1.78
T-Cross profile 600/625	4	lin. m	1.67	1.60	0.84	0.80
Hold down clip DFK (optional)		Pcs.	5.56	5.12	2.78	2.56
L-wall angle RW	6	lin. m	0.60	0.60	0.60	0.60
Hanger centre	9	m	0.90	0.90	0.90	0.90
Main runner centres	10	m	0.60	0.63	0.60	0.63
Perimeter trim fixing centres		m	0.40	0.40	0.40	0.40
Installation time		min	30	30	28	28

Grid structure T24/38 grid construction, 1.5 kg/m² including hangers.

Note

Not all surface/thickness/edge combinations are possible. Please refer to the price list for the availability of stock items and minimum quantities. To enable easy installation of the THERMATEX® ceiling tiles (thickness 15 mm to 19 mm) a minimum void depth of 150 mm is required. For installation of thicker tiles (THERMATEX® dB Acoustic as well as HERADESIGN® in 24 mm to 35 mm) we recommend increasing this correspondingly.

Grid system

An exposed grid system is created using a combination of main runners and cross profiles from high quality, electro galvanised steel with a steel capping in VENTATEC® white 10. As standard, the grid structure fulfils exposure class B.

VENTATEC® Performance

The Performance grid structure consists of a high main runner (H = 38 mm) and a low cross profile (H = 33 mm) and offer optimal cross-section values/ stability for all popular acoustic or light suspended ceilings.

Load Table

	Main runner centres 1200 mm Hanger centres a Format 600 x 600 mm Format 600 x 1200 mm	Main runner centres 1250 mm Format 625 x 625 mm Format 625 x 1250 mm	Main runner centres 600 mm Format 600 x 600 mm Format 600 x 1200 mm	Main runner centres 625 mm Format 625 x 625 mm Format 625 x 1250 mm
mm	kg/m ²	kg/m ²	kg/m ²	kg/m ²
800	0.1	9.6	25.0	25.0
1000	9.7	7.3	-	-
1200	7.3	6.4	17.5	16.6
1500	4.8	4.4	9.6	9.2

VENTATEC® Performance HIGH

The Performance High grid structure consists of a high main runner (H = 38 mm), a high long cross profile (H = 38 mm) and a low short cross profile (H = 33 mm), suitable for supporting high loads.

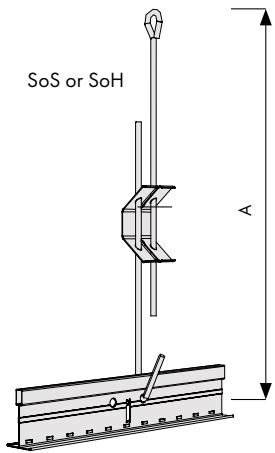
Load Table

	Main runner centres 1200 mm Hanger centres a Format 600 x 600 mm Format 600 x 1200 mm	Main runner centres 1250 mm Format 625 x 625 mm Format 625 x 1250 mm		
mm	kg/m ²	kg/m ²	kg/m ²	kg/m ²
900	14.0	-	12.2	2.2
1000	11.8	11.8	10.2	10.2
1200	9.5	9.5	8.4	8.4
1500	5.8	5.8	5.2	5.2

The table shows the maximum allowable uniformly distributed load for the grid system in kg/m² with various hanger spacings. The weight of the grid has already been accounted for in the calculation. Point loads such as lighting and signs must be considered separately. Additional loads (insulation) should not load the ceiling elements. The load table is based on a maximum deflection of the grid system of 2.5 mm and complies with deflection class 1 with $f \leq l/500 \leq 4$ mm in accordance with EN 13964.

Hangers

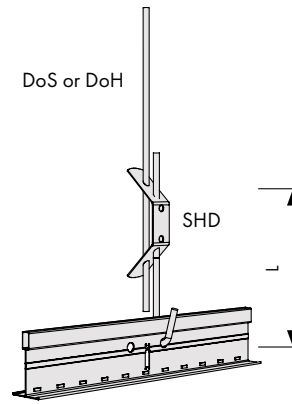
Quick hanger with hook/eye



Article:	A: Range
SoS 100 - 300	100 - 330 mm
SoS 300 - 600	320 - 590 mm
SoS 600 - 1000	520 - 990 mm
SoS 1000 - 1250	650 - 1260 mm
SoS 1250 - 1500	760 - 1480 mm
SoS 1050 - 1750	900 - 1760 mm

Maximum load 25 kg

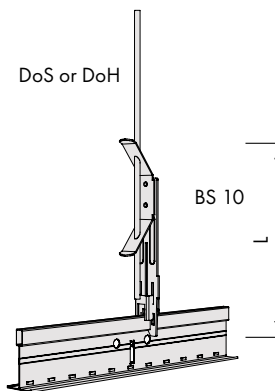
Butterfly hanger, rod with hook



Article:	L: Length
SHD 125	125 mm
SHD 250	250 mm

Maximum load 25 kg

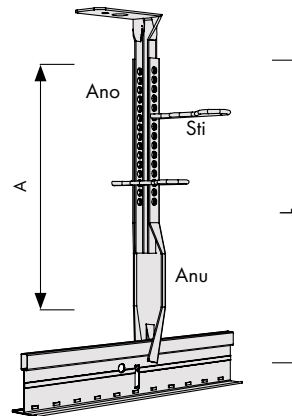
Clickfix II hanger with butterfly



Article:	L: Length
BS 10	110 mm

Maximum load 25 kg

Nonius hanger



Upper part

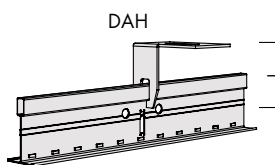
Article:	A: Range
Ano 115	85 mm
Ano 120	135 mm
Ano 130	235 mm
Ano 140	340 mm

Lower

L: Length	L: Length
190 mm	190 mm

Maximum load 25 kg

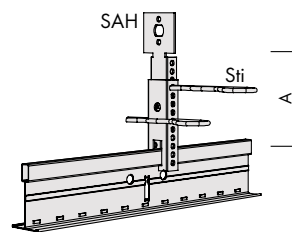
Direct hanger



Article:	L: Length
BS 10	40 mm

Maximum load 15 kg

Nonius hanger upper and lower parts



Article:	A: Range
SAH 5 (40/80)	45 - 75 mm
SAH 5 (60/100)	55 - 100 mm
SAH 5 (80/120)	85 - 130 mm

Maximum load 25 kg

Hanger / installation

Installation

Hangers should be installed vertically. It is recommended to provide at least one hanger for every 1.5 m² ceiling area, whereby maximum hanger centres may not exceed 1.25 m (module 625 mm).

In addition, a hanger is required at every main runner join and additional loads such as lighting require a minimum of two hangers (see chapter Light fittings). It should be ensured, that the distance from the perimeter to the first and last hanger does not exceed the maximum dimension (see chapter: Perimeter hangers) and additional hangers should be installed where required.

Angled hangers can significantly reduce the load bearing capacity and not all hangers are suitable for this. In most cases, additional measures (cross bracing, additional hangers etc.) are required.

Suspension depths of up to 3.00 m can be carried out with quick hangers or wire hangers. For suspension depths over 3.00 m Nonius hangers are recommended.

A combination of multiple butterflies or extensions is not permitted.

Hangers subject to compression

In normal situations the hangers are subjected to tension (ceiling tiles, grid structure, lighting etc.). Certain applications may subject the hangers to compression forces. These applications can only be carried out with Nonius hangers (Ano + Anu with double security pins).

Fire rated applications

For fire rated applications, the relevant test certificates apply. Separate documents are available.

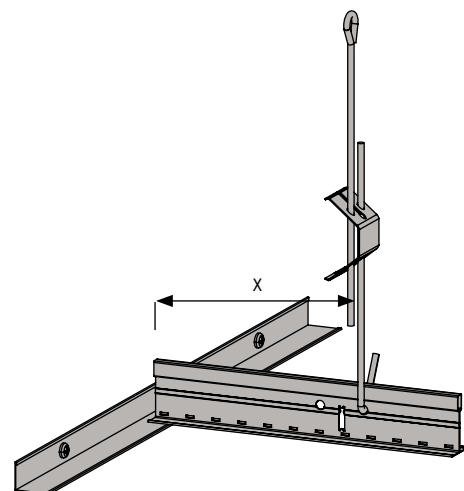


Perimeter hangers

Perimeter distances

To avoid overloading the perimeter trim, the first hanger must be positioned at a maximum distance from the perimeter. For mineral tiles with a thickness $d=15$ mm, the distance is 45 cm, 19 mm thick tiles up to 30 cm, otherwise a maximum of 15 cm from the perimeter.

Material	Material thickness	Distance X
THERMAT [®]	$d = 15$ mm	45 cm
THERMAT [®]	$d = 19$ mm	30 cm
THERMAT [®]	$d \geq 19$ mm	15 cm
HERADESIGN [®]	$d \geq 19$ mm	15 cm



Perimeter trims

The standard perimeter trim is a white L-angle profile 19 x 24 x 0.5 mm (24 x 24 x 0.5 mm).

For right-angled corners, L angles are butt cut. Mitred cuts require increased precision and time.

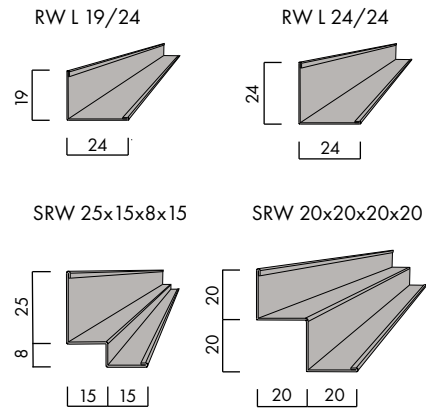
Shadow trims are mitred as standard.

For the shadow edge detail, a shadow trim 25 x 15 x 8 x 15 mm can be used. The perimeter tiles are square cut and lay in.

Formats

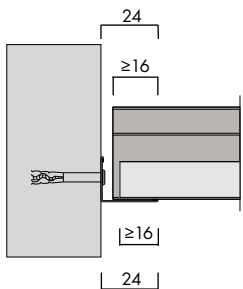
Various perimeter trims are available:

	Thickness	Length	Article
Wall angle 19/24	0.5 mm	3.00 m	RW L19/24
Wall angle 24/24	0.5 mm	3.00 m	RW L24/24
Shadow trim 25/15/8/15	0.5 mm	3.00 m	SRW 25x15x8x15
Shadow trim 20/20/20/20	0.7 mm	3.00 m	SRW
20x20x20x20			
Wall angle 25/25 M	1.5 mm	3.00 m	RWL 25/25 M
Shadow trim 25/20/20/25 M	1.5 mm	3.00 m	SRW
25/20/20/25 M			

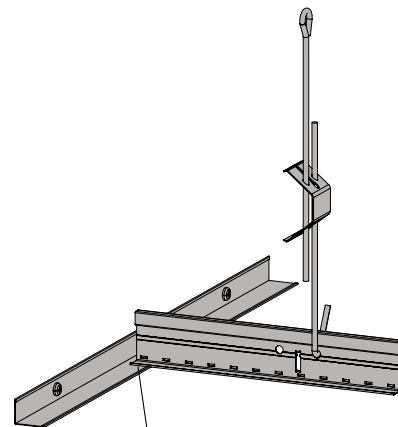


Support

All profiles are cut so that the profile lies on at least 2/3 of the horizontal leg of the perimeter trim. This applies to both main runners and cross profiles.



This applies both to tiles and cut tiles that lie on the perimeter trim.



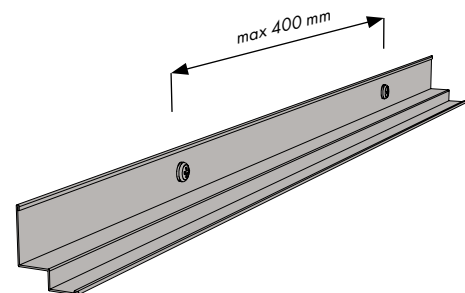
The grid should be supported on at least 2/3 of the horizontal leg of the perimeter trim.

Fixing

Generally, installation has to be carried out with approved fixings suitable for the type of wall being fixed to. The maximum fixing centres for solid walls is 400 mm.

Connection to light-weight partition walls can be carried out to the partition framework (max. centres 625 mm) with at least one screw and inbetween with a threaded bolt.

Flat headed screws are recommended to prevent deformation of the trim.

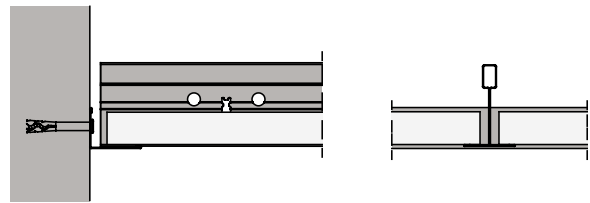


Corners

The trims should be mitred at corners. An alternative is to use preformed mouldings to suit the trim (see Accessories).

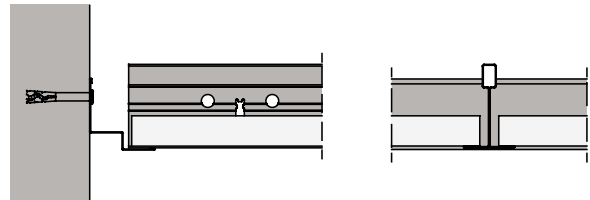
L-wall angle with Board edge configuration

The L-wall angle is the most common construction. The grid and tiles are supported directly on the horizontal leg of the perimeter trim (min. 2/3 and 3-5 mm gap).



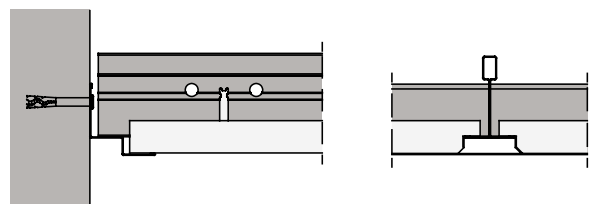
Shadow trim with Board edge configuration

The use of a shadow trim offers an alternative construction (shadow gap). The tile and grid are both supported on the lower leg of the trim on 2/3 of the perimeter trims lower horizontal leg. (min. 2/3 and 3-5 mm gap).



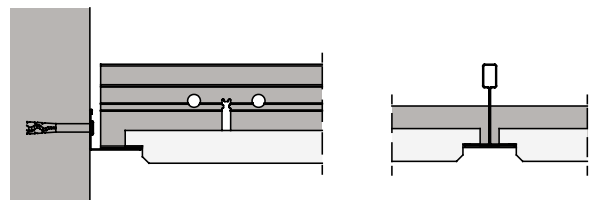
Shadow trim with Tegular edge configuration

The grid construction is supported on the upper leg of the 25x15x8x15mm trim. The tiles are supported on the lower leg (min. 2/3 and 3-5 mm gap). The height of the lower horizontal leg is the height of the underside of the ceiling tile. The perimeter tiles / cut tiles are simply square cut. The recessed edge configuration and the different height level create a gap which can be closed using filler pieces (see accessories).



Alternative with Tegular edge configuration

An alternative to the above construction is to cut a Tegular edge into the cut tiles. It is possible to reform the edges using an appropriate rotary cutter and then repaint the edges. The grid and tile lie at the same level and filler pieces are not necessary.



Accessories

There are many solutions available to enable ventilation of the ceiling construction or control the air exchange (compensate for possible pressure differences) between the room and the ceiling void. The open area per linear metre or m² is significant. Regardless of version, rear ventilation of fire rated ceilings is not permitted.

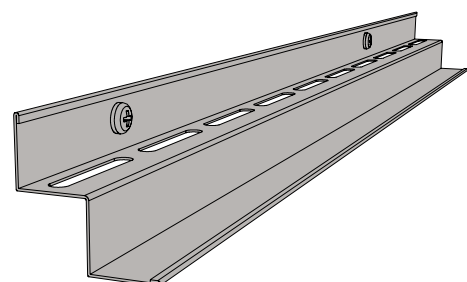
Shadow trim with ventilation slots

Open ventilation area: approx. 44 cm²/lin. m

Available in the following options:

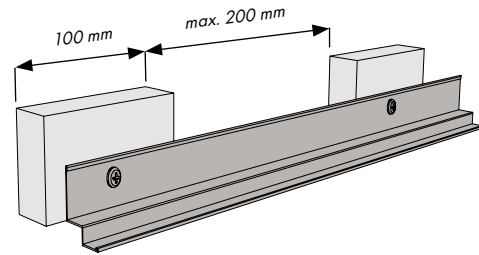
Shadow trim 20/20/12/20 d= 0.6 mm L= 3.00 m

Shadow trim 20/20/20/20 d= 0.75 mm L= 4.00 m



Perimeter trims fixed to blocks

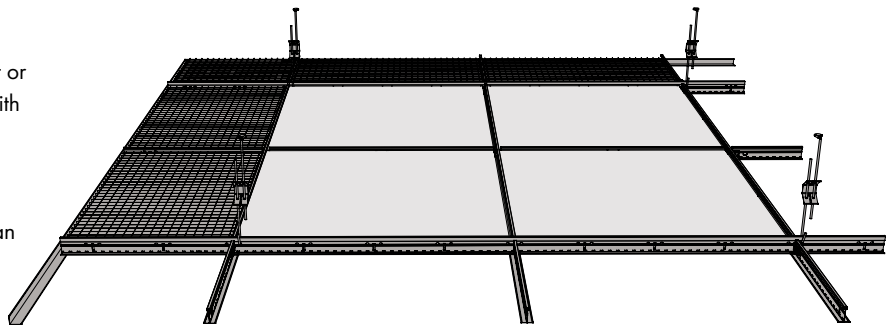
Possible with wall angles or shadow trims. The blocks can be formed from wood or other material (length min. 100 mm), individually fixed to the wall and the perimeter trim screwed onto them. The fixing centres must be reduced to 300 mm. Average open ventilation area: approx. 200 cm²/lin. m (based on a max. block depth of 30 mm and an opening of 200 mm).



Light/ventilation grilles

A simpler and more flexible solution is to install light or ventilation grilles. These are lay in the grid system with the Knauf Ceiling Solutions tiles.

Dependent on the width of the perimeter tiles and by adding further grilles, the open area for ventilation can be varied. Various products are available from metal parabolic to aluminium and plastic grilles in a wide range of designs.



Grille opening dimensions: 13 x 13 mm up to 30 x 30 mm dependent on type.

Filler pieces

Filler pieces are only available for Mineral Tegalur.

The recessed edge details of HERADESIGN® (e.g. SK-05, SK-06) have different geometries.

Internal and external corners

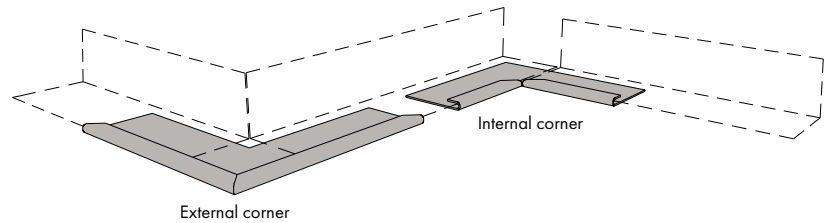
As an alternative to mitring the corner joints, preformed mouldings are available. The typical mitred corner requires an exact 45° cut which is very time consuming. Preformed mouldings are simpler and require less time, as angled cuts are not required.

Internal and external corners for RW L19/24 or L24/24

The mouldings are simply pushed on to form the corner.

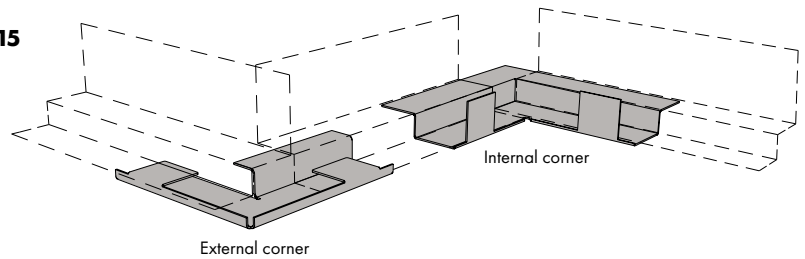
Note

Not suitable for metal ceilings.



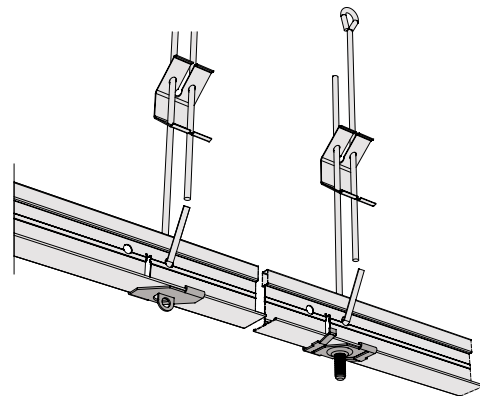
Internal and external corners for SRW 25x15x8x15

Install on pre-installed shadow trims by bending the metal lugs over.



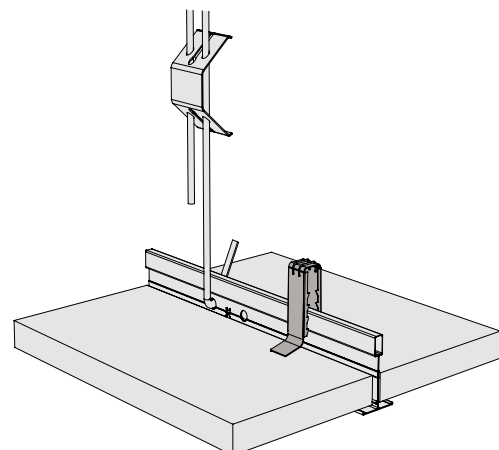
Fixing clips

To hang objects below the grid system, several different screw and decoration clips are available for both 15 mm and 24 mm grid systems. Each clip should have an additional hanger from the soffit and can be loaded with up to 5 kg.



Hold down clips

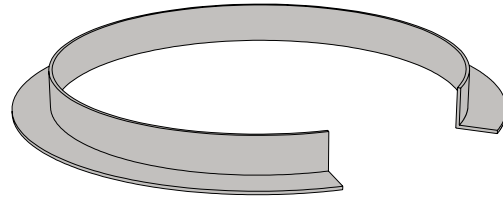
In areas with open windows, doors or atriums where there is the possibility of substantial pressure differentials, the ceiling tiles should be held in place with hold down clips (approx. 6 pcs./m²). After the ceiling tiles have been installed, the clips are pressed onto the T-profile until the clip sits firmly against the tile.



Column rings

When finishing suspended ceilings to columns, the use of prefabricated column rings is recommended. The aluminium rings are available in different diameters:

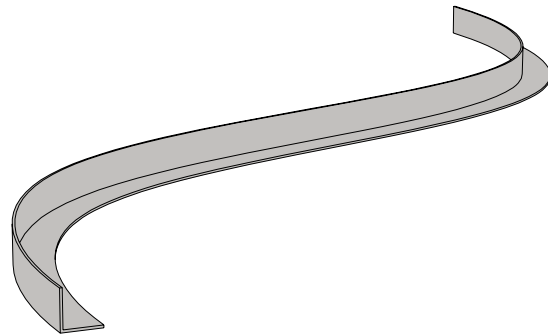
Diameter \varnothing = 200 - 1000 mm (50 mm gradation).
Surface white coated similar to RAL 9010



Flexible perimeter trim

When finishing ceilings to curved walls, the use of a flexible wall angle is recommended. Where the radius exceeds 1.00 m they can be adjusted by hand to fit the convex or concave shape:

RWL Flex (30/20): Material Aluminium
Dimensions 30/20 mm
Length 3.0 m
For radiuses smaller than 4.0 m
on site painting after bending is
recommended.



Note

Very small radiuses can be difficult to form. In some cases a plasterboard margin detail should be considered.

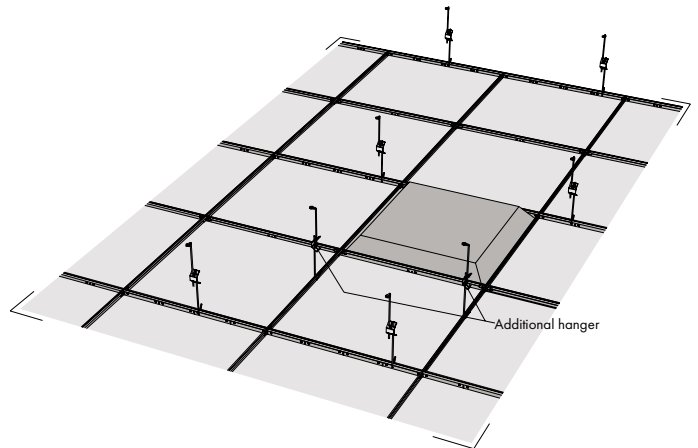
Lighting/ additional loads

Modular lighting

When the main runners are at 1200/1250 mm centres, two additional hangers are required per light on the long cross profile. For main profiles at 600/625 mm centres, no additional hangers are required providing the lights weigh no more than 6 kg.

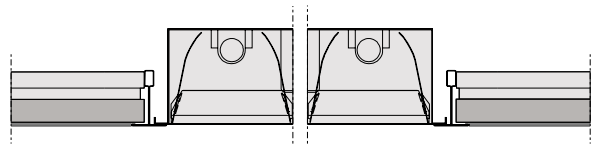
Detail

Light fittings, ventilation grilles and sprinkler systems etc. should not have more than a 5mm upstand adjacent to the grid. Otherwise, this can lead to problems with side engaging connectors.



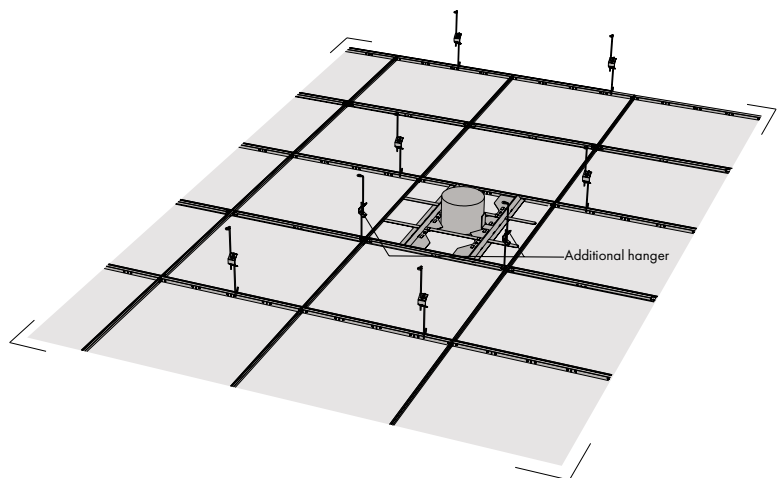
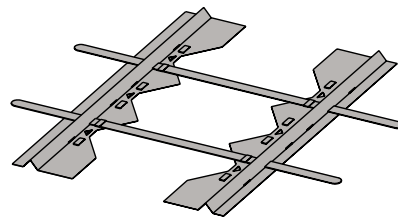
Additional loads

Generally additional loads need to be supported with additional hangers from the soffit. Loading the tiles is not permitted. Fixtures such as spot lights and loud speakers etc. should be installed with reinforcement behind (sufficiently load-bearing, non-combustible board/pattress or element width profiles) which transfer the weight to the grid system. Loads less than 0.3 kg require no additional support.



Installation frames

A versatile installation frame is available and can be used for all common fixtures and fittings. The frame ensures that the additional load is carried by the grid system and is not supported on the tiles. Two additional hangers are required.



Room layout / ceiling symmetry module 600/625 mm

Lay out

The ceiling is set out from the middle of the room in modules (module width = B). In the example shown, the cut tile at the perimeter is very small.

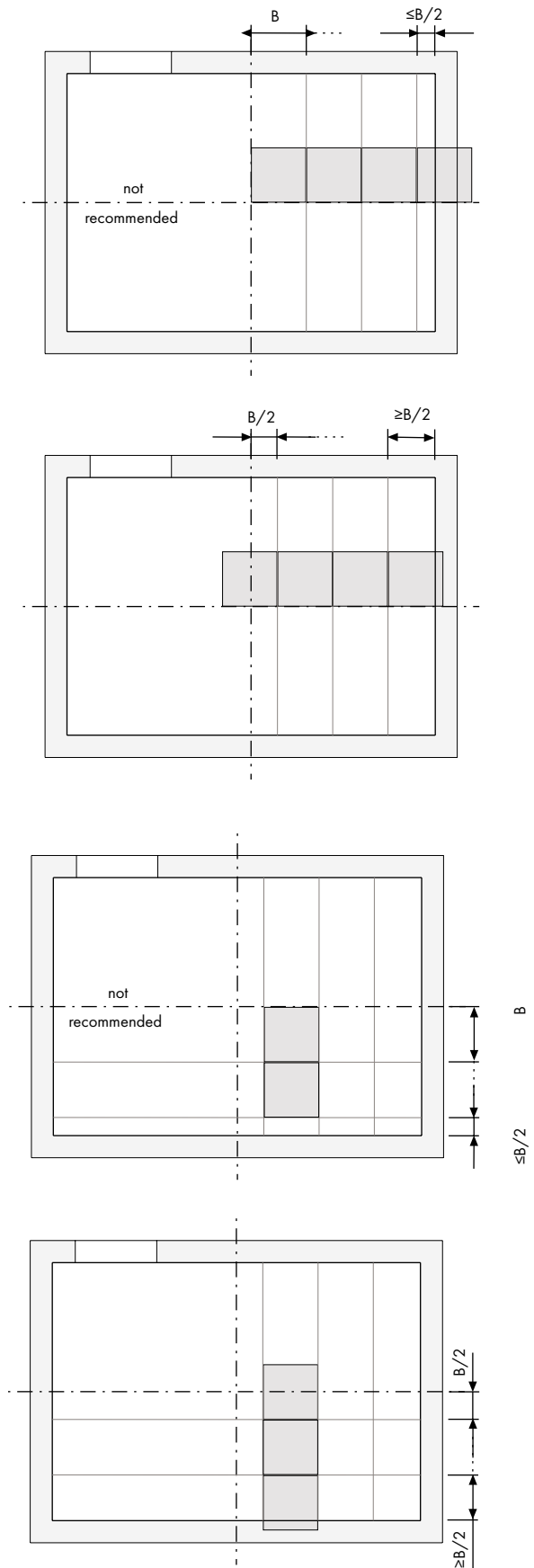
Note

If the cut tile is less than half the tile width ($<B/2$) the layout is not recommended and should be avoided. In addition to requiring more profiles, small cuts appear aesthetically poor.

Correction

Ceilings with larger cut tiles are aesthetically more pleasing and are more efficient to install. When setting out the ceiling, start from the middle. The first tile should be directly on the centre line (half the tile each side of the centre). This will always result in a perimeter cut tile greater than half the tile width.

The layout then continues in the other direction.



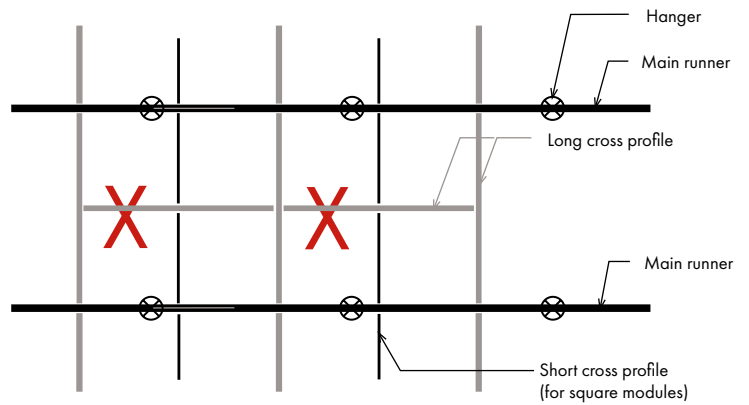
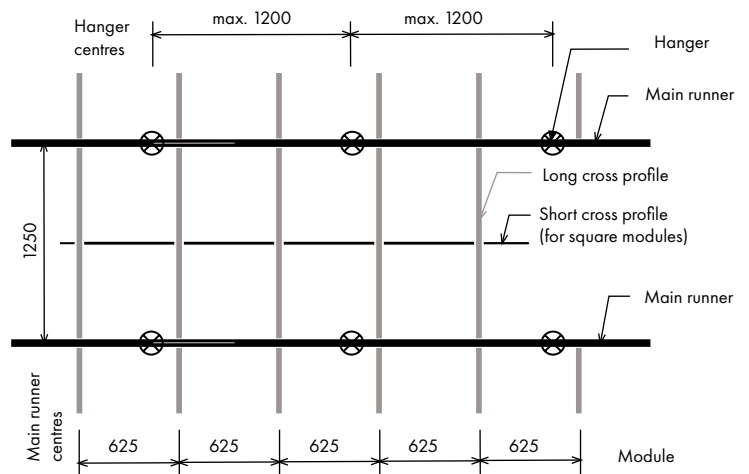
Construction

**Main runner centres 1200/1250 mm,
module 625 x 625 mm**

Between the main runners at 1250 mm centres, a 1250 mm long cross profile is fitted at 625 mm centres. These cross profiles are then subdivided by short cross profiles to form the 625 mm x 625 mm module layout. If the tile size is 625 mm x 1250 mm then the short cross profiles are not required. The layout for a 600 mm x 600 mm is carried out correspondingly.

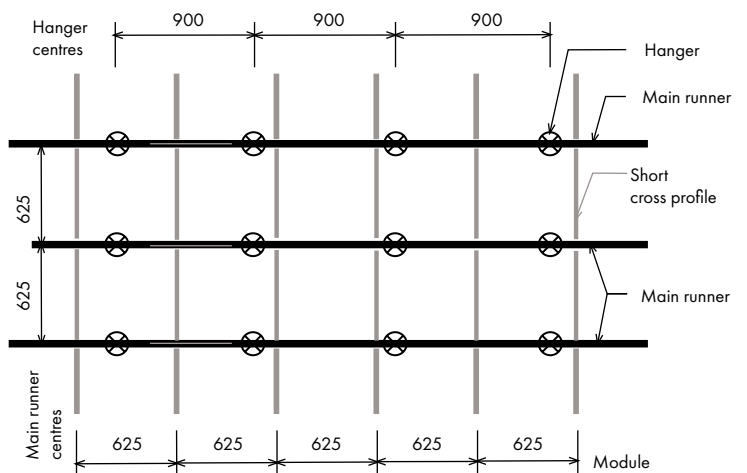
The following construction is not permitted:

A combination/ladder format of long cross profiles parallel to the main runners due to increased deflection of the system.



**Main runner centres 600/625 mm,
module 625 x 625 mm**

Due to the small main runner centres and the use of short cross profiles, this construction can support heavier loads. Lights up to 6 kg can be supported without any additional hangers. Loads over 6 kg require two additional hangers.



Installation guidelines

Main runner centres 1200/ 1250 mm

After determining the ceiling symmetry/layout (Figure 1), the direction of the main runners is determined. The long side of the room is normally chosen, but sometimes due to fixtures and fittings etc., the short direction may be more favourable.

Perimeter trims

As preparation before the installation, all perimeter features (walls, columns etc.) should be marked with the ceiling height (the height of the top edge of the perimeter trim). Perimeter trims should be fixed as per chapter Perimeter trims (approved fixings, centres etc.).

Hangers

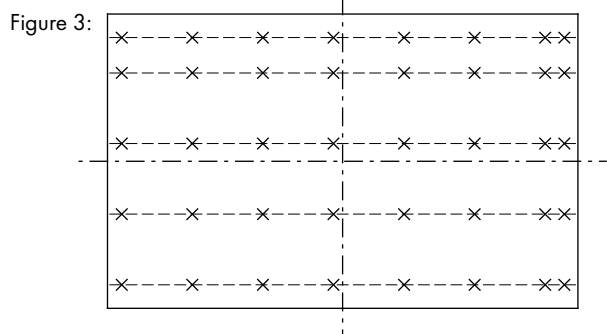
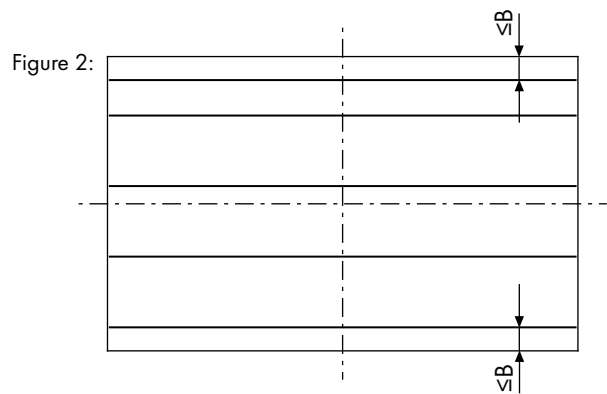
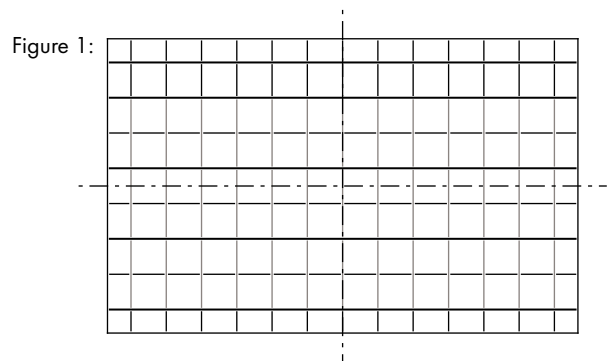
The fixing points of the hangers are determined by the layout of the main runners. The distance of the first and last main runners from the wall should be smaller than module B (Figure 2), so that laying long cross profiles on the perimeter trim is avoided. The fixing points are marked on the soffit using a chalk line, for example (Figure 3).

In addition to the relevant system hanger centres (load capacity of the grid system + tile weight), additional hangers may be required for:

- Main runner joints
- Maximum perimeter distances (first and last hangers)
- Fixtures and fittings

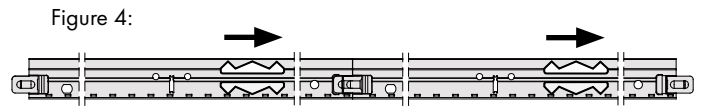
It is recommended that the hangers are adjusted to the required length before installation.

Fixing is carried out with approved fixings as per the screw/plug manufacturer's recommendations. All hangers are to be installed in the same direction (e.g. direction of butterflies or hooks etc.).



Main runners

The main runners should always be installed in the same direction (Figure 4); two fire expansion notches can not be installed directly next to each other.

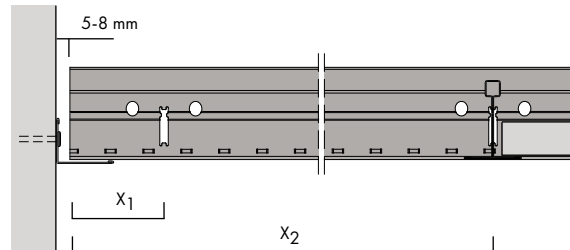


Main runner cuts result depending on the ceiling symmetry as well as the cut tile width.

The profiles should be cut to length so that the punching and therefore the layout of the cross profiles is aligned. For every new row, the dimension X_1 or X_2 should be checked (Figure 5).

To enable system alignment (squareness), all profile cuts should be carried out with a 5-10 mm allowance.

Figure 5:

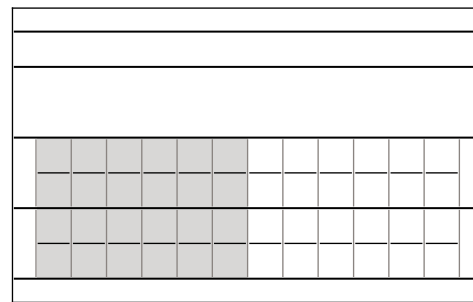


Cross profiles

To complete the system, long and short cross tees are installed.

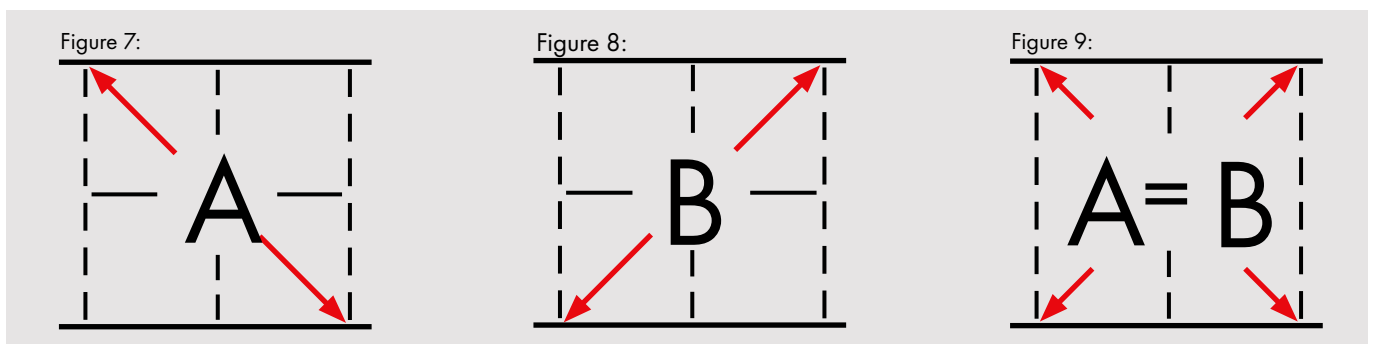
Unfavourable combinations are not permitted. To align the system, it is recommended to insert a few tiles (Figure 6) and where necessary align the system before the entire grid system installation is complete.

Figure 6:



Check:

Please ensure that the system and the profiles are installed at right angles to each other (Figures 7-9) or correct this where necessary. This should be done as early as possible in the installation to reduce realignment work to a minimum.



Failure to do so can lead to major problems when installing the tiles, especially tiles with a recessed Tegular 15/24, Tegular 15/24 90, SK-03 or SK-06 edge configuration. Furthermore, there is an increased risk of damage to tiles during subsequent demounting or maintenance.

Short cross profiles / cut profiles

Finally, all profile and tile cuts are completed (Figure 10). The minimum support on perimeter trims should be adhered to.

Suspension heights

The following suspension heights enable simple installation of the tiles from below.

Minimum suspension height:

Tile thickness d= 15 mm: 120 mm

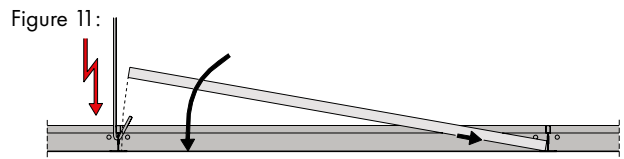
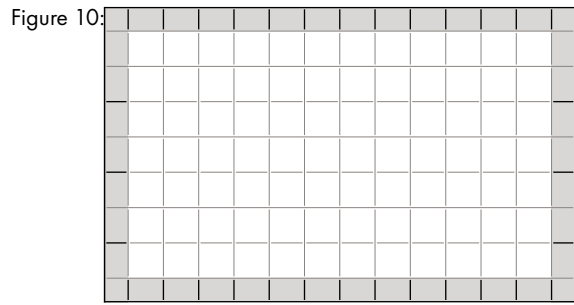
Tile thickness d= 43 mm: 200 mm

For low suspension heights, e.g. direct hangers, the profiles and tiles must be installed alternately.

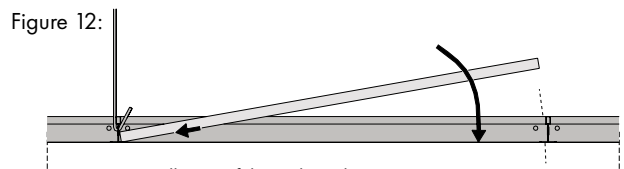
Note:

Particularly when using wire hooks, there is risk of damaging the tiles during installation.

Please note the installation diagram opposite. Demounting should be carried out accordingly (lifting the tiles on the side with no hanger).



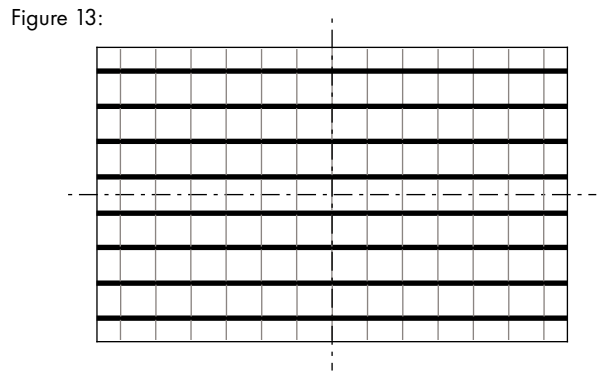
Attention: possible damage to tile



Correct installation of the ceiling tile

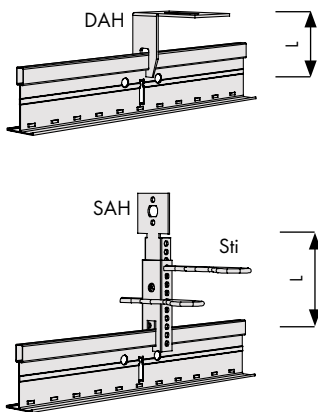
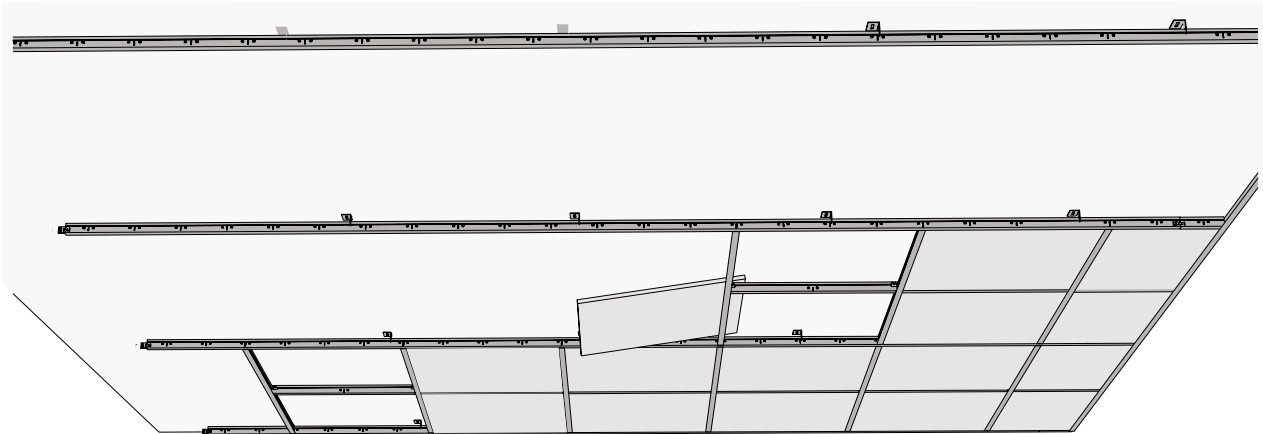
Main runner centres 600/625 mm

Usually, main runner centres at 600 / 625 mm (Figure 13) are only necessary for heavy tiles or for special constructions. The individual installation steps are identical to those previously described. Long cross profiles are omitted and therefore the material requirements of main runners and short cross profiles is increased.



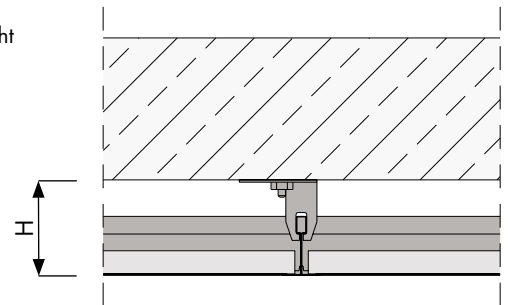
Special constructions - direct suspension

For ceiling installations where a conventional installation is not possible, a direct suspension can offer a reduced suspension height. This, however, can make removing or changing SK or VT edge tiles at a later time, difficult.



Direct hanger

Article	L: Length	H: Suspension height
DAH	40 mm	Approx. 60 mm
SAH	45 mm	Approx. 80 mm



Step by step installation

Due to the low suspension height, the installation of the tiles from below is no longer possible. Instead the tiles are inserted from above during grid construction, after the cross profiles have been installed. However, this means that the tiles can not be exchanged at a later date without destructive measures (removal of a cross profile using tin snips – exchanging the tile – insertion of a new cross profile).

Any unevenness of the ceiling can not be compensated with the system (hanger DAH). As an alternative, but requiring a little more suspension height, the adjustable SAH hangers can be used.

Installation

The grid is set out according to the ceiling layout. The correct number of hangers needs to be pushed onto the grid profile and fixed to the soffit. The cross profiles and tiles are then installed alternately, step by step.

Special constructions – pitched ceilings

For a suspended ceiling under roofs and pitched roofs the following points, dependent on the roof pitch (RP) are to be considered:

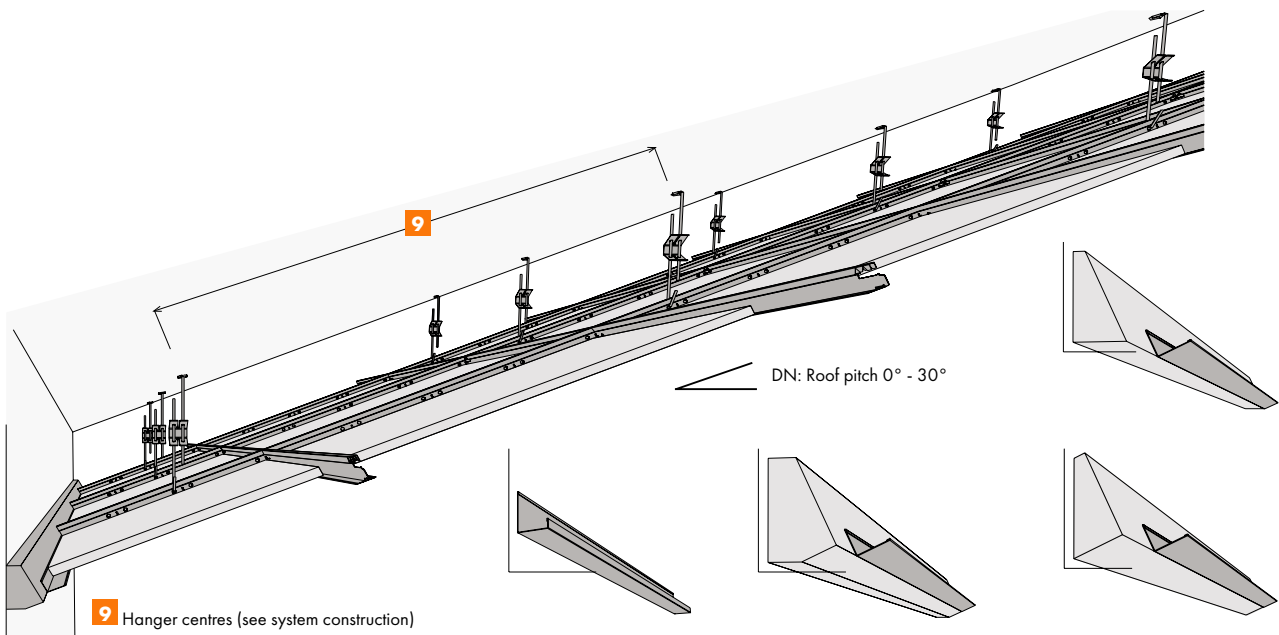
DN ≤ 10°: Main runners at 1200/1250 mm centres are possible

10° < DN ≤ 30°: Main runners at 600/625 mm centres (deformation of long cross profiles)

DN > 30°: additional measures in conjunction with the manufacturer

Quick hangers with hooks are suitable hangers. Hangers that must be pushed on are not suitable and can not be used. The hanger centres are according to the system data (= ceiling pitch).

Please also refer to the general installation guidelines, in particular the points on hangers, grid system and additional loads.



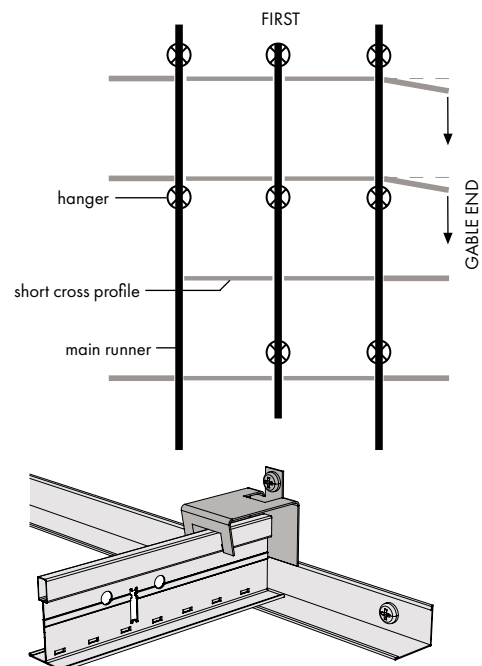
Wall connection at eaves

The use of an additional batten adjusted to the relevant slope is recommended.

Displayed are several alternatives. Without the batten even a slight pitch will leave a visible gap between the tiles and the perimeter trim. The main runners and grid system have to be butt jointed tightly against the perimeter trim in order to accommodate possible forces.

Wall connection at gable end

As the cut short cross profiles are only fixed on one side to the main runners, sliding on the perimeter trim can occur by pitches over 10°. To prevent this, suitable measures need to be taken to fix the free end (wall bracket, angle etc.).

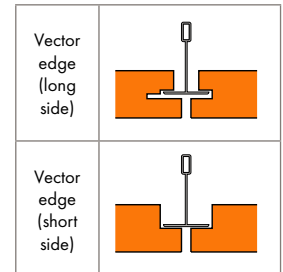


System C 1.2 - THERMATEX® Acoustic Vector

Product Range

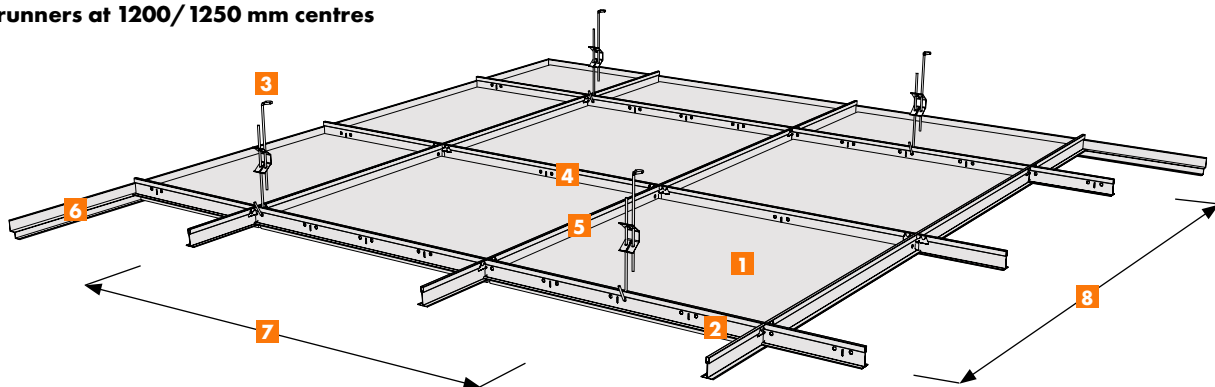
Edge Configurations

Product	Thickness [mm]	Weight [kg/m ²]	Edge configuration	Module [mm]
THERMATEX® Acoustic Vector	19	8.4	Vector (long side) Vector (short side)	600/600; 625/625



System overview

Main runners at 1200/1250 mm centres



Material requirements/ key

The quantities and installation times stated are for guideline only. They do not allow for waste or project specific scenarios.

Product description	Unit	Module mm / requirement for every m ² ceiling			
		600 x 600	625 x 625	1200 x 600	1250 x 625
Mineral tiles	1 Pcs.	2.78	2.56	1.39	1.28
T-main runner T24/38 - 3750	2 lin. m	-	0.80	-	0.80
T-main runner T24/38 - 3600	2 lin. m	0.84	-	0.84	-
Quick hanger	3 Pcs.	0.84	0.80	0.67	0.67
Cross profile PH 600/625	4 lin. m	0.84	0.80	-	-
Cross profile PH 1200/1250	5 lin. m	1.67	1.60	1.67	1.60
Shadow trim 20/20/12/20	6 lin. m	0.60	0.60	0.60	0.60
Perimeter wedge	7 Pcs.	0.60	0.60	1.20	1.20
Hanger centres (centres a = 1.0 m)	7 Pcs.	0.83	0.80	0.83	0.80
Main runner centres	8 m	1.20	1.25	1.20	1.25
Perimeter trim fixing centres	8 m	0.40	0.40	0.40	0.40

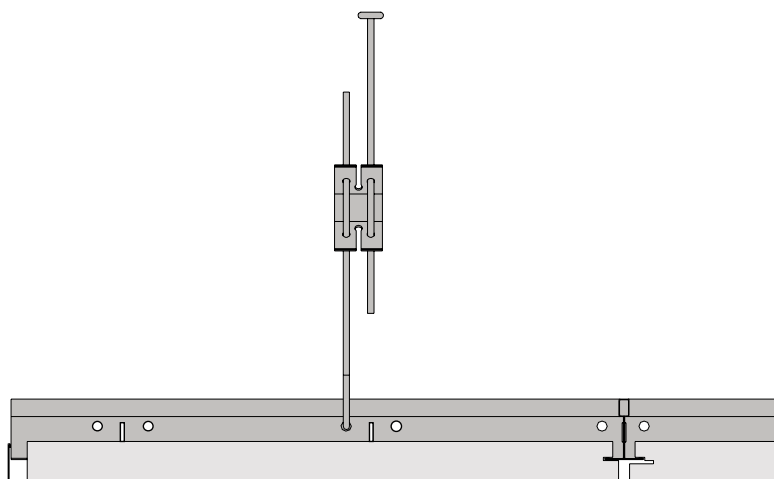
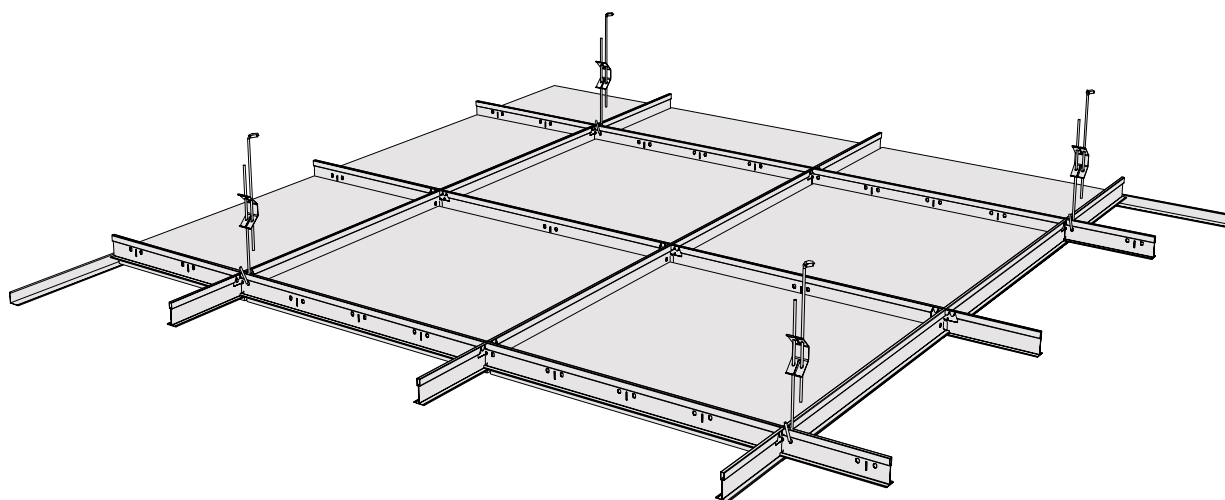
Note

As the tiles are installed completely from below, no minimum suspension height is required for correct and easy installation.

Wall connector

In the standard version, the wall connector is produced with a L-trim or a shadowline perimeter trim. Ensure that only the ceiling tiles lie on the perimeter trim, as the grid system must be installed higher in this construction.

Other details must also be considered, as described in the chapter, Perimeter trims.



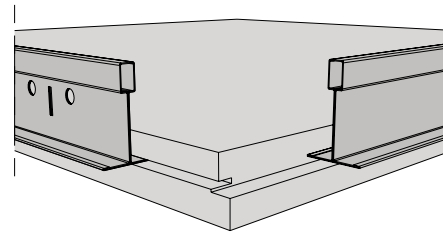
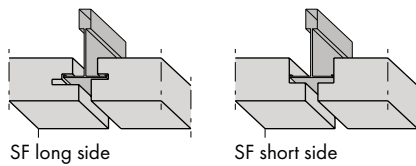
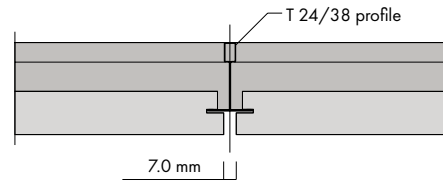
Tiles and grid structure

Properties / edge configuration

Tiles THERMATEX® Acoustic Vector
d = 19 mm 5 kg/m²

Grid construction T24/38
2.5 kg/m² incl. hanger

Edge configuration Vector



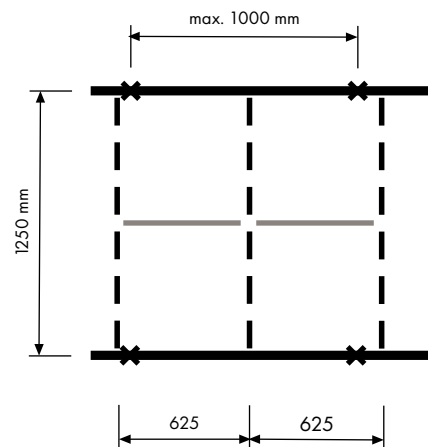
Grid system

For System Vector, a VENTATEC® or DONN® grid system is used. This uses 24 mm main runners. All VENTATEC® and DONN® profiles are produced using high quality, galvanised steel with a white steel cap in white similar to RAL 9010. As standard, the grid structure fulfils the requirements of exposure class B.

Click / hook-in

Both hook-in and click-in systems can be used, as long as the loading capacity of the system is sufficient.

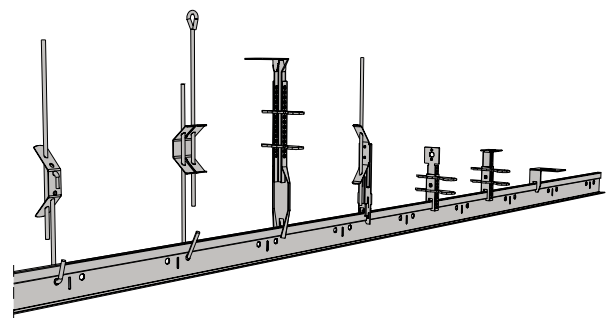
Joggling / overlapping the cross profiles proves advantageous as they tend to twist less when loaded from one side (tile installation).



Hangers

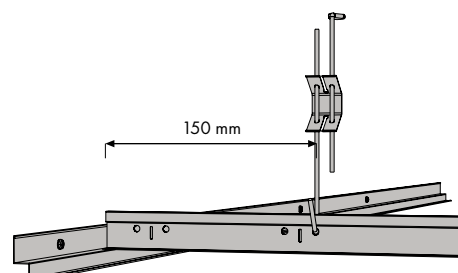
There are a range of suspension hangers available for the System C grid system. Depending on the suspension height, availability or preference, all types can be used. It is important to ensure however, that the maximum load bearing capacity is not exceeded.

In the case of push-on hangers, care is needed to ensure that installation and removal of the tiles does not displace the hangers. When using push-on hangers, the direction of installation should be at 90° to the main runners.



Perimeter distances

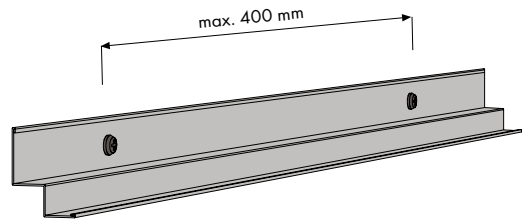
To avoid excessive deflection of the perimeter trims, the first hanger should be positioned at a distance of no more than 150 mm from the perimeter.



Perimeter trims

Fixing

Installation has to be carried out with approved fixings suitable for the type of wall being fixed to. The maximum fixing centres for solid walls is 400 mm. Connection to lightweight partition walls can be carried out to the partition framework (max. centres 625 mm) with at least one screw and inbetween with a threaded bolt. Flat headed screws are recommended to prevent deformation of the trim.

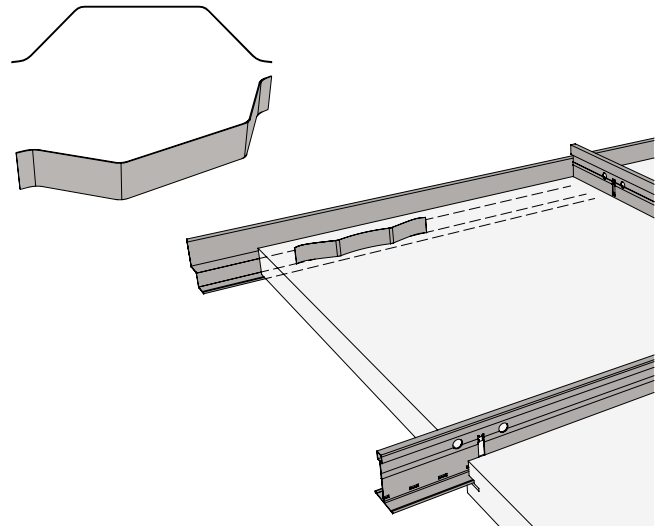


Corners

The trims should be mitred at corners.

Perimeter wedges

The perimeter cut tiles are installed and held in place using a perimeter wedge to ensure that they do not move. The wedge presses the opposite edge of the tile tightly against the grid system ensuring no tile movement at the perimeter. Suitable pliers can be used to “loosen” the wedge to ease installation, reducing effort and time.

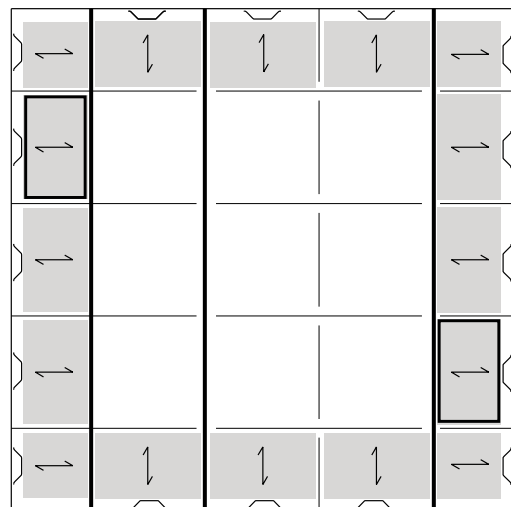


Layout

A perimeter wedge is required for every cut tile (see diagram opposite). This also applies to tiles in corners. The wedge is required irrespective of whether L-angle or shadow trim is used. Cut tiles without wedges can move as a result of building movement or maintenance.

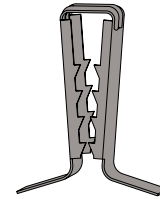
Handling

The simplest method of installing the wedge is immediately after the installation of each tile from the adjacent field. This can be carried out for all tiles, including corner tiles, except the last tiles in a row (=penultimate tile, marked in the diagram opposite with a border). For the last tile, the wedge should be installed before the tile and is then pressed on to the perimeter trim as the tile is pushed into position.



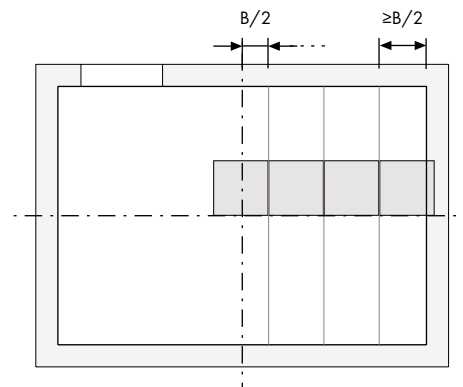
Hold down clips

The use of hold-down clips is normally not necessary. Only in areas of wind pressure or to restrict access/prevent tile removal (e.g. schools) can hold down clips be used.



General - preparation Room layout / ceiling symmetry

A correct layout always avoids tile widths smaller than half the module (e.g. $600/2 = 300$ mm).



Installation guidelines System C

Please refer to the detailed description of the grid system including the mineral tiles and in particular the general handling instructions including individual points such as:

- Ceiling symmetry
- Lighting/additional loads
- System construction
- Installation

as outlined in the System C installation guidelines.

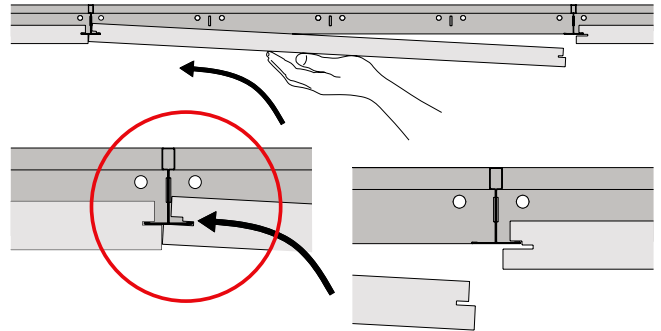
Installation

Handling

As contact with the face side of the tiles is unavoidable during assembly, you should always wear clean, white cotton gloves.

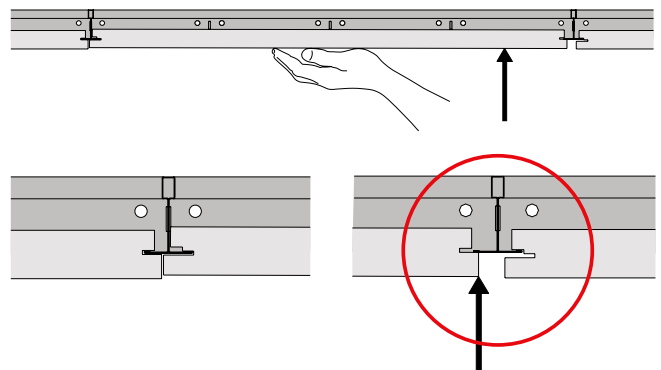
Step 1

Insert the edge with the double groove onto the grid profile. Ensure that the horizontal leg of the T-profile sits in the groove; otherwise the following steps can not be carried out.



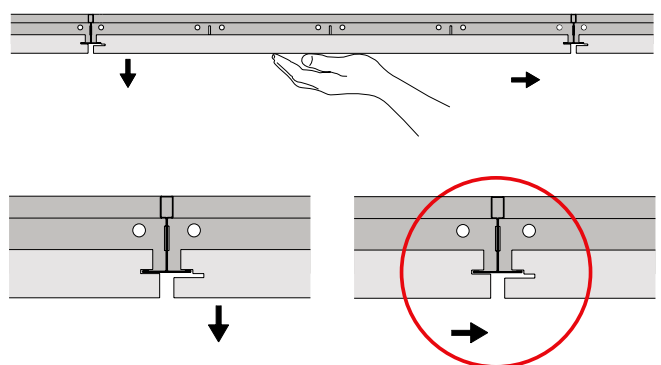
Step 2

Gently lift up the opposite side against the grid. This should be done with little effort as the tiles only have to be raised to the profile level.



Step 3

The tile only needs to be lightly pulled back. Ensure that the tile remains pushed up so that the profile goes into the groove. At the same time the other side slides over on the lower level and lies flush in the system.



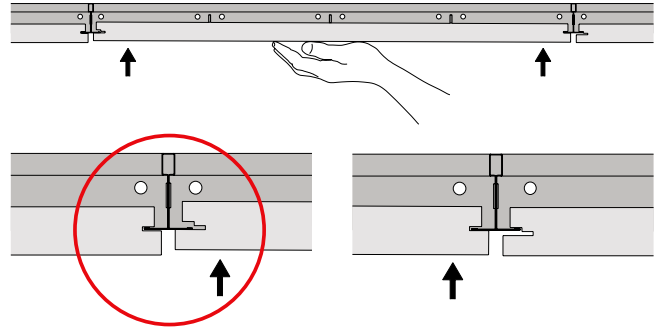
Removal

Handling

As for assembly, you should always wear clean, white cotton gloves.

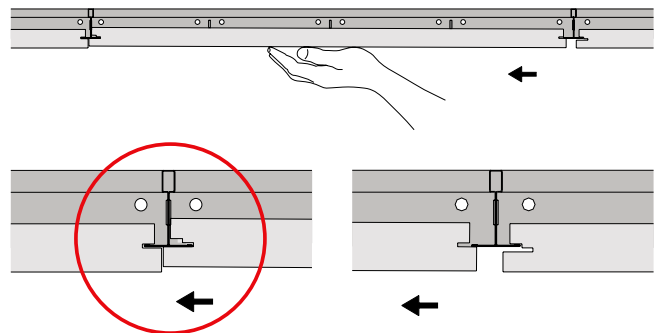
Step 1

Removal occurs in the opposite sequence to installation. First check which side of the tile has the edge with the double groove. This side can be pushed up against the grid system easily and with little effort.



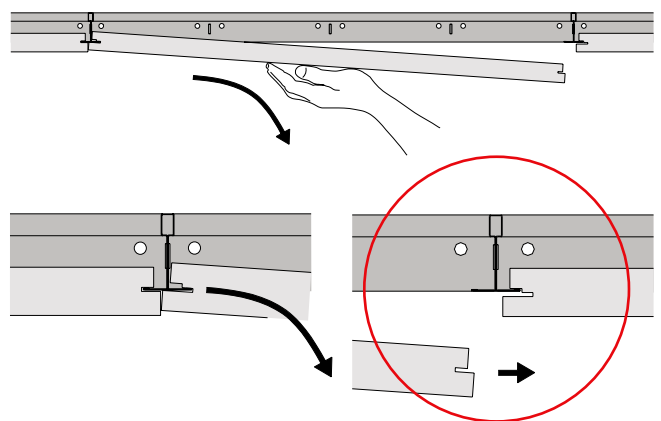
Step 2

The tile is slid in the direction of the double-groove while maintaining gentle upward pressure. Please note that the opposite side of the tile will slide off the profile and that the tile could fall down if you are not careful.



Step 3

Finally, the tile is tilted downwards a little (up to 10 cm), then removed from the grid system at a flat angle in the direction of the free edge of the tile. Please note that excessive tilting of the tile could potentially cause damage to the tile edge.



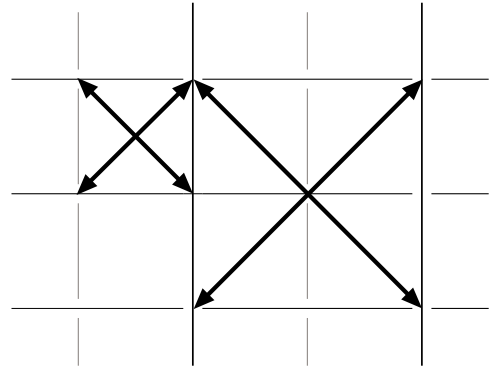
General advice

Squareness

For correct installation of the Vector tiles it is very important to ensure that the grid system is square. Please check the squareness of the grid system before installing the tiles, for example by comparing the diagonal measurements of one or more grid modules and adjusting if necessary.

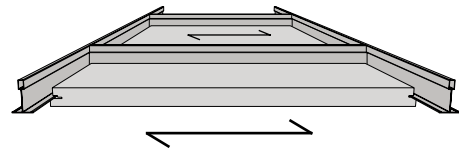
Note:

If the installed grid system is not square, substantial problems can arise when installing the tiles, or later when removing the tiles (for maintenance work).



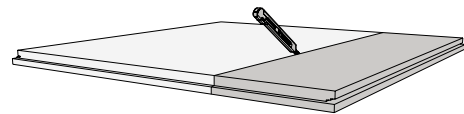
Direction of installation

For the purposes of clarity, the direction of assembly of the tiles will be indicated by an arrow. Due to the design of the tile, support only occurs on two sides of the tile as represented by the direction of the arrow.



Cut tiles

For most installations it will be necessary to use cut tiles at the perimeter of the ceiling. The side with the double groove should always be discarded when cutting the tile. When the cut tile is installed, the cut edge is rested on the perimeter trim and the single-grooved side is inserted into the grid system.

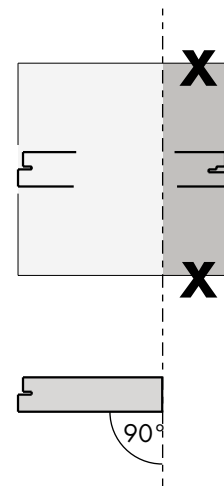


Note:

When cutting tiles, always use the single-grooved side and discard the double-grooved side.

Renovation/refurbishment

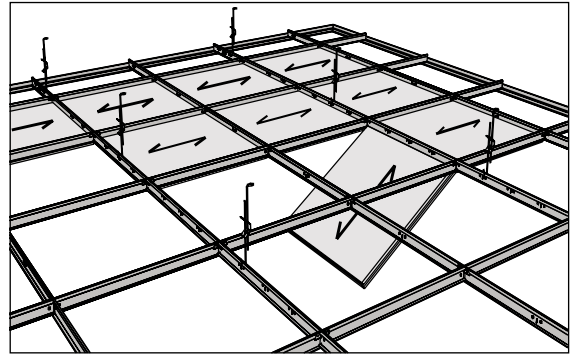
Before reusing an existing grid system, please ensure that it is constructed with 24 mm profiles and that the load bearing capacity is sufficient (install additional hangers if necessary).



Installation

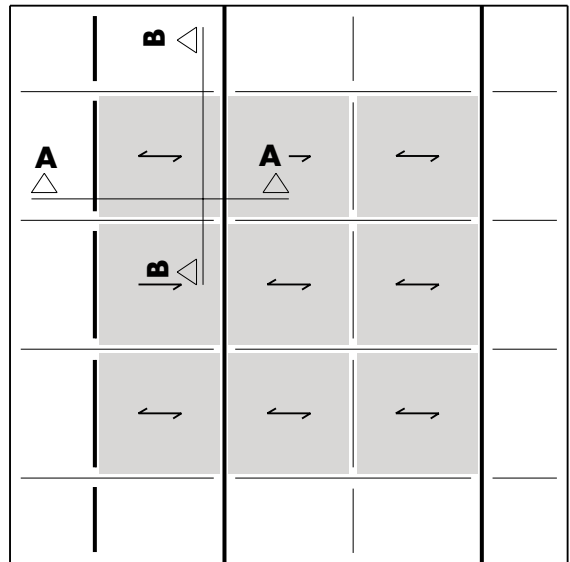
Complete tiles

Installation begins with full tiles. If these are difficult to install, then the grid system should be checked for squareness. The direction of installation should always be perpendicular to the main runners, as shown in the diagram. To ensure correct handling of the tiles, please refer to the notes in the chapter, Installation.



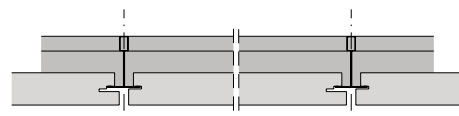
Plan

The tiles are fitted between the main runner and the short cross profiles. The sequence of installation is not important - they can be installed in rows or in sections.



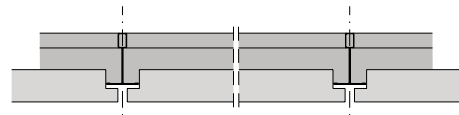
Section A-A

As can be seen in the sectional drawing, when the tiles are installed, the special grooved edges rest on the grid system.



Section B-B

The ceiling tiles are not supported on the grid system. The grid structure is partially concealed by the rebated edge.



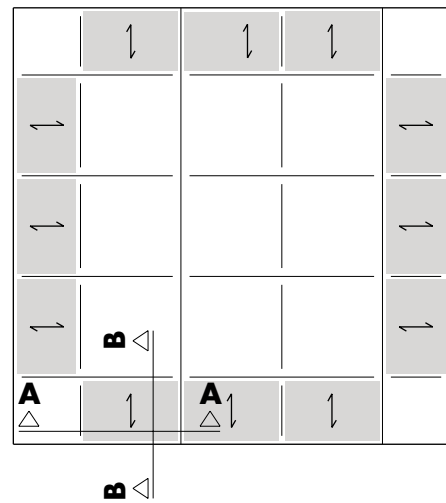
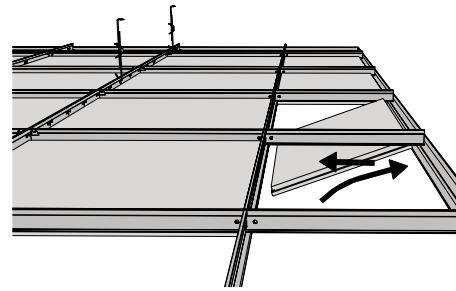
Cut Tiles

The next step is to fit the cut tiles at the perimeter. Please note that if the walls are irregular, the width of the cut tiles may need to vary along the edge of the wall. The direction of installation should always be in the direction of the wall, as shown. The cut edges of the tiles are pushed onto the shadow trim and then pulled in the opposite direction until the profile slots into the groove.

The cut tiles can be fixed using perimeter wedges from an open, adjacent field.

Plan

All cut edges should be installed in the direction of the wall. If necessary, the installation direction of the tiles can be rotated at the perimeter.



Section A-A

The ceiling tiles are not supported on the grid system. The grid structure is concealed by the rebated edge.



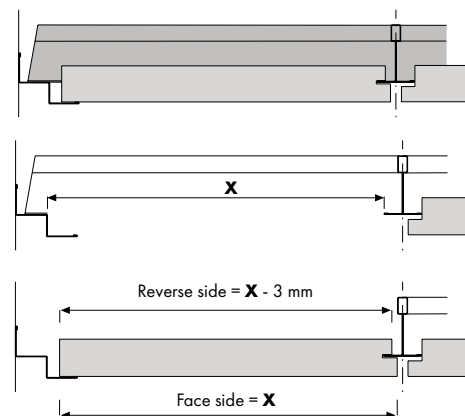
Section B-B

The cut tiles lie on the shadow trim and the grid system. The exact width is determined by:

Dimension **X** between the vertical edge of the perimeter shadow trim and the T-profile (see diagram).

Reverse side = **X** - 3 mm

Face side = **X**

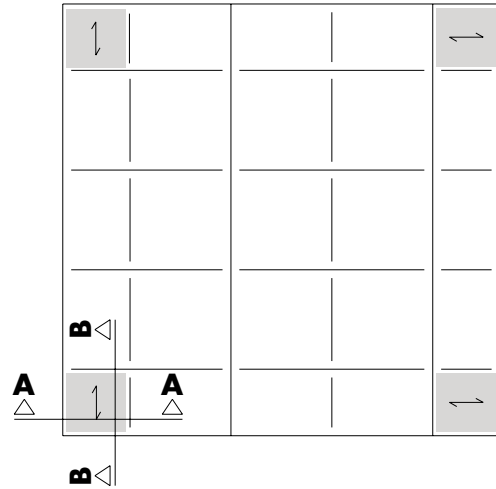


Corner tiles

The corner tiles need to be cut to different dimensions due to the different edge configurations. They should be installed as the penultimate tile (simpler option).

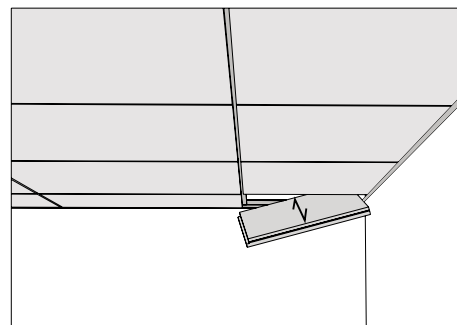
Plan

The orientation of the tile is not so important in this case. It should however be ensured that the edge with double groove is removed.



Version 1

The corner tiles are installed last, which requires a certain amount of finesse. There is an increased risk of the edges being damaged.



Version 2

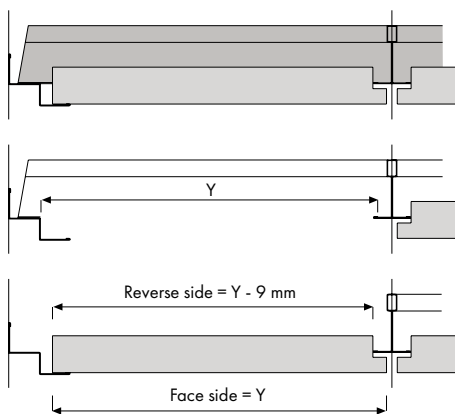
As shown, we recommend installing the corner tile as the penultimate tile in a row. The amount of work required is virtually identical. The sequence of steps however is slightly different.

Section A-A and Section B-B

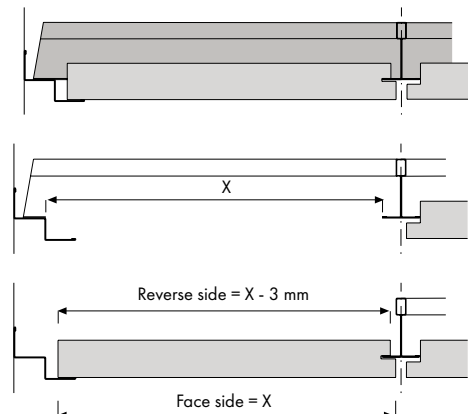
The required width of the tile will vary depending on the edge type.

X/Y: dimension between the vertical leg of the shadow trim and the grid profile (see diagram).

Section A-A



Section B-B



Version 2

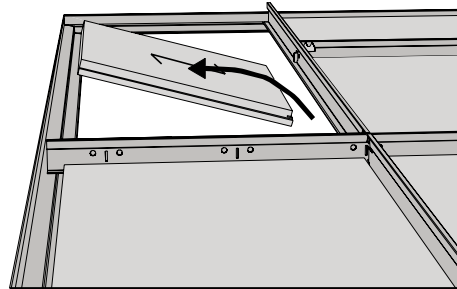
This option is the simplest and most convenient method to install the ceiling tiles. There are no additional steps necessary, just the order of the steps changes.

Initial situation:

The complete suspended ceiling is already installed except for the last two cut tiles (including cross profiles). Ensure to leave an open area without main runners.

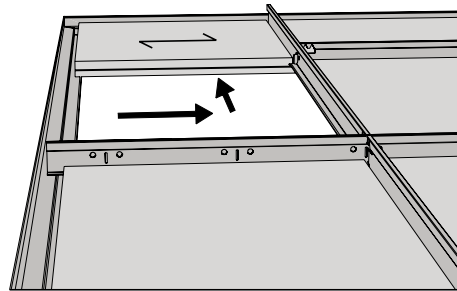
Step 1

After cutting the corner tile to size, one edge is slid onto the perimeter trim.



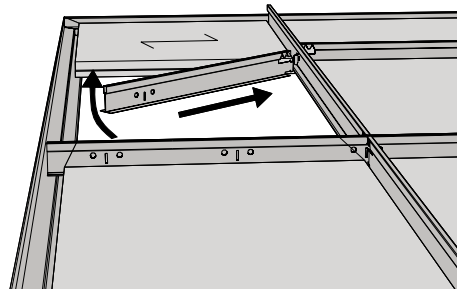
Step 2

The tile is pushed fully onto the profile (full groove depth) and lay on the second perimeter trim.



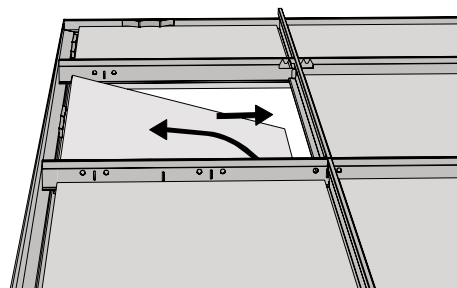
Step 3

After cutting the cross profile to size it is then installed. Perimeter wedges for the corner tile are installed, when used.



Step 4

The pen-(ultimate) tile is pushed onto the perimeter trim (including hold down clips) and pulled back on to the profile.



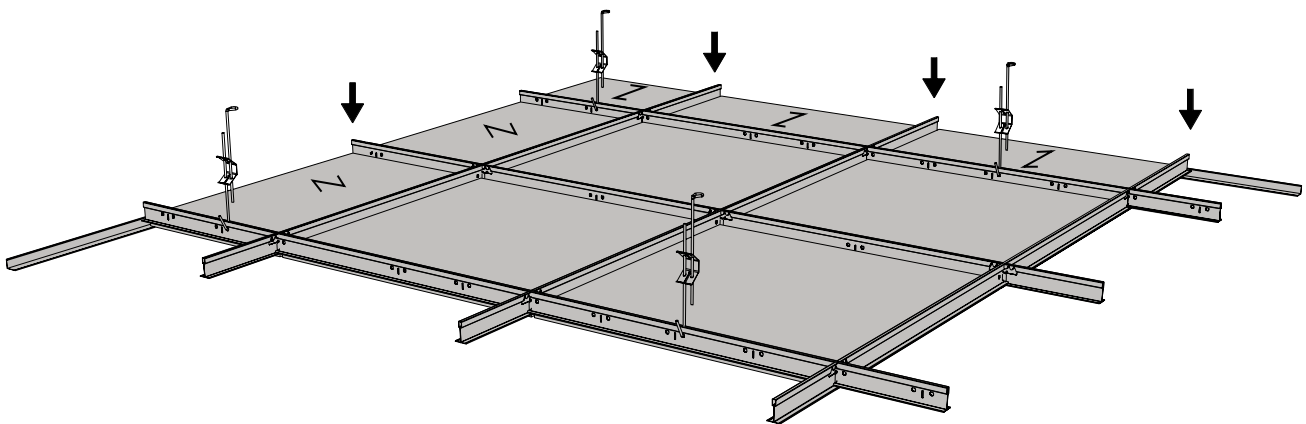
Special configurations

L-wall angle and other trims

When using other trim types, e.g. L24/24 or SRW 25/15/8/15, the perimeter trim must be installed so that the lower edge is 12 mm below the grid system.

The following points should be noted:

- The cut tiles must be installed in the correct direction between perimeter trim and profile (see diagram).
- The version may only be used for short cross profiles cut at the perimeter, not for long cross profiles.
- Additional hangers are not required for the cut profiles as they are not load bearing. The slightly inclined position of the cut profiles is barely visible from the underside and has almost no effect on the visual appearance of the joints.



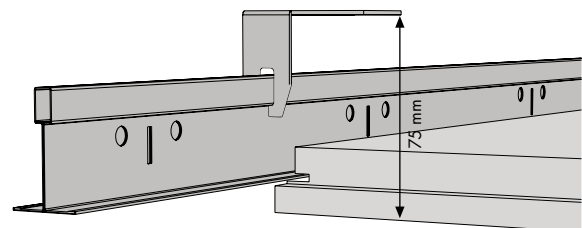
Direct installation

Installation from below is very advantageous for low suspension heights. As the installation can be fully carried out from below, with direct hangers, a minimum installation height of 74 mm (lower edge of the soffit to lower edge of the suspended ceiling) can be achieved.

Note

Depending on the hanger used, it may be difficult to compensate for any unevenness in the soffit. This requirement should always be established in advance.

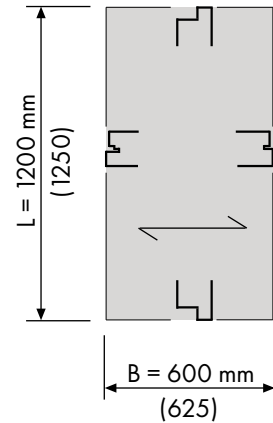
It is recommended to install the tiles perpendicular to the main runners, so that no shifting can occur during installation.



Rectangular format 1200x600 mm or 1250x625 mm

The stipulations set out in the previous chapters are to be observed.

The grid structure consists of T24/38 main runners and T24/33 or T24/38 long cross profiles.



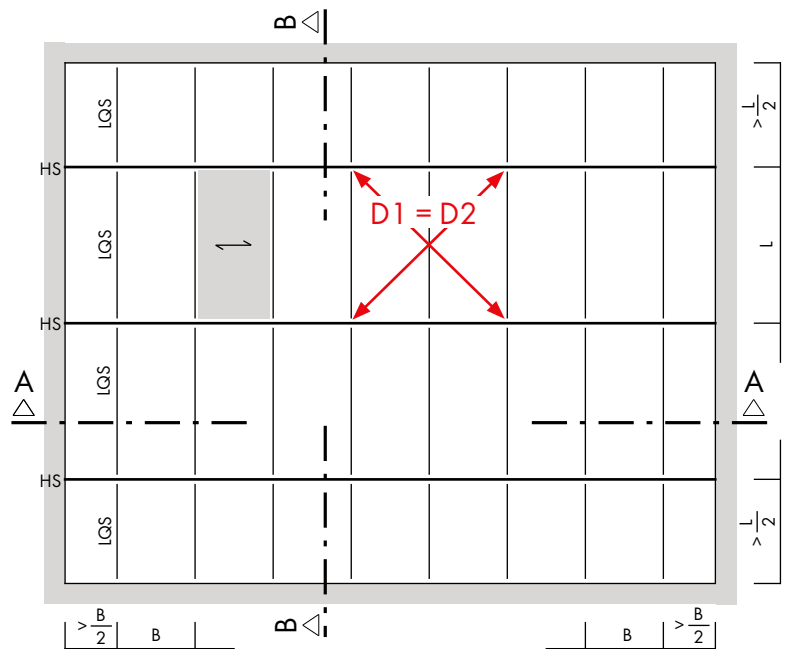
Key

HS: Main runner T24/38

LQS: Long cross profiles T24/38 or T24/33

L: 1200 / 1250 mm (module)

B: 600 / 625 mm (module)



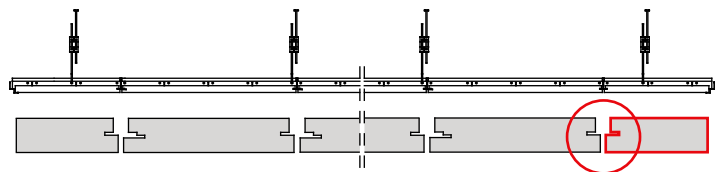
Note

Before installing the tiles and cutting (grid and tiles), the squareness of the grid should be checked. $D1 = D2$.

Note

The last tile of a row should be turned, the double groove is omitted, see general guidelines – cut tiles.

Section A-A

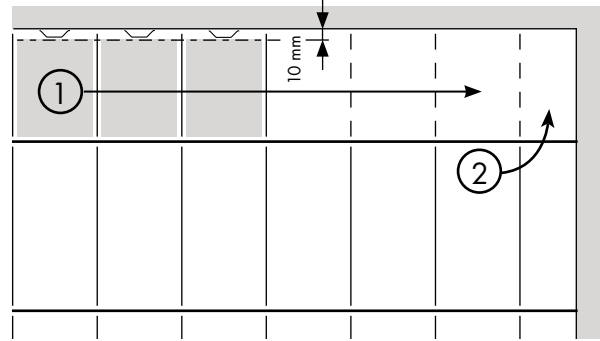


Section B-B



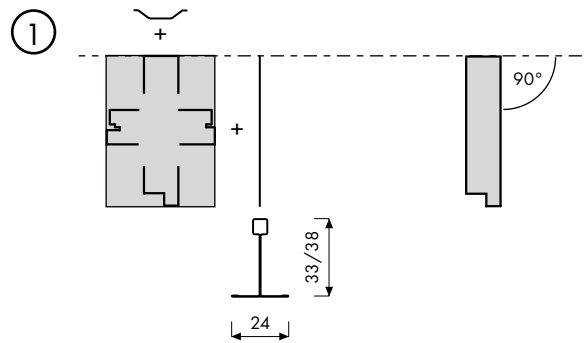
Installing the cut tiles

For the correct installation, a 10mm cut back is required. Ensure that the tiles, including grid and perimeter wedges are installed consecutively.

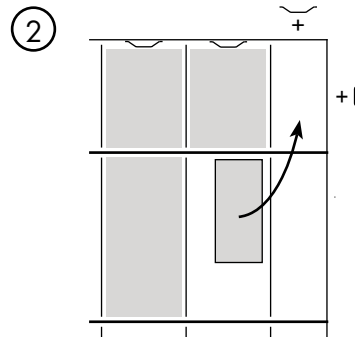


The cut tiles and the long cross profiles should always be installed alternately.

Before installing the next tile, a cut cross profile T24/38 or T24/33 should be installed. Every tile at the perimeter should be secured with a perimeter wedge. Due to this, tiles should be cut at right angles, back cut by 10 mm.



Ensure that the corner tiles are cut 10 mm smaller on two sides and secured with two perimeter wedges.



Note

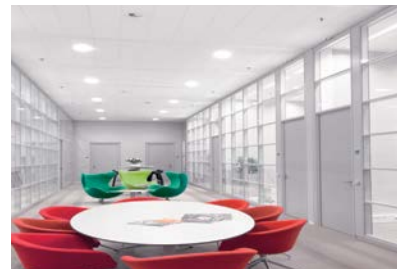
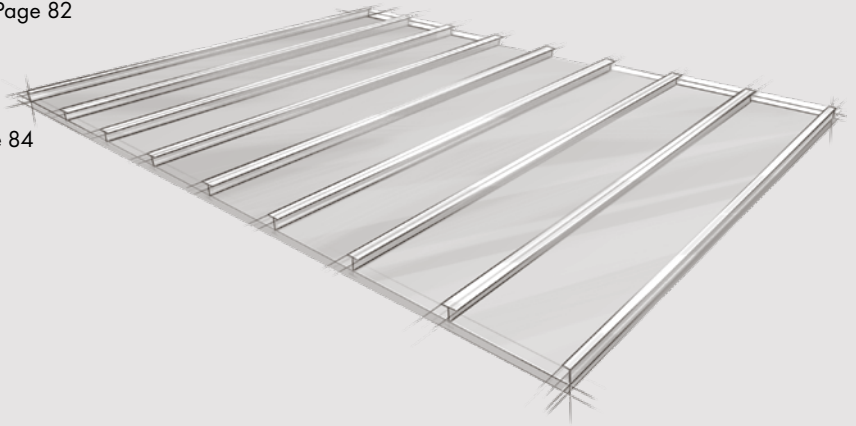
Cut tiles are only partly accessible.
The entire row, beginning in the corner, must be dismantled, back to the required opening.

System F - Free Span Systems

System F 1.1: THERMATEX® K2C2 (non) demountable – Page 82

System F 1.2: THERMATEX® SL2 demountable – Page 83

System F 1.3: THERMATEX® Tegular demountable – Page 84



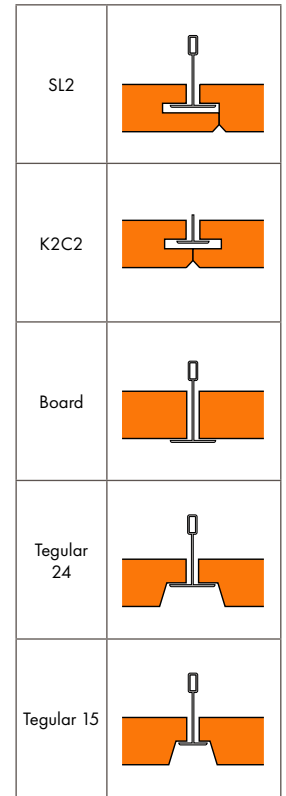
System F as a free span system which can span up to 2.50 m is our ideal solution for corridors. It is quick and efficient, both during installation and for maintenance as each individual tile can be demounted allowing access to the ceiling void, depending on construction variant. The tiles lie on perimeter trims at both ends, resulting in an extensive and homogenous appearance due to the low number of joints. The corridor is visually more open and has a high-quality look.

System F 1 - THERMATEX®

Product Range

Product	Thickness [mm]	Weight [kg/m ²]	Edge configuration	Module [mm]	
Product programme THERMATEX®	THERMATEX® Plain	15	Board* Tegular 15/Board* SL2 K2C2	300/1200*; 400/1200-1250*; 600/1200*; 312.5/1250*; 625/1250*; 300/1800-2500; 400/1800-2500; 312.5/1800-2500 * Special sizes on request	
		19			
	THERMATEX® Fine Stratos	15			
		19			
	THERMATEX® Star	15			
		19			
	THERMATEX® Fine Stratos micro perforated	15	Board* Tegular 15/Board* SL2 K2C2	300/1200*; 300/1500*; 400/1200-1250*; 600/1200*; 312.5/1250*; 625/1250*; 300/1800-2500; 312.5/1800-2500; 400/1800-2500 * Special sizes on request	
		19			
	THERMATEX® Mercure	15			
		19			
THERMATEX® Alpha HD	19	5.2	SL2 K2C2	300/1200-1800	
THERMATEX® Acoustic	19	4.6			
ADAGIO Acoustic+ Vector	24	8.4			
THERMATEX® Varioline Acoustic / Metal / Wood / Motif	19	4.6	SL2	300/1200-1800	
THERMATEX® Kombimetal	21	9.5	SL2 K2C2	300/1600; 300/1800; 300/2000; 300/2500	

Edge Configurations



Material requirements/ key

The quantities and installation times stated are for guideline only. They do not allow for waste or project specific scenarios. Please pay particular attention to the maximum span tables for the perimeter trims (chapter, Perimeter trims) and the reinforcement profiles (chapter, Reinforcement profiles).

Product description	Unit	Module mm / requirement for every m ² ceiling											
		300 x 1600	300 x 1800	300 x 2000	300 x 2500	312,5 x 1600	312,5 x 1800	312,5 x 2000	312,5 x 2500	400 x 1600	400 x 1800	400 x 2000	400 x 2500
Mineral tiles	1 pcs.	2.08	1.85	1.67	1.34	2.00	1.78	1.60	1.28	1.56	1.39	1.25	1.00
T and Z main profile for variants F 1.2 and F 1.3	2 lin. m	3.34	3.34	3.34	3.34	3.20	3.20	3.20	3.20	2.50	2.50	2.50	2.50
U main profile for variant F 1.1	2 lin. m	6.68	6.68	6.68	6.68	6.40	6.40	6.40	6.40	5.00	5.00	5.00	5.00
Perimeter trim	3 lin. m	1.50	1.33	1.20	0.96	1.50	1.33	1.20	0.96	1.50	1.33	1.20	0.96
Installation time	min.	24	24	22	22	23	23	21	21	22	22	20	20

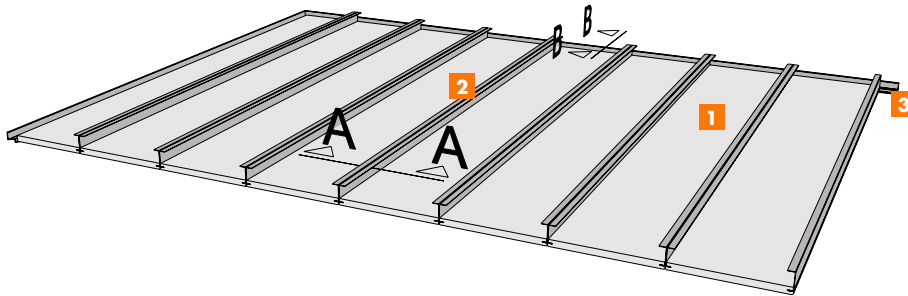
Note

For easy and simple installation of tiles and profiles, a minimum suspension height of 100 mm is required (for shadow edge perimeter trims) and up to 300 mm (L section perimeter trims). Please also consider the installation heights.

System F 1.1 - THERMATEX® K2C2 (non) demountable

System variant F 1.1 uses a K2C2 (slotted) edge tile. Depending on the reinforcement profile used, the tiles may be demountable or non-accessible. The required profile cross-sections (main profiles and perimeter trim) depend on the required span, as shown in the span tables in the chapters, Perimeter trims and Reinforcement profiles.

Figure 1.1



If Z or T profiles are used as reinforcement profiles, the tiles cannot be removed after installation as they are joined to the adjacent tiles via the profile (Figure 1.2 and 1.6).

If the tiles need to be demountable when using the K2C2 edge, a U profile can be used (two profiles required per tile; Figures 1.3 and 1.7).

Perimeter trims

Regardless of the perimeter trim used, whether it be L-wall angle or shadow trim, it must be ensured that the tiles and the reinforcement profiles are supported on at least 2/3 of the horizontal leg of the perimeter trim (Figures 1.4 and 1.5).

Access

As shown in Figure 1.6, individual tiles can not be later removed. If access is required, U reinforcement profiles can be used and every tile and profile lifted as in Figure 1.7. Alternatively, variant F 1.2 can be used.

Figure 1.4 - section B-B

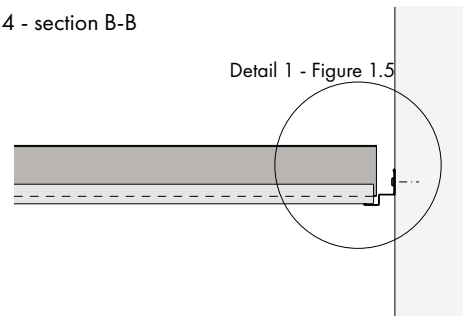


Figure 1.5 - Detail 1

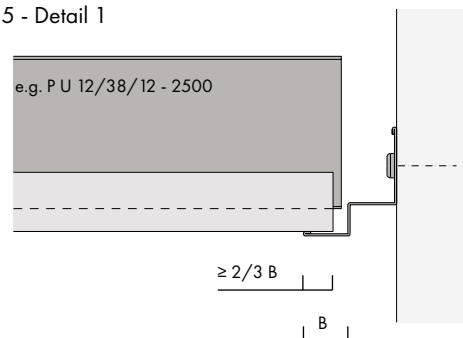


Figure 1.2 - Section A-A, non-accessible



Figure 1.3 - Section A-A, demountable (alternative)



Figure 1.6 - Application 1

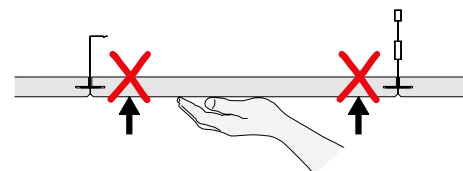
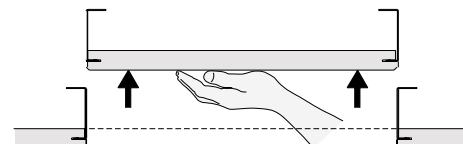


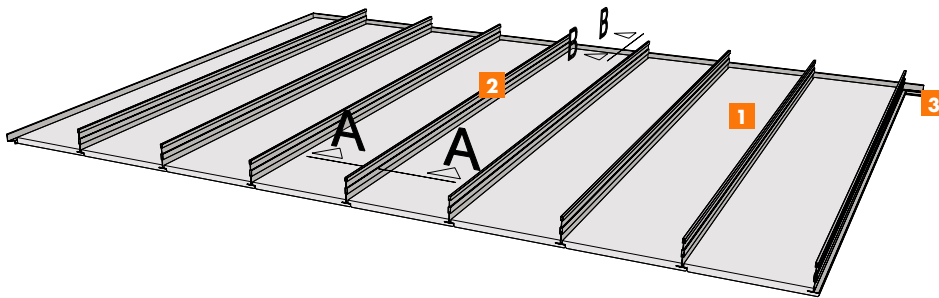
Figure 1.7 - Application 2



System F 1.2 - THERMATEX® SL2 demountable

System F 1.2 uses tiles with an SL2 (shiplap) edge detail on the long edges and is therefore fully demountable. The required reinforcement profiles and perimeter trims depend on the span, as shown in the span tables in the chapters, Perimeter trims and Reinforcement profiles.

Figure 2.1



Depending on the span, either Z or T reinforcement profiles are used (Figure 2.2).

Perimeter trims

Regardless of the perimeter trim used, whether it be L-wall angle or shadow trim, it must be ensured that the tiles and the reinforcement profiles are supported on at least 2/3 of the horizontal leg of the perimeter trim (Figure 2.4).

Access

As shown in Figure 2.5, individual tiles are fully demountable. The tiles are first lifted on the side with the rebated edge and can be slid or removed with the reinforcement profile.

Figure 2.2 - section A-A, demountable



Figure 2.3 - section B-B

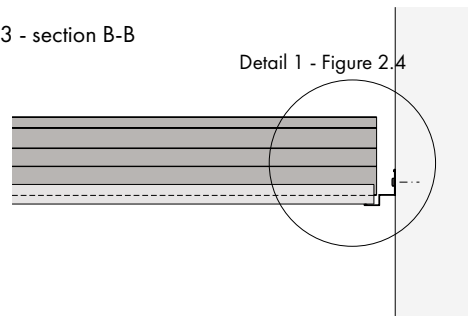


Figure 2.4: Detail 1

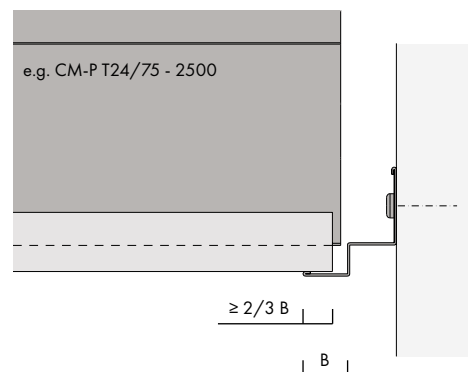
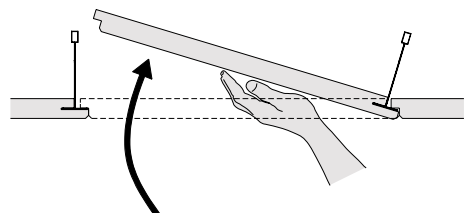


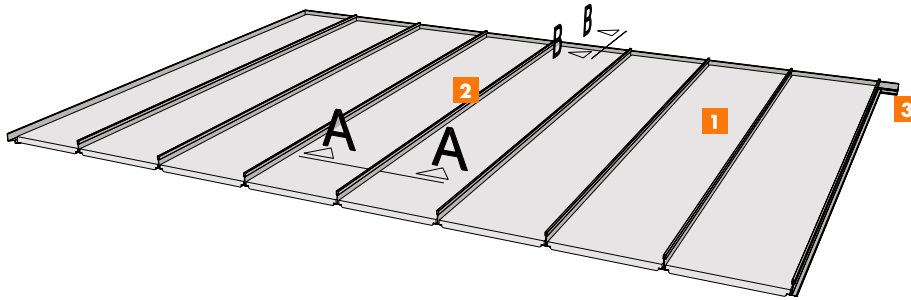
Figure 2.5 - Access



System F 1.3 - THERMATEX® Tegular demountable

System F 1.3 uses either a Tegular 15 or Tegular 24 (recessed) edge or an Board edge on the long edges of the tile and is demountable. The required profile sections (main profile and perimeter trim) depend on the span, as shown in the span tables in the chapters, Perimeter trims and Reinforcement profiles.

Figure 3.1



T-sections are generally used as reinforcement profiles (Figures 3.2 and 3.3) as they provide a finished surface on the visible side.

Perimeter trims

Regardless of the perimeter trim used, whether it be L-wall angle or shadow trim, it must be ensured that the tiles and the reinforcement profiles are supported on at least 2/3 of the horizontal leg of the perimeter trim (Figures 3.4 and 3.5).

In the standard version (Board edge on short side) with Tegular 15 or Tegular 24 on the long edge, the supporting profile is higher and cannot rest directly on the perimeter trim. In this case a filler piece is required (Figure 3.6). As a special solution, tiles with all round Tegular edges can be supported directly on the perimeter trim (Figure 3.5) This requires either exact, parallel walls (same dimension over the entire corridor length) or cutting the tiles exactly including reforming the edges with milling/edge planing/painting.

Access

As shown in Figure 3.7, the individual tiles can be easily removed. The tiles can be individually lifted and slid / removed.

Figure 3.4 - section B-B

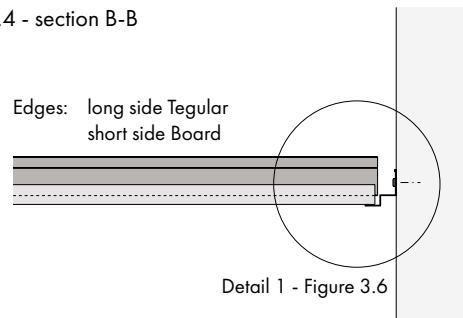


Figure 3.5 - section B-B (alternative)

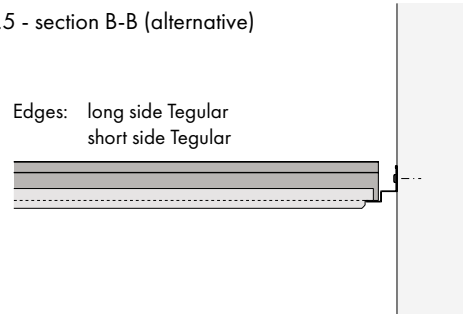


Figure 3.6 - Detail 1

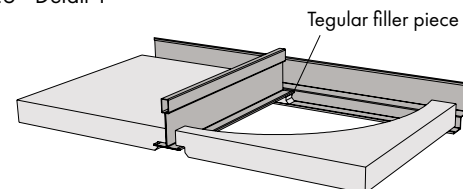


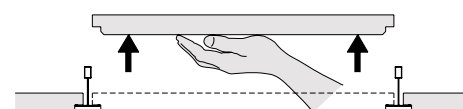
Figure 3.2 - section A-A, demountable with Tegular edges



Figure 3.3 - section A-A, demountable with Board edges



Figure 3.7 - access



Tiles

As shown in Figure 3.8, there are several possible edge configurations for the long and short sides of tiles. The standard configuration for the short edge is a square edge (Board). Only in special cases will this edge be produced in a recessed (Tegular) edge. The details of the long edges are shown in Figure 3.9 with the resulting widths (face and reverse side), based on an example module width of 300 mm.

Tiles	Thickness [mm]	Weight [kg/m ²]
THERMATEX® (standard)	15	4.0
	19	5.3
THERMATEX® Alpha HD	19	4.7
THERMATEX® Acoustic	19	4.6
THERMATEX® dB Acoustic	24	8.4
THERMATEX® Kombimetal	21	9.5

Please consult the price list for the full range of available formats, some of which may be subject to minimum order quantities.

Figure 3.8

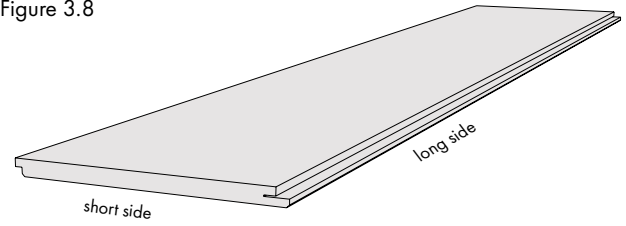
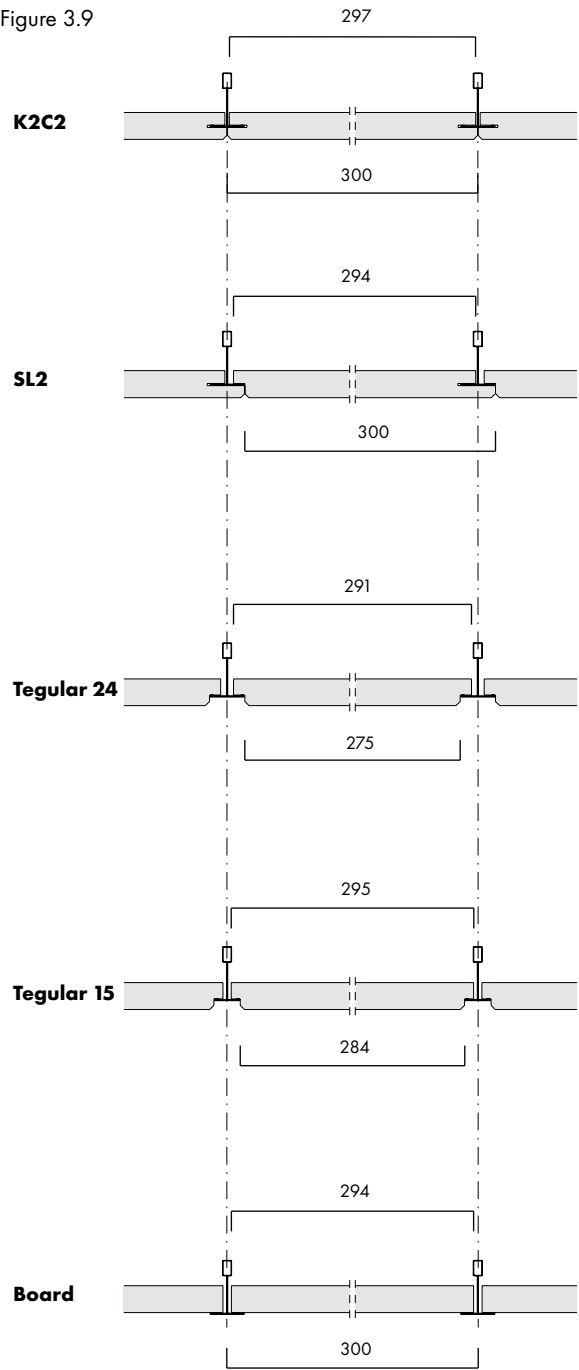


Figure 3.9



dimensions in [mm]

Perimeter trims

Fixing

For connecting to surrounding walls (solid or light-weight partition) and supports, a wide range of white, galvanised profiles are available.

Figure 3.10 - RW L19/24, 3000

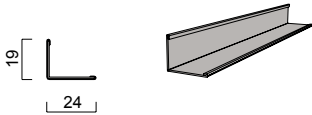


Figure 3.11 - RW L24/24, 3000

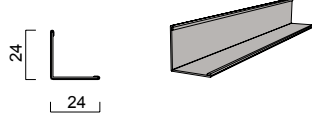


Figure 3.12 - RW L31/31, 3050

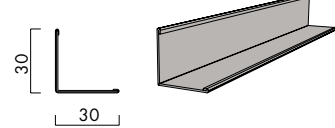


Figure 3.13 - RW L40/30, 4000

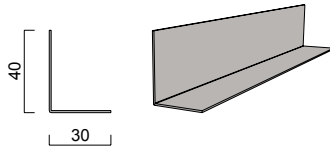


Figure 3.14 - SRW 25/15/8/15, 3000

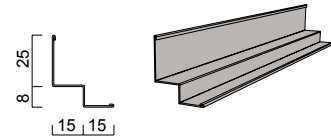


Figure 3.15 - SRW 25/15/10/15, 3000

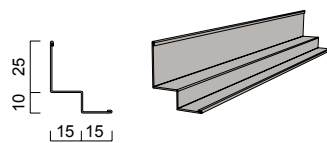


Figure 3.16 - SRW 20/20/20/20, 3050

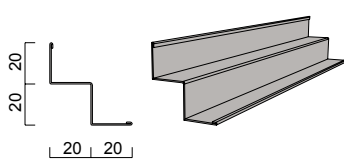


Figure 3.17 - SRW 42/20/23/24, 3750

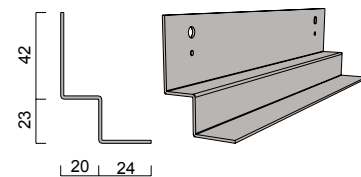
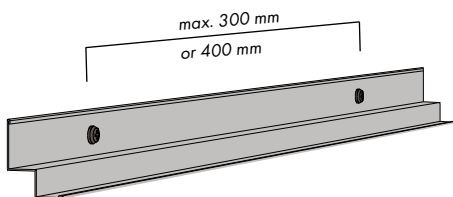


Table 3.1 shows which profiles can be used depending on the tile type, weight and format.

The perimeter trims should be fixed using approved plugs and screws. For solid walls, the fixings should be at maximum 400 mm centres ($d \leq 0.7$ mm: max. 300 mm). Light-weight trims (less than 0.7 mm) should be fixed at maximum 300 mm centres. Connections to light-weight partition walls can be made around the partition studs (max. 625 mm centres) with at least one screw and in between with a threaded bolt ($d \leq 0.7$ mm: min. two screws/ third point). Screws without a flat head are unsuitable for fixing as incorrect installation can lead to deformation of the perimeter trim. The perimeter trim should be mitred at the corners.










Figure 3.18



Span table for perimeter trims

Irrelevant of the element width, there are maximum permissible spans and therefore maximum loading of the perimeter trim for different element thicknesses.

Table 3.1

Profile		Weight [kg/m ²]		
		5.0	6.0	9.5
		max. span [mm]		
RW L 19/24 d=0.5 mm		1700	1500	1200
RW L 24/24 d=0.5 mm		1700	1500	1200
RW L 31/31 d=1.0 mm		2500	2500	2500
RW L 40/30 d=1.0 mm		2500	2500	2500
SRW L 25/15/8/15 d=0.5 mm		1400	1300	-
SRW L 20/20/20/20 d=0.7 mm		1800	1500	1200
SRW L 25/15/10/15 d=1.0 mm		1900	1600	1300
SRW L 42/20/23/24 d=1.5 mm		2500	2500	2500

Reinforcement profiles

Profile cross sections

Not all reinforcement profiles are suitable for all edge configurations. For example, U profiles can only be used for system F 1.1 (K2C2 edge configuration) and Z profiles can not be used for system F 1.3 with Board and Tegular edge configurations, as their unfinished surface would be visible.

Figure 3.19 - P U12/38/12, 2000
K2C2 edge

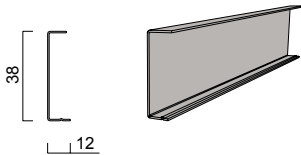


Figure 3.20 - P U12/38/12 - 2500
K2C2 edge

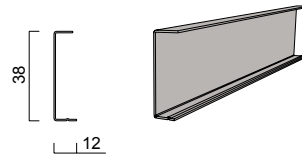


Figure 3.21 - T24/38 - 1800
K2C2, SL2, Board, Tegular edge

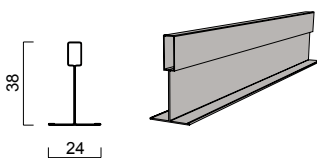


Figure 3.22 - DXE 24ZG - 2500
K2C2, SL2, Board, Tegular edge

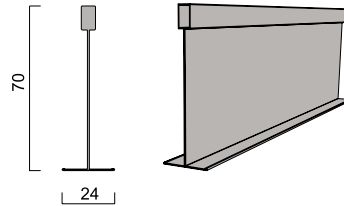
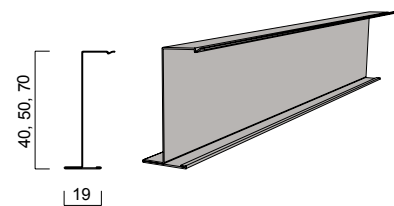


Figure 3.23 - P Z19/40, 66 - 2500
K2C2, SL2 edge



T24/38 profiles

T24/38 main runner profiles are often used. As a general rule, main runners from system C with corresponding punching for hangers etc. are used. The fire expansion notch (Figure 3.24) represents a considerable weak point in the profile and therefore shouldn't be used. The installation of the reinforcement profile with hangers (Figure 3.25) is a possible option. Usually a T24/38 profile with central suspension (element length < 2.50 m, width < 400 mm) is sufficient.

However, several points need to be considered:

- Due to fixing the profiles, demounting is considerably harder
- The risk of damage to the tile by the hanger increases, especially with hook/eye wire hangers
- For installation of the hangers, open access to the soffit is required
- The additional work increases the installation time

Due to the above reasons, it is recommended to install a free span system **without** hangers.

Figure 3.24 - T24/38 main runner

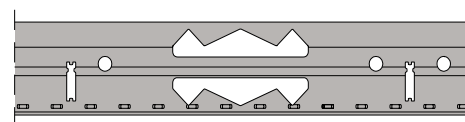
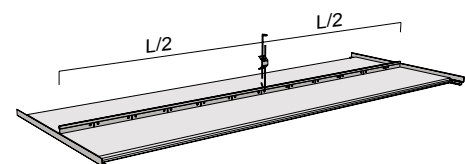


Figure 3.25 - central hanger



Span table

According to the system and reinforcement profile used, there is a maximum permissible span dependent on tile thickness.

Table 3.2














Tile width [mm]				300 and 312.5 mm					
Weight [kg/m ²]				4.0	5.0	6.0	7.5	8.5	9.5
Profile		Height [mm]	Weight [kg/lin. m]	max. span [mm]					
DONN® 24/70		70	0.75	on request					
T24/38		38	0.35						
P Z19/70		70	0.55						
P Z19/40		40	0.40						
P U10/50		50	0.35						
P U12/38		38	0.45						

Table 3.3

Tile width [mm]				400 mm					
Weight [kg/m ²]				4.0	5.0	6.0	7.5	8.5	9.5
Profile		Height [mm]	Weight [kg/lin. m]	max. span [mm]					
DONN® 24/70		70	0.75	on request					
T24/38		38	0.35						
P Z19/70		70	0.55						
P Z19/50		50	0.45						
P Z19/40		40	0.40						
P U10/50		50	0.35						
P U12/38		38	0.45						

Note

The reinforcement profiles must be installed over the full length of the elements/tiles, shorter profiles can not be butted together. Please note that not all possible combinations of edge configuration, tile length and thickness are available as stock items. The full range of available formats can be found in the price list. The load tables allow for a maximum 1.0 mm deflection of the profile. The standard EN 13964 class A1 ($l/500 \leq 4$ mm) allows for a deflection of 4 mm, we recommend a much lower deflection allowance for aesthetic reasons.

Should you require an optimised solution, please contact our technical department.

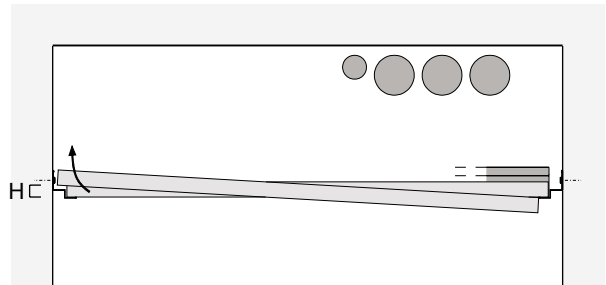
Installation height

Installation height with shadow trim

For systems F1.1, F 1.2 or F 1.3 there is a minimal installation height due to the use of perimeter shadow trim (e.g. 25x15x10x15 mm). By slightly lifting on one side (depending on version) and displacing it, every tile can be installed or removed (Figure 3.26).

Minimum installation for perimeter shadow trim:
 Element length ≤ 1500 mm: Height H approx. 100 mm
 Element length > 1500 mm: Height H approx. 150 mm

Figure 3.26



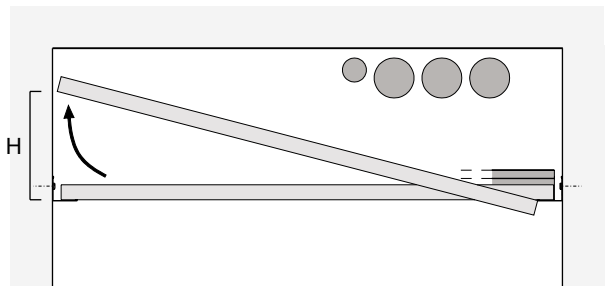
Installation height with L wall angle

Installation height using L-section perimeter trims. For systems F1.1, F 1.2 or F 1.3 there is a significantly larger installation height using L wall angle (e.g. 30 x 30 mm) than shadow trim. To remove the tile, one edge has to be raised high enough to allow the opposite edge to be removed from the perimeter trim (Figure 3.27).

Longer elements require more installation height.

Minimum installation for L wall angle:
 Element length ≤ 1500 mm: Height H approx. 250 mm
 Element length > 1500 mm: Height H approx. 350 mm

Figure 3.27



General

Packaging

To take out the tiles, open the packaging on all sides and then remove completely (Figure 3.28).

Handling

Care must be taken when handling full cartons as well as individual tiles. They must not be thrown, dragged or knocked. The cartons and tiles must not be placed or stored on their edges or corners.

Due to the length of each tile, it is essential to handle and install the tiles using both hands. If the tiles are supported using only one hand (in the middle), there is a significant risk of breakage (Figure 3.29 and 3.30).

The individual tiles should always be handled with clean gloves (white material).

Cut tiles

All Knauf Ceiling Solutions mineral tiles can be cut without difficulty using a standard Stanley knife (Figure 3.31). When doing so, always place the tile on a clean, even surface and use a suitable guide (metal bar).

SL2 edge configuration

Unlike Board, Tegular and K2C2 edges, tiles with SL2 edges have two different long edges. When preparing the first (cut) tile, ensure that the rebated edge is removed (Figure 3.32). In the case of the last tile (also cut), the grooved side should be removed.

Figure 3.28

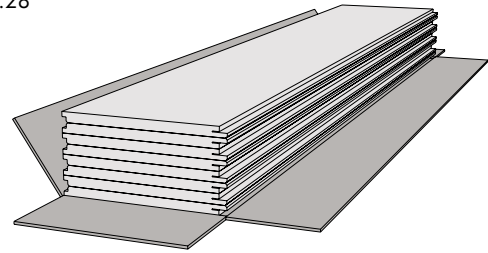


Figure 3.29

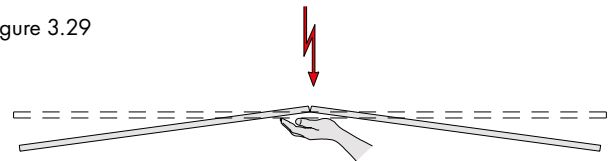


Figure 3.30



Figure 3.31

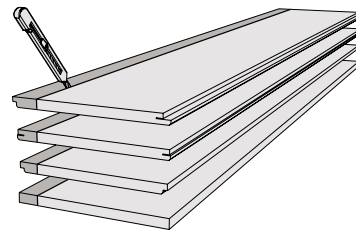
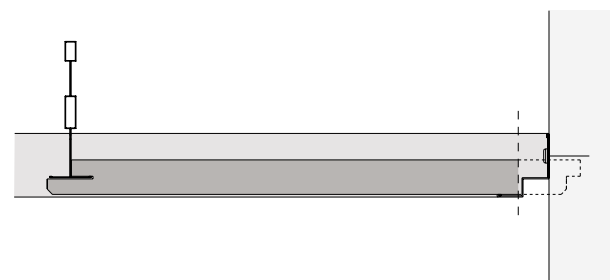


Figure 3.32



Corridor layout / ceiling symmetry

Layout

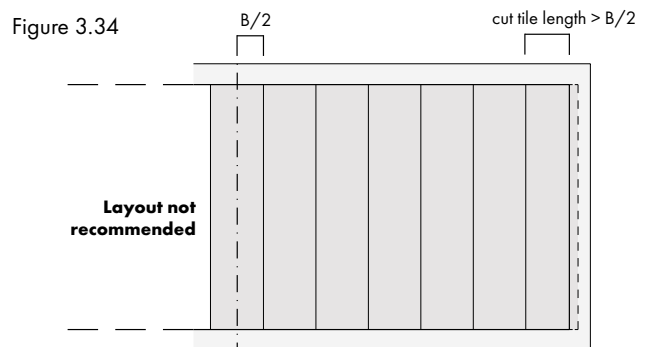
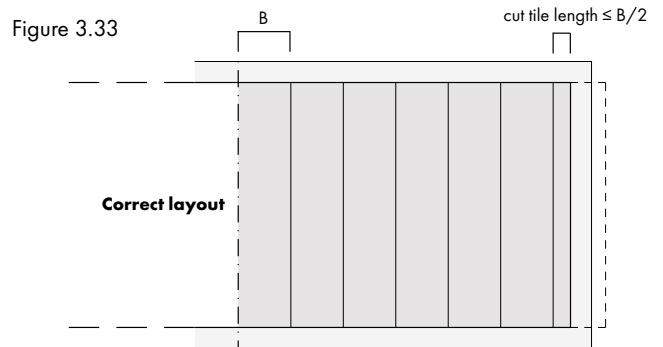
Starting from the middle of the corridor, the layout continues in element widths = B. The example shown (Figure 3.33) results in a very small cut tile length.

Note

If the last cut tile is smaller than half a tile width ($\leq B/2$), the layout is not recommended for optical reasons.

Correction

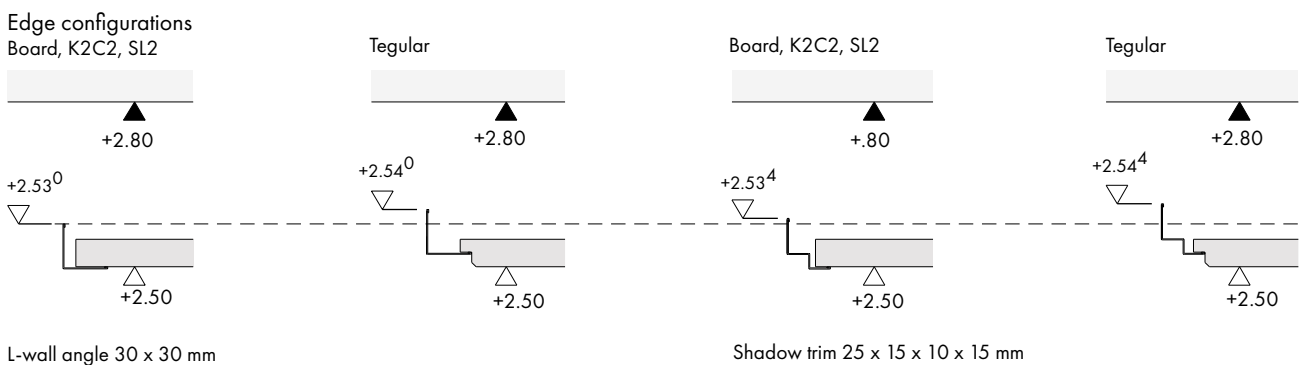
It is aesthetically more pleasing and more efficient to install a ceiling with larger cut tiles. If, as described above, the ceiling is set out from the middle of the corridor but results in an unfavourable layout, the ceiling layout should be moved over by half a module width. This always results in a cut tile larger than half a tile width (Figure 3.34).



Installation height of perimeter trim

Due to the different possible combinations of perimeter trim, e.g. L-wall angle or shadow trim and edge configurations (Figure 3.35), there are different installation heights of the perimeter trim, for the same ceiling height, i.e. to the lower edge of the suspended ceiling (2.50 m in the example shown).

Figure 3.35



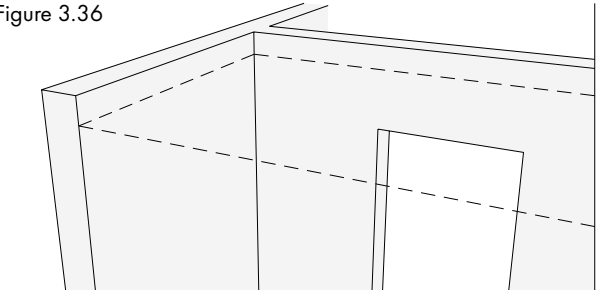
Installation guidelines

Please read the preceding chapters before continuing. In this chapter, detailed explanations and instructions for correct installation of the system are provided.

Marking out (Figure 3.36)

Before proceeding with the installation, mark the desired installation height on the surrounding structural elements (walls, supports...) all the way around the corridor (upper edge of perimeter trim).

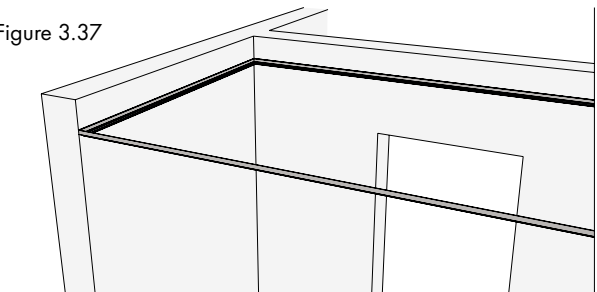
Figure 3.36



Perimeter trims (Figure 3.37)

The perimeter trim should be fixed as described in the chapter, Perimeter trims (fixings, centres...). Corners are generally mitred.

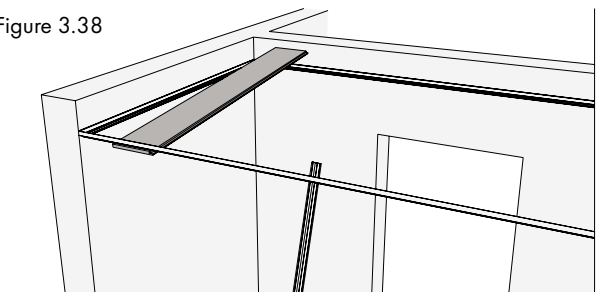
Figure 3.37



First element (Figure 3.38)

Depending on the corridor dimensions, a cut tile is usually installed first. For system F 1.2, the SL2 edge should be facing the installer.

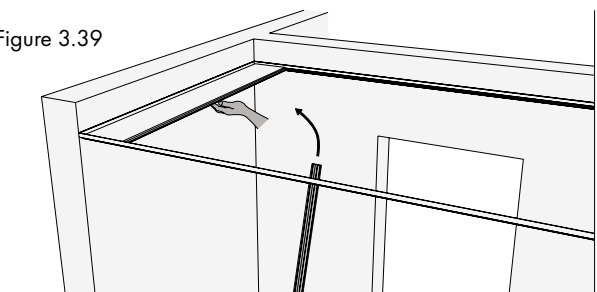
Figure 3.38



Handling (Figure 3.39)

Never leave the tile unsupported from perimeter trim to perimeter trim without a reinforcement profile; keep the reinforcement profile within reach as the tile is installed, then support the tile with one hand as the profile is inserted with the other hand.

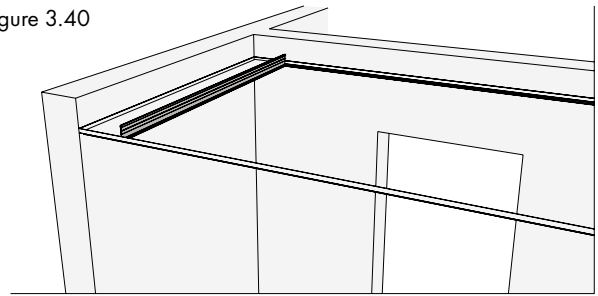
Figure 3.39



Reinforcement profiles (Figure 3.40)

The dimensions of the reinforcement profiles are according to the span table in the chapter, Reinforcement profiles.
Irrelevant which system is used, all tile long edges must be supported by a profile (pushed in, lay on...)

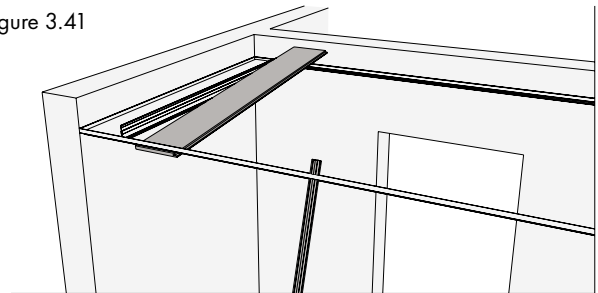
Figure 3.40



Continued elements (Figure 3.41)

Tiles are continuously installed with their associated reinforcement profiles. Please ensure no tile is installed, without a reinforcement profile.

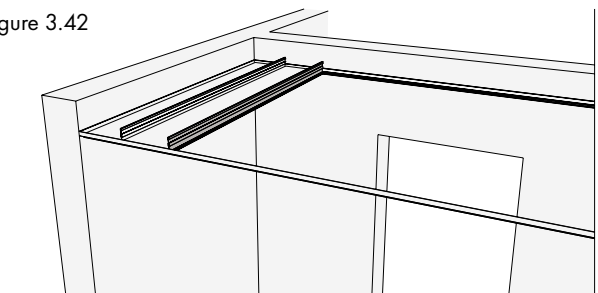
Figure 3.41



Continued elements (Figure 3.42)

The individual tiles should only be gently pressed against one another without force. This makes it easy to remove tiles in the future.

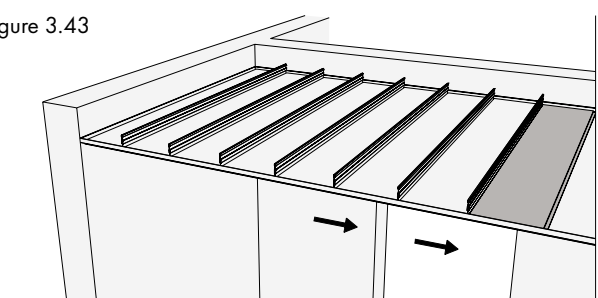
Figure 3.42



Continued elements (Figure 3.43)

Install the remaining tiles and reinforcement profiles. The last element will also be a cut tile.

Figure 3.43



Lighting / Additional loads

General

Additional loads should generally be independently supported from the soffit. No loading should be applied to the tiles. For integrated elements such as downlights, loudspeakers, etc. reinforcement is required on the reverse side to transfer the load to the grid (additional hangers on the grid). Exceptions include loads less than 0.3 kg for which no additional measures are required. For screw-mounted items, always provide a patress of suitable material.

Recessed lighting

All recessed lights should be supported from the soffit by a minimum of two additional hangers to avoid any additional loading to the tiles or reinforcement profiles. To correctly centre the light on a tile with an SL2 edge type, consideration must be given to the small offset between the face side and reverse side.

Section A-A:

The maximum aperture size cannot be defined precisely. However, we recommend a residual width of minimum 80 mm (Figure 3.45) and a residual length of minimum 200 mm (Figure 3.46).

The larger the aperture, the more susceptible the tile will be to damage and breakage. Careful handling of the tile is therefore essential.

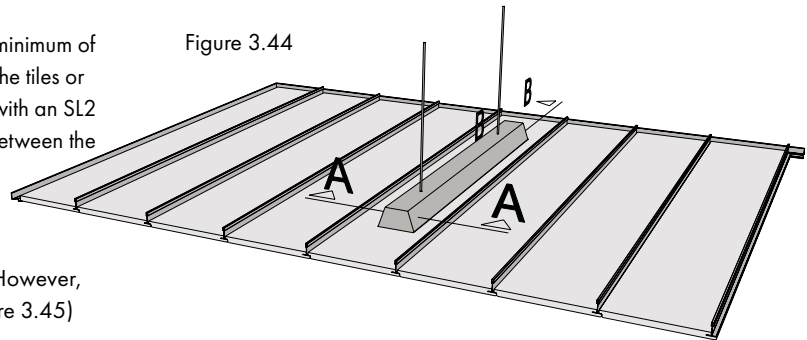


Figure 3.44

Figure 3.45 - section A-A

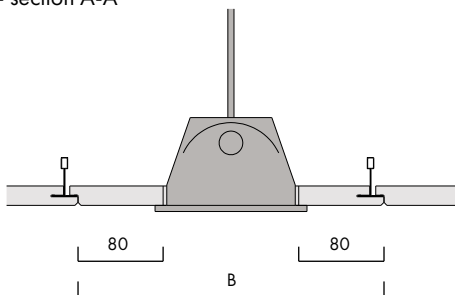
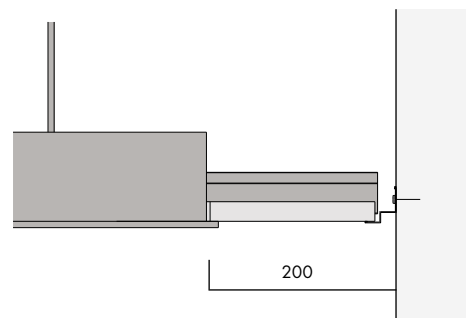


Figure 3.46 - section B-B



Downlights / loud speakers

As with the requirements for lighting, smaller fixtures should also be suspended directly from the soffit. A single additional hanger per item is generally sufficient.

Figure 3.48 - section A-A

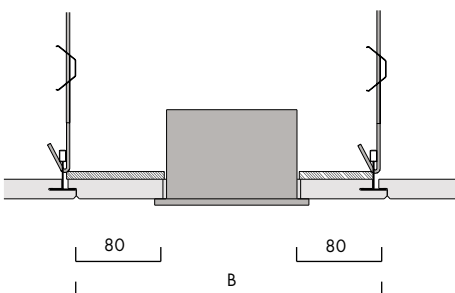
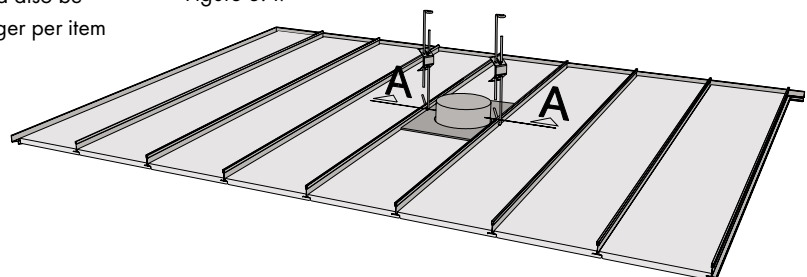


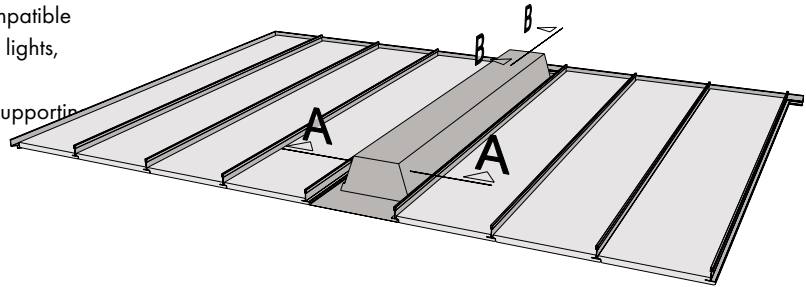
Figure 3.47



Modular lighting

Various manufacturers offer suitable lights in the same format as the ceiling tiles (Figure 3.49). Please ensure that these are compatible with the selected edge configuration. Just as with recessed lights, additional hangers should be used. The only exception to this is self-supporting light systems.

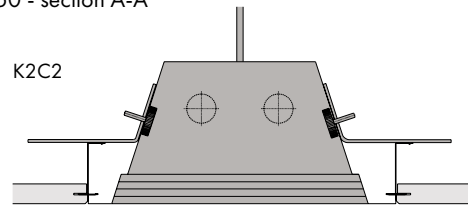
Figure 3.49



K2C2 edge configuration (Figure 3.50)

For fine adjustment or to accurately align the lights, pre-fitted retaining clips can be used. However, always ensure load transfer by attaching additional hangers either directly to the light or the reinforcement profiles.

Figure 3.50 - section A-A

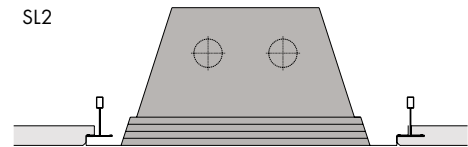


SL2 edge configuration (Figure 3.51)

Self-supporting light elements

An asymmetrically positioned housing is required when using the SL2 edge type. There are, however, lights available for this application that are self-supporting and can therefore be placed from perimeter trim to perimeter trim like a tile without the need for additional hangers or reinforcement profiles.

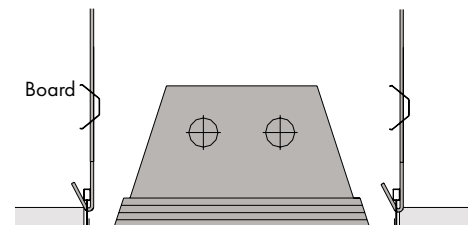
Figure 3.51 - section A-A



Board edge configuration (Figure 3.52)

As a lay-in installation, load transfer must be ensured with additional hangers fixed directly to the light or to the reinforcement profiles.

Figure 3.52 - section A-A



Special configurations

Plasterboard margin

Besides their visual appeal, plasterboard margins also offer practical advantages:

- wall irregularities can be easily compensated for
- projections or recesses can be easily integrated
- cut tiles can be avoided
- corridor widths over 2.50 m can be easily accommodated

Note

Regardless of the perimeter option used, the perimeter trim should always be fixed to the metal substructure.

Margin with L-wall angle

A simple solution for a flush connection is to use L-wall angles (Figure 3.53). The angle must be fixed to the CD-profile.

Margin with shadow trim

As an alternative to the flush connection, the ceiling surface can be accentuated by using a shadow trim (shadow gap) possibly mounted with a height offset (Figure 3.54). A layer of plasterboard should also be inserted vertically.

Margin with adjustable wall bracket and L-wall angle

Where the margin cannot be fixed to the soffit, it is possible to incorporate an adjustable wall bracket (Figure 3.55). The adjustable bracket allows wall irregularities to be easily compensated for. The wall brackets must be installed at maximum 625 mm centres (on stud profiles in the case of light-weight partition walls). The perimeter trim should be screwed to the cover plate of the wall bracket. Due to the larger fixing centres, only perimeter trims with a thickness of more than $d \geq 1.0$ mm should be used.

Margin with adjustable wall bracket and shadow trim

Installation as above, however, an additional vertical plasterboard strip is used (Figure 3.56).

Figure 3.53 - Margin with L-wall angle

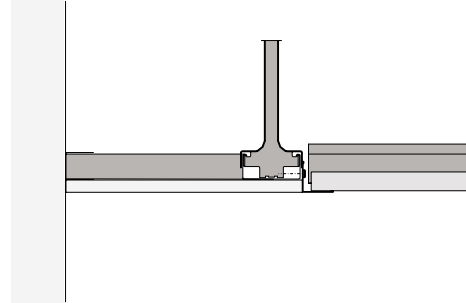


Figure 3.54 - Margin with shadow trim

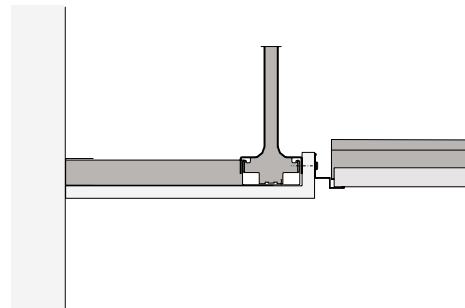


Figure 3.55 - Margin with wall bracket

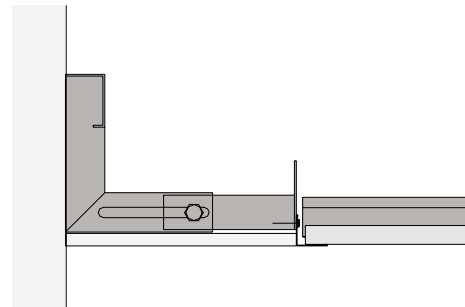
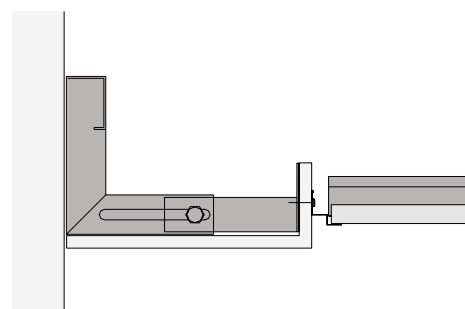


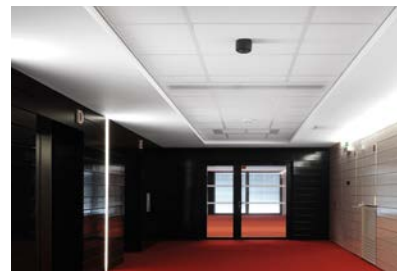
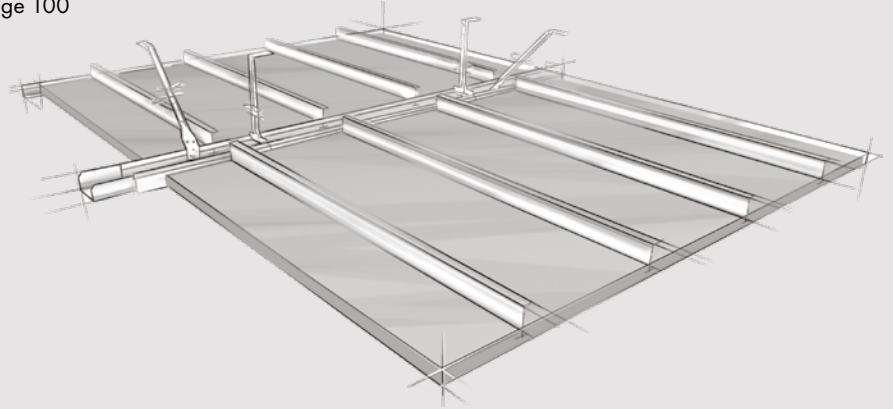
Figure 3.56 - Margin with wall bracket and shadow trim



System I - Parallel Systems

System I 1.1: THERMATEx® K2C2 (non) demountable – Page 99

System I 1.2: THERMATEx® SL2 demountable – Page 100



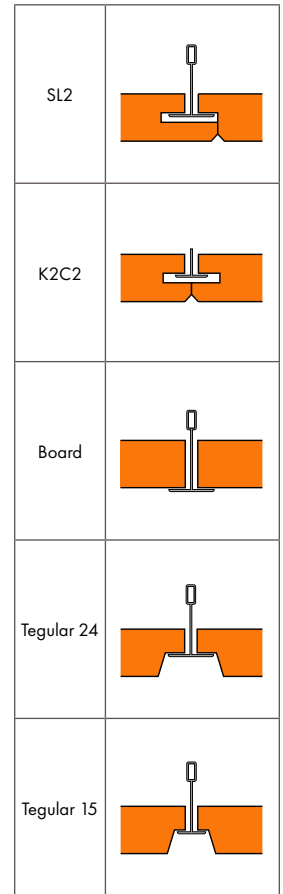
System I is a parallel ceiling construction with exposed main profiles adapted to the architecture and module of the building. Light-weight partitions can be fixed to the Bandraster profiles enabling flexible room division. The cross profiles of the ceiling tiles can either be exposed or concealed profiles. The ceiling tiles can either be demountable or non-accessible and ensure high functionality as well as individual design.

System I 1 - THERMATEX®

Product Range

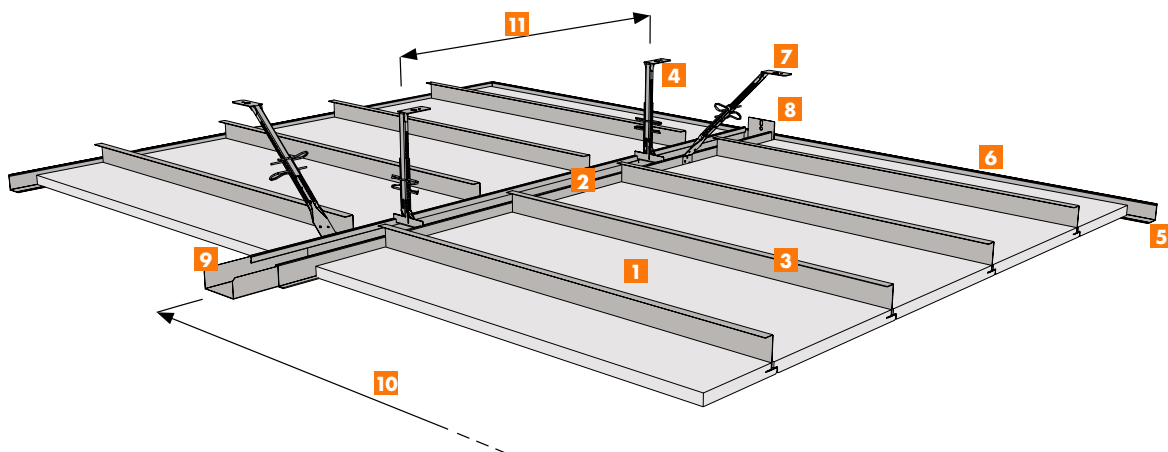
Product	Thick-ness [mm]	Weight [kg/m ²]	Edge configuration	Module [mm]	
Product programme THERMATEX®	THERMATEX® Plain	15	Board* Tegular / Board (15 mm)* SL2 K2C2	300/1200*; 400/1200-1250*; 600/1200*; 312.5/1250*; 625/1250*; 300/1800-2500; 400/1800-2500; 312.5/1800-2500 * special sizes on request	
		19			5.3
	THERMATEX® Fine Stratos	15			4.0
		19			5.3
	THERMATEX® Star	15			4.0
		19			5.3
	THERMATEX® Fine Stratos micro perforated	15	4.0	Board* Tegular / Board (15 mm)* SL2 K2C2	300/1200*; 300/1500*; 400/1200-1250*; 600/1200*; 312.5/1250*; 625/1250*; 300/1800-2500; 312.5/1800-2500; 400/1800-2500 * special sizes on request
		19	5.3		
	THERMATEX® Mercure	15	4.0		
		19	5.3		
	THERMATEX® Fine Fresko	15	4.0	Board* Tegular / Board (15 mm)* SL2 K2C2	300/1200*; 400/1200-1250*; 600/1200*; 312.5/1250*; 625/1250*; 300/1800-2500; 312.5/1800-2500; 400/1800-2500 * special sizes on request
	THERMATEX® Fresko	19	5.3		
THERMATEX® Alpha HD	19	5.2	SL2 K2C2	300/1200-1800	
THERMATEX® Acoustic	19	4.6			
THERMATEX® dB Acoustic (24 mm)	24	8.4			
THERMATEX® Varioline Acoustic / Metal / Wood / Motif	19	4.6	SL2	300/1200-1800	
THERMATEX® Kombimetal	21	9.5	SL2 K2C2	300/1600; 300/1800; 300/2000; 300/2500	

Edge Configurations



System overview

The described systems do not include fire rated applications. The requirements and stipulations of fire rated applications are in accordance with the test certificates.



Material requirements/ key

The quantities and installation times stated are guideline only. They do not allow for waste or project specific scenarios. Please pay particular attention to the maximum span tables for the perimeter trims (Table 2.1) and the main profiles and Bandraster profiles (Table 2.2, 2.3).

Product description	Key	Unit	Tile width mm											
			300				312.5				400			
			Tile length mm											
			1200	1800	2000	2500	1250	1800	2000	2500	1200	1800	2000	2500
Mineral tiles	1	pcs.	2.78	1.85	1.67	1.33	2.67	1.78	1.60	1.28	2.08	1.39	1.25	1.00
Bandraster profile	2	lin. m	0.80	0.56	0.50	0.40	0.83	0.56	0.50	0.40	0.83	0.56	0.50	0.40
T or Z main profile	3	lin. m	3.33	3.33	3.33	3.33	3.20	3.20	3.20	3.20	2.50	2.50	2.50	2.50
U main profile		lin. m	6.67	6.67	6.67	6.67	6.40	6.40	6.40	6.40	5.00	5.00	5.00	5.00
Hanger	4	pcs.	0.67	0.45	0.40	0.32	0.64	0.45	0.40	0.32	0.67	0.45	0.40	0.32
Security pin		pcs.	1.34	0.90	0.80	0.64	1.28	0.90	0.80	0.64	1.34	0.90	0.80	0.64
Perimeter trim	5	lin. m	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Perimeter wedge	6	pcs.	0.25	0.17	0.15	0.12	0.25	0.17	0.15	0.12	0.25	0.17	0.15	0.12
Cross bracing	7	pcs.	0.46	0.31	0.28	0.22	0.44	0.31	0.28	0.22	0.46	0.31	0.28	0.22
Perimeter fixing	8	pcs.	0.24	0.15	0.14	0.12	0.23	0.15	0.14	0.12	0.24	0.15	0.14	0.12
Bandraster connector	9	pcs.	0.24	0.15	0.14	0.12	0.23	0.15	0.14	0.12	0.24	0.15	0.14	0.12
Main profile centres	10	m	1.20	1.80	2.00	2.50	1.25	1.80	2.00	2.50	1.20	1.80	2.00	2.50
Hanger centres	11	m	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Installation time		min	30	25	25	25	30	25	25	22	30	25	25	22

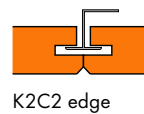
Note

For easy and simple installation of tiles and profiles, a minimum suspension height of 165 mm is required.

System I 1.1 - THERMATEx® K2C2 (non) demountable

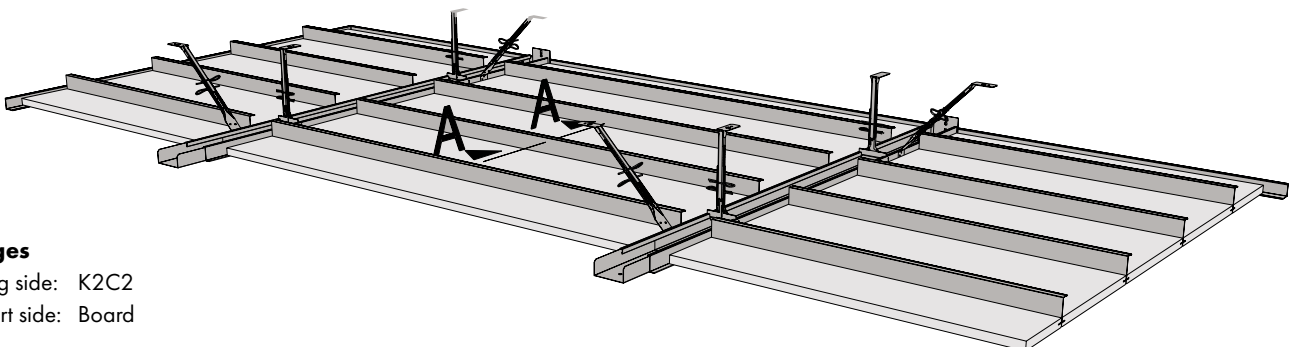
It is strongly recommended where maintenance access is required that a demountable system is used. System I 1.1 uses a concealed (K2C2) edge detail, on the long side (Figure 1.1). Depending on the reinforcement profiles used, the tiles can either be demountable or non-demountable. It should be noted that for maintenance, a demountable system is required.

Figure 1.1



K2C2 edge

Figure 1.2 - System overview



Edges

Long side: K2C2
Short side: Board

Where Z or T sections are used as reinforcement profiles, the tiles are not accessible as they are connected to the adjacent tiles (Figure 1.3). To produce a demountable construction using K2C2 edges, U profiles can be used (two profiles per tile; Figure 1.4). Because the tiles in this format are not directly connected, there is a risk of the "saw tooth effect" caused by uneven tile edges.

Alternatively, System I 1.2 is possible.

Details

Unlike the other systems (C,F,A), the Bandraster system requires specific perimeter trims, profiles and hangers. A detailed explanation can be found in the following chapters.

Figure 1.3 - section A-A, non-demountable

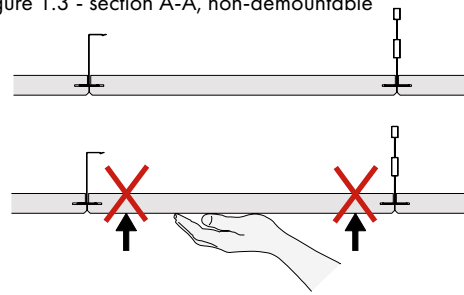
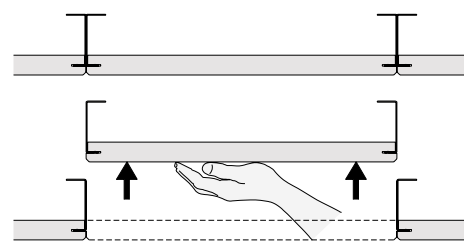


Figure 1.4 - section A-A, demountable (alternative)



System I 1.2 - THERMATEX® SL2 demountable

System I 1.2 uses a shiplap (SL2) demountable edge detail on the long side (Figure 2.1). Compared to system I 1.1, the flexibility of system I 1.2 offers many advantages.

Figure 2.1

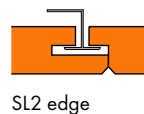
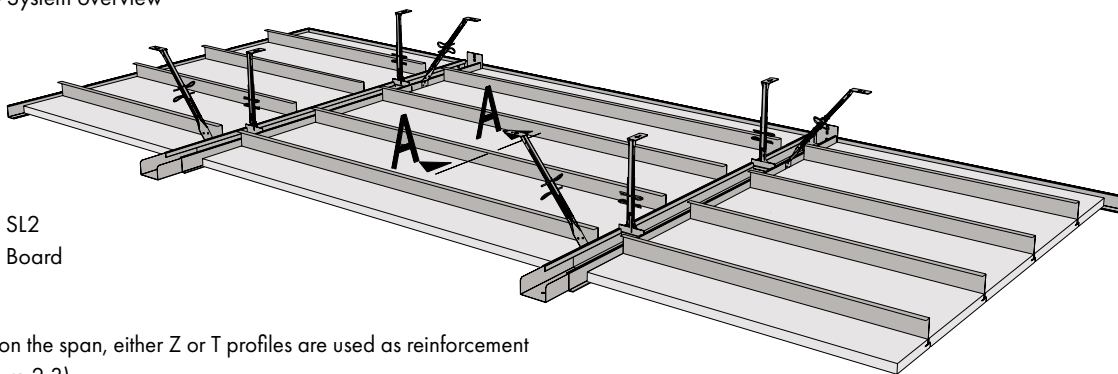


Figure 2.2 - System overview



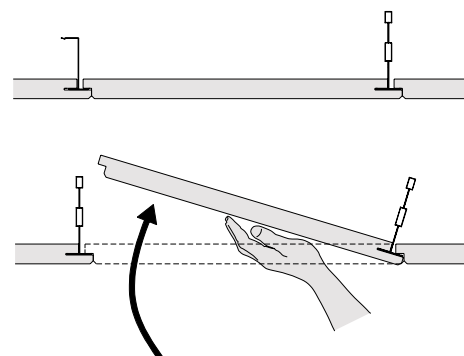
Edges

Long side: SL2
Short side: Board

Depending on the span, either Z or T profiles are used as reinforcement profiles (Figure 2.3).

Due to the special edge configuration, the reinforcement profile is fully integrated on one side and therefore the tile can be gently lifted and tilted for removal.

Figure 2.3 - section A-A, demountable



Details

Unlike the other systems (C,F,A), the Bandraster system requires specific perimeter trims, profiles and hangers. A detailed explanation can be found in the following chapters.

Note

When using Z profiles, ensure that the profiles are installed as in Figure 2.5. If the profile is reversed, it could cause an obstruction when removing the tiles.

Tiles

Edges

As shown in Figure 2.4, the edge details on the long and short sides of tiles are different.

The standard configuration for the short edge is a square edge (Board). Only in special cases will this edge be produced in a recessed (Tegular) edge. The details of the long edges are shown in Figure 2.5 with the resulting widths (face and reverse side), based on an example module width of 300 mm.

Tiles	Thickness	Weight
THERMATEX® (standard)	15 mm	4.0 kg/m ²
	19 mm	5.3 kg/m ²
THERMATEX® Alpha HD	19 mm	4.7 kg/m ²
THERMATEX® Acoustic	19 mm	4.6 kg/m ²
THERMATEX® dB Acoustic	24 mm	8.4 kg/m ²
THERMATEX® Kombimetal	21 mm	9.5 kg/m ²

Please consult the price list for the full range of available formats, some of which may be subject to minimum order quantities.

Figure 2.4

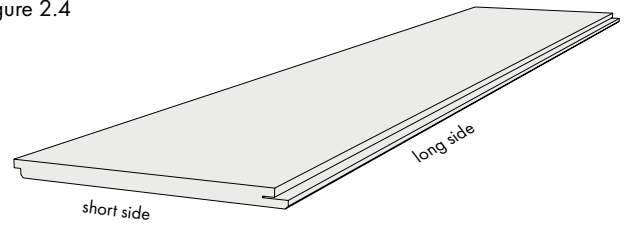
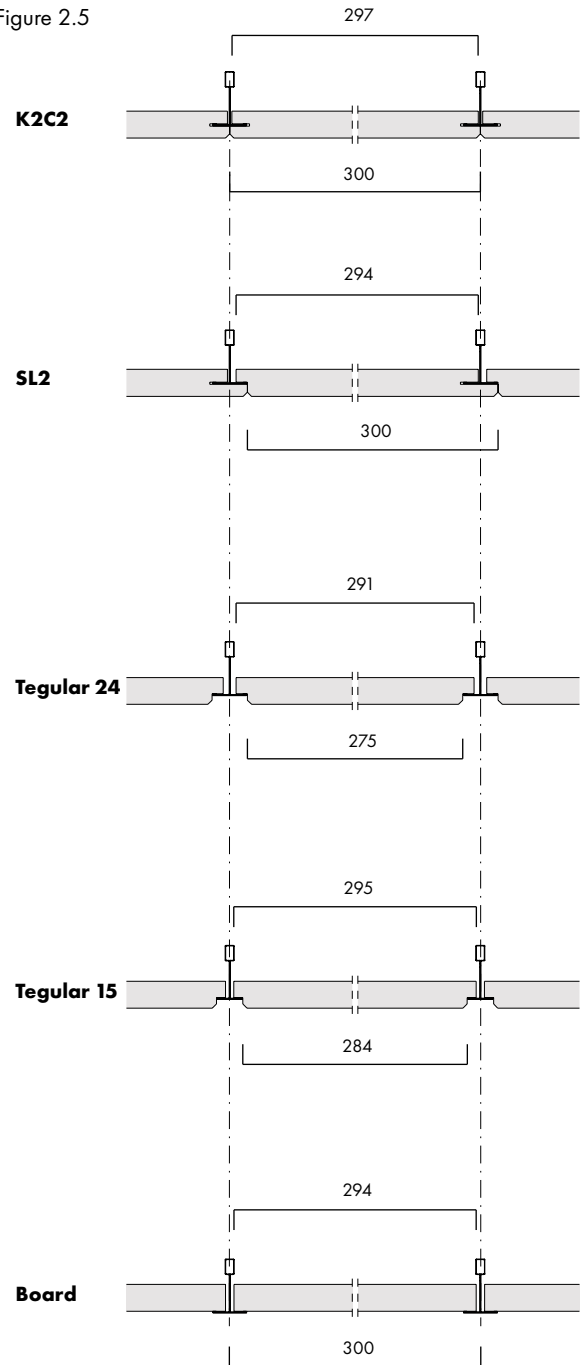


Figure 2.5



Dimensions in [mm]

General

Packaging

To take out the tiles, open the packaging on all sides and then remove completely (Figure 2.6).

Handling

Care must be taken when handling full cartons as well as individual tiles. They must not be thrown, dragged or knocked. The cartons and tiles must not be placed or stored on their edges or corners.

Due to the length of each tile, it is essential to handle and install the tiles using both hands. If the tiles are supported using only one hand (in the middle), there is a significant risk of breakage (Figure 2.7 and 2.8).

The individual tiles should always be handled with clean gloves (white material).

Cut tiles

All Knauf Ceiling Solutions mineral tiles can be cut without difficulty using a standard Stanley knife (Figure 2.9). When doing so, always place the tile on a clean, even surface and use a suitable guide (metal bar). For large quantities or exact cut edges it is advantageous to use a circular saw. Generally, special rebates can only be milled (with the exception of the rebated edge for Tegular edges at perimeters).

Cutting to fit at perimeters

Dependent on the direction of installation, different tolerances are required. Especially when cutting the first tile and all tiles in the first row, an exact cut is required. For the installation of a room (Figure 2.10), the following tolerances are permitted / required:

- Start: no gap, fits exactly
- Left: max. 4 mm (support on Bandraster = 10 mm)
- Right: max. 4 mm (support on Bandraster = 10 mm)
- End: no gap variant 1 (see chapter, Last tile)
- 10 mm variant 2 (see chapter, Last tile)

Figure 2.6

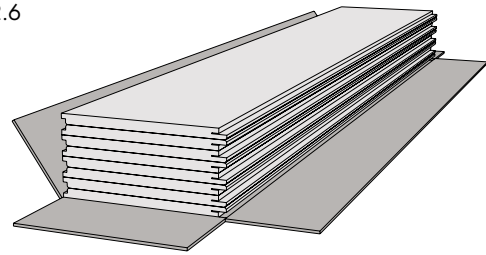


Figure 2.7

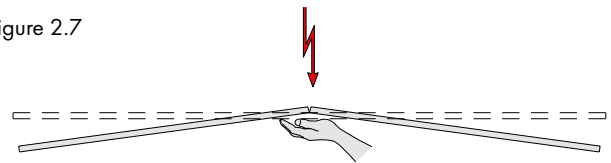


Figure 2.8



Figure 2.9

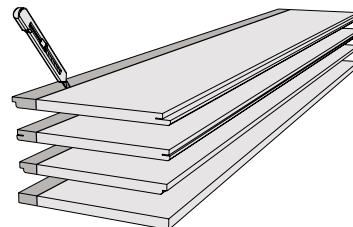
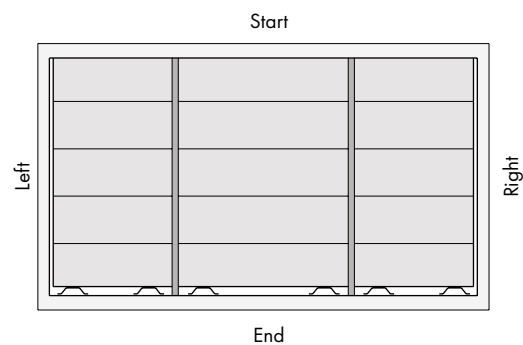


Figure 2.10



Cut tiles

The following steps are an example for cutting the first row.

Step 1 (Figure 2.11):

The dimensions between the main profile and perimeter trim/wall should be measured before the installation. To avoid further work, this should always be done at the start (B1) and end (B2) of every element (to account for angled walls, unevenness etc...).

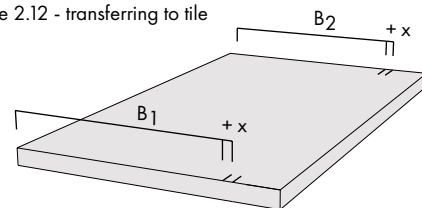
Figure 2.11 - dimensions



Step 2 (Figure 2.12):

The dimensions are transferred to the tile. This can be done on the face side of the tile, but always ensure that you use clean tools. Depending on the edge detail, a correction factor X is necessary to ensure the tile fits exactly. This is especially important for the first tile (see also chapter, Installation)

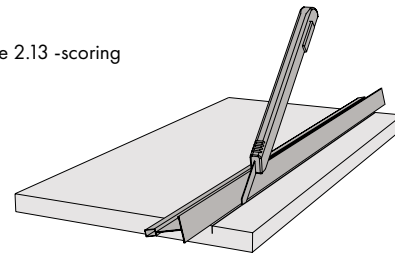
Figure 2.12 - transferring to tile



Step 3 (Figure 2.13):

For an exact cut use a clean metal guide. The cut should only be scored a few millimeters deep and serves to mark the exact position of the cut. The metal guide is then no longer required.

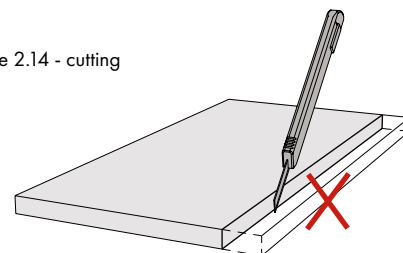
Figure 2.13 - scoring



Step 4 (Figure 2.14):

The tile is cut along the scored line to the required size and the off-cut disposed of.

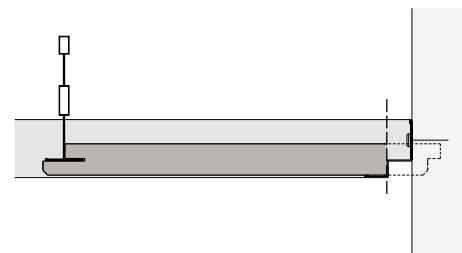
Figure 2.14 - cutting



SL2 edge configuration

Unlike the Board, Tegular and K2C2 edge configurations, SL2 tiles have two different edge details on the long sides. Take care to ensure that when cutting the first tile, the long edge with the shiplap edge is removed (Figure 2.15). Similarly when cutting the last tile ensure the grooved edge is disposed of.

Figure 2.15 - cutting the SL2 edge



Cutting to length

Along the walls (left and right sides, Figure 2.10), where the short edges/cut edges rest on the perimeter trim, a maximum gap of 4 mm has to be maintained.

$L = \text{dimension} - 4 \text{ mm}$

The dimension L refers to the distance between the vertical upstand of the Bandraster and the vertical leg of the perimeter trim. For this system, a minimum support area of 2/3 of the perimeter trim as for other systems (C & F) is not sufficient, for example, using a RWL 30x30 with a 20 mm support and 10 mm play.

As the actual supporting area of a Bandraster profile (50 - 150 mm) is only 10 mm, in the eventuality of a tile moving (accidentally, due to maintenance or building movement etc.) secure support could no longer be ensured.

Note

The cut tile length needs to be approx. 4 mm smaller as the dimension between Bandraster and perimeter trim (Figure 2.16).

This also applies when using shadow trim (Figure 2.17).

Figure 2.16 - cutting

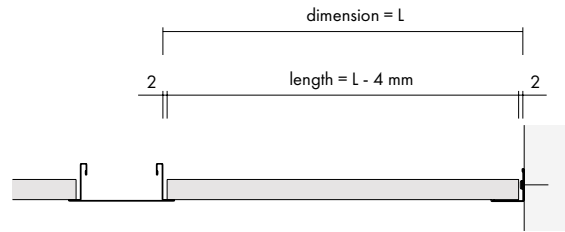
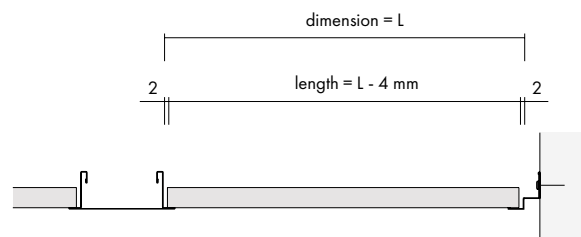


Figure 2.17 - cutting



Apertures

The maximum aperture size can not be exactly defined. We recommend, depending on the type of tile, to keep a residual width of minimum 80 mm (Figure 2.19) and a residual length of minimum 200 mm (Figure 2.20).

The larger the aperture and the larger the tile, the more susceptible the tile will be to damage and breakage. Careful handling of the tiles is therefore essential.

It is recommended to reinforce large apertures. This can be done using a plaster board, gypsum fibre or wood composite board pattress (Figure 2.21). This should be fully bonded to the mineral tile. This also ensures stability for later maintenance work.

For the installation of spotlights etc. with round apertures, a standard circular cutter/drill (Figure 2.22) can be used. The maximum size and number of apertures per tile can vary, depending on the type of tile and the additional measures (reverse side reinforcement) used.

Figure 2.18 aperture

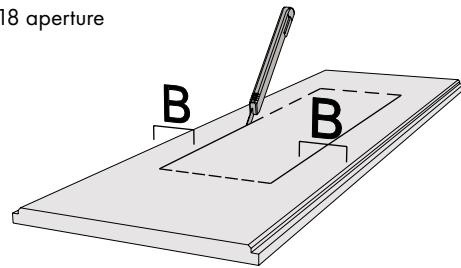


Figure 2.19

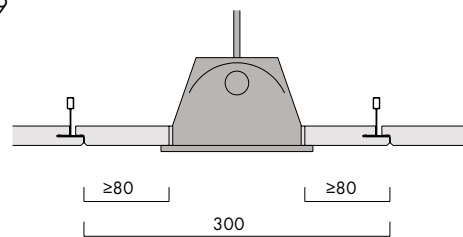


Figure 2.20

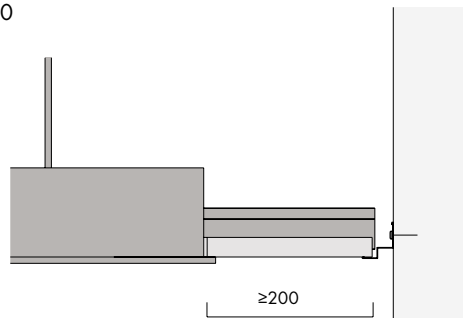


Figure 2.21 - reinforcement

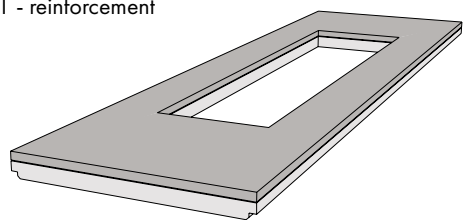
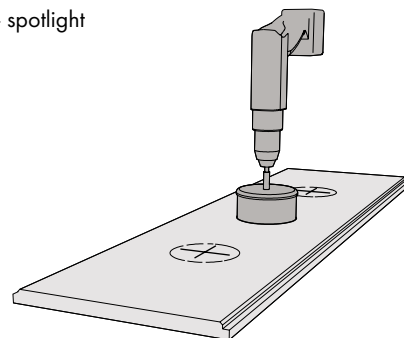


Figure 2.22 - spotlight



Corner finish with L-shaped wall angle

Mitring the corners (Figure 2.32) is the smartest, but also the most time consuming and technically demanding corner finish. This is even harder to implement in rooms that aren't square.

In most cases, the best results are achieved by a simple butt cut, with the ends pushed together (Figure 2.33). In the case of an external corner, it is necessary to notch the vertical leg of the trim otherwise it overlaps where the tile should lie. Corners of varying angle can be easily adapted with this method. Tin snips are suitable for cutting the profiles.

When forming corners with L-shaped wall angles it is not recommended to use preformed mouldings / accessories for internal and external corners as the result is not aesthetically pleasing.

Corner finish with SRW shadow trim

Mitring the corners (Figure 2.34) is the smartest, but also the most time consuming and technically demanding corner finish. This is even harder to implement in rooms that aren't square. It also requires the use of a suitable mitre saw.

Unlike the L-shaped wall angle, the corners for shadow trims cannot be butt-cut. This would lead to unwanted openings at the perimeter (Figure 2.35 and 2.36).

For this reason, for corner finishes of SRW profiles, we recommend the use of preformed mouldings/accessories for both internal and external corners (Figure 2.37).

Figure 2.32 - RWL - mitred

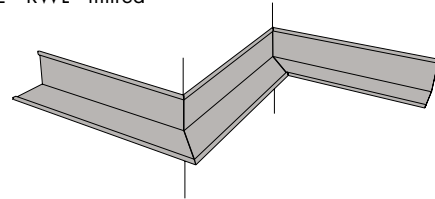


Figure 2.33 - RWL - butt cut

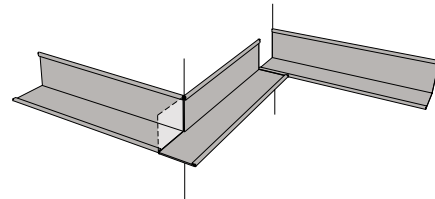


Figure 2.34 - SRW - mitred

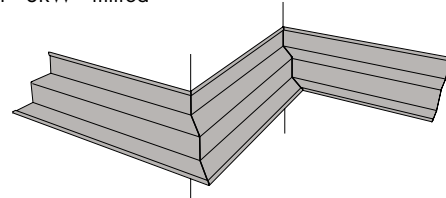


Figure 2.35 - SRW - butt cut

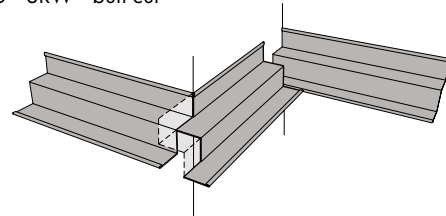


Figure 2.36 - SRW - butt cut

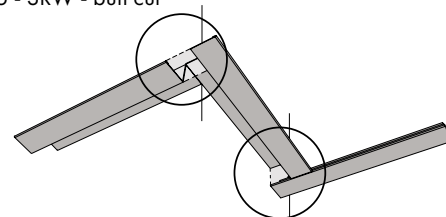
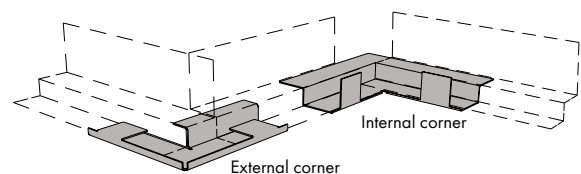


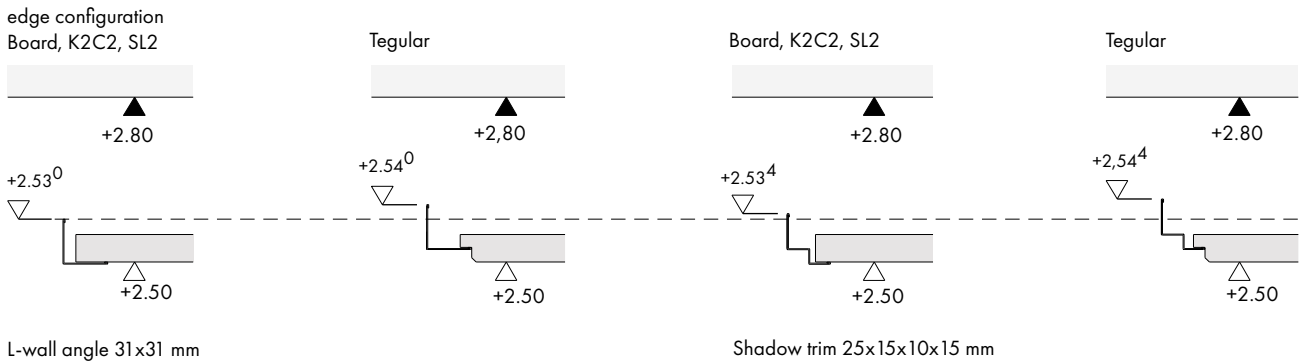
Figure 2.37 - preformed mouldings



Perimeter trim installation height

Due to different combination possibilities of the perimeter trim, for example, L-shaped wall angle or shadow trim, and edge configurations of the tiles (Figure 2.38), there are different installation heights of the perimeter trim for the same under edge ceiling height (e.g. 2.50 m).

Figure 2.38



Tools

Tin snips (Figure 2.39)

Primarily for butt cuts (L- and SRW-profiles as well as all types of main and cross profiles) but only suitable for mitre cuts to a limited extent (L-profile). Generally, use is limited to profiles with a material thickness of max d=0.5-0.7 mm.

Angle grinder (Figure 2.40)

This is only suitable to a limited extent due to the heat development and the resultant discoloration of the metal. When using angle grinders, particularly for large material thicknesses of ≥ 1.0 mm, the heat development can be reduced by using suitable thin separation sheets, approx. 1.0 mm thick. Even then, proceed with care.

Mitre saw (for metal, Figure 2.41)

The use of a metal-mitre saw delivers by far the best results for butt and mitre cuts. Proceeding with care (low cutting speed) is also essential. Avoid damaging the surface with metal cuttings. When cutting shadow trims it is advantageous to use a suitable wooden batten underlay.

Figure 2.39

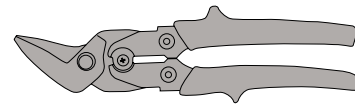


Figure 2.40

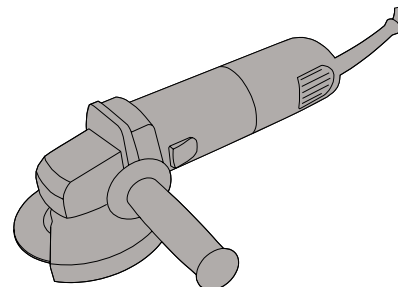
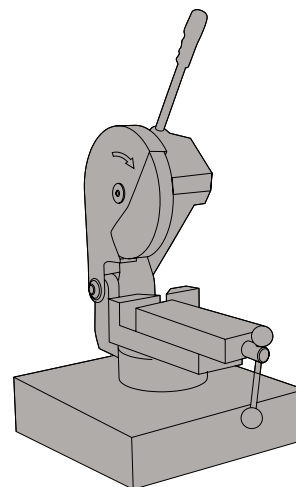


Figure 2.41



Main profiles

Bandraster profile

A Bandraster profile is used as the main profile for systems I1 and I2. The profiles are available in different widths. Together with different tile lengths, a wide choice of module sizes can be achieved even though the construction itself does not change.

Profile length: 3600 mm

Figure 2.42 - Perspective

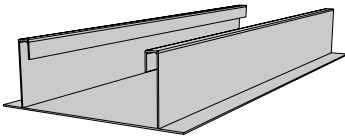


Figure 2.43 - BR 50-3600

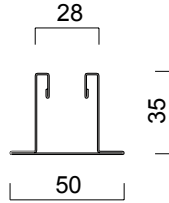


Figure 2.44 - BR 75-3600

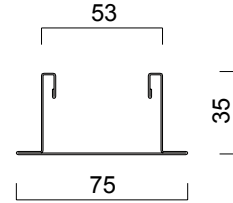


Figure 2.45 - BR 100-3600

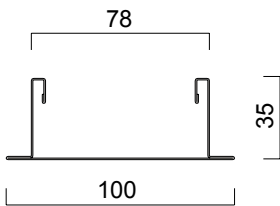


Figure 2.46 - BR 125-3600

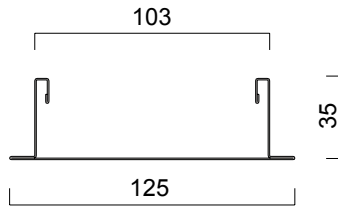
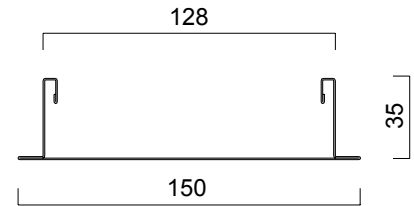


Figure 2.47 - BR 150-3600

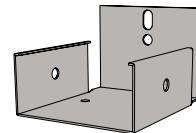


Perimeter fixing of Bandraster

There are specific wall connectors for the different Bandraster widths to connect the Bandraster profile to the perimeter trim:

PRB 50 for Bandraster	BR 50 - 3600
PRB 75	BR 75 - 3600
PRB 100	BR 100 - 3600
PRB 125	BR 125 - 3600
PRB 150	BR 150 - 3600

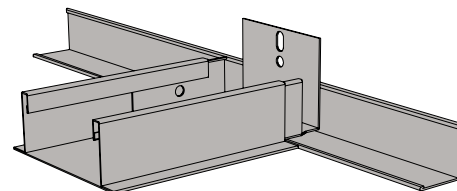
Figure 2.48 - PRB 50-150



The wall connector is just pushed on, screw fixing into the Bandraster is not normally required.

Figure 2.49 - PRB 50-150

The Bandraster profile or the Bandraster support on the perimeter trim needs to have additional support. The profile cannot simply rest on the perimeter trim. There is a choice of two methods of support described on the next pages.



Perimeter fixing

Supporting the Bandraster purely on the perimeter trim will lead to a visual deformation of the trim at the positions shown (Figure 2.50 and 2.51). The first hanger must be installed at a maximum of 250 mm from the wall (Figure 2.52).

Note: A more time consuming installation that produces a better finish is to install the Bandraster at the same level as the perimeter trim.

Same level connection

For both of the following variants, a small expansion joint between the end of the Bandraster and the perimeter trim of $b = 0.5 - 1.0 \text{ mm}$ is required.

Variant 1: wall connector + hanger

To connect the perimeter trim to the Bandraster profile at the same height, a connector is used to aid height adjustment, but not fixed to the wall. To ensure that no load is transferred to the perimeter trim, the first hanger must be installed at a maximum of 250 mm from the wall (Figure 2.52)

This method removes any potential issues caused by fixing the wall connector to the wall.

Variant 2: fixed wall connector

The wall connector is fixed to the wall or supporting structure, with suitable fixings. The connector must be fixed as accurately as possible, because any displacement will be visible on the finished ceiling.

Angled connections

Due to the architecture or inaccuracies in the building, angled connections are often necessary. Firstly, provisionally install the Bandraster and mark the cut position (angled cut, Figure 2.53), before finally cutting and fixing (Variant 1).

It is recommended to cut the Bandraster with a metal mitre saw. The use of an angle grinder is not recommended (see chapter, Tools). An expansion joint is required between the end of the Bandraster and the perimeter trim of $b = 0.5 - 1.0 \text{ mm}$.

Bandraster connectors

For the different Bandraster widths, appropriate connectors are available (Figure 2.54):

PHV 50 / 75 / 100 / 125 / 150

The connectors are simply pushed into the Bandraster to a central position (Figure 2.55).

Figure 2.50 - wall connection

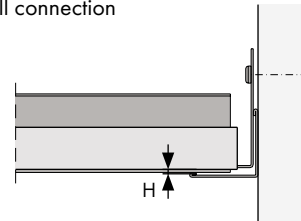


Figure 2.51 - wall connection

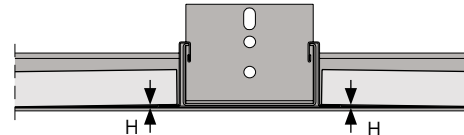


Figure 2.52 - variant 1

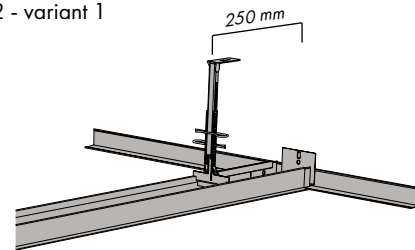


Figure 2.53 - angled cut

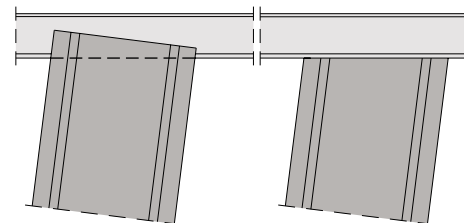


Figure 2.54 - PHV connector

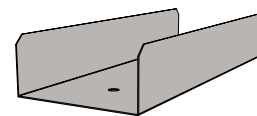
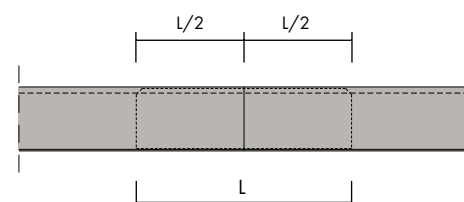


Figure 2.55 - PHV installation



Reinforcement profiles

Profile cross section

Not all reinforcement profiles are suitable for all edge configurations. For example, U profiles can only be used for system I 1.1 (K2C2 edge configuration) and Z profiles can not be used for system I 1.3 with Board and Tegular edge configurations, as their unfinished surface would be visible.

Figure 2.56 - P U12/38/12 - 2000
K2C2 edge

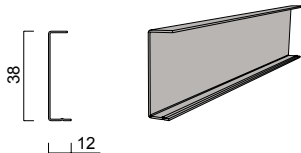


Figure 2.57 - P U12/38/12 - 2500
K2C2 edge

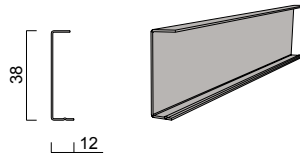


Figure 2.59 - T24/38 - 1800
K2C2, SL2, Board,
Tegular edges

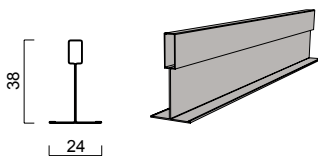


Figure 2.60 - DXE 24ZG - 2500
K2C2, SL2, Board,
Tegular edges

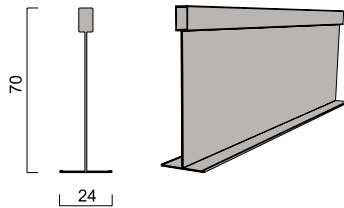
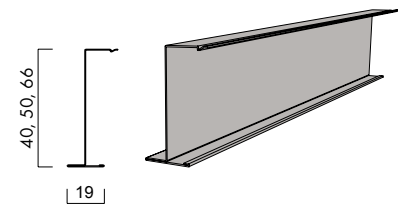


Figure 2.61 - P Z19/40, 50, 66 - 2500
K2C2, SL2 edges



T24/38 profiles

T24/38 main runner profiles are often used. As a general rule, main profiles from system C with corresponding punching for hangers etc. are used. The fire expansion notch (Figure 2.62) represents a considerable weak point in the profile and therefore shouldn't be used. The installation of the reinforcement profile with hangers (Figure 2.63) is a possible option. Usually a T24/38 profile with central suspension (element length < 2.50 m, width < 400 mm) is sufficient.

However, several points need to be considered:

- Due to fixing the profiles, demounting is considerably harder
- The risk of damage to the tile by the hanger increases, especially with hook/eye wire hangers
- For installation of the hangers, open access to the soffit is required
- The additional work increases the installation time

Due to the above reasons, it is recommended to install a free span system **without** hangers.

Figure 2.62 - T24/38 main runners

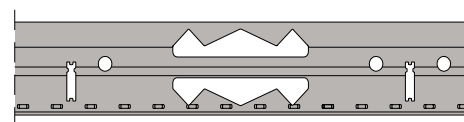
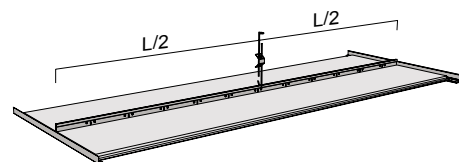


Figure 2.63 - central hanger



Span table

According to the system and reinforcement profile used, there is a maximum permissible span dependent on tile thickness and width.

Table 2.2











Tile width [mm]				300 and 312.5 mm					
Weight [kg/m ²]				4.0	5.0	6.0	7.5	8.5	9.5
Profile		Height [mm]	Weight [kg/lin. m.]	max. span [mm]					
DONN® 24/70		70	0.75	2500	2500	2460	2360	2310	2260
T24/38		38	0.35	1530	1460	1400	1340	1300	1270
P Z19/66		70	0.55	2470	2440	2360	2260	2200	2150
P Z19/30		40	0.40	1870	1790	1720	1650	1600	1560
P U12/38		38	0.45	2200	2110	2040	1940	1890	1850

Table 2.3

Tile width [mm]				400 mm					
Weight [kg/m ²]				4.0	5.0	6.0	7.5	8.5	9.5
Profile		Height [mm]	Weight [kg/lin. m.]	max. span [mm]					
DONN® 24/70		70	0.75	2500	2440	2360	2260	2200	2150
T24/38		38	0.35	1450	1380	1330	1260	1230	1200
P Z19/66		70	0.55	2430	2320	2240	2140	2080	2020
P Z19/30		40	0.40	1780	1700	1640	1560	1520	1480
P U12/38		38	0.45	2100	2000	1930	1840	1790	1750

Note

The reinforcement profiles must be installed over the full length of the elements/tiles, shorter profiles can not be butted together. Please note that not all possible combinations of edge configuration, tile length and thickness are available as stock items. The full range of available formats can be found in the price list. The load tables allow for a maximum 1.0mm deflection of the profile. The standard EN 13964 class A1 ($l/500 \leq 4$ mm) allows for a deflection of 4mm, we recommend a much lower deflection allowance for aesthetic reasons.

Should you require an optimised solution, please contact our technical department.

Hangers

Nonius hangers consist of an upper part, lower part and security pins (Figure 2.64) and are the recommended hanger for this system. Each hanger point can be loaded with up to 40 kg (2 security pins).

Hanger heights (Figure 2.65)

Different length upper parts are available for different hanger heights. Table 2.2 shows the available lengths in combination with the lower part. As standard, the upper parts are delivered straight, without the 90° fold (unlike Figure 2.64).

Table 2.4 - Nonius upper parts

Nonius hanger-upper part	Hanger height* [mm]	
	from	to
Ano 85	165**	195
Ano 135	165	245
Ano 235	235	345
Ano 340	340	445

* Measured from structural soffit to the Bandraster face; including the construction height of the Bandraster profile (the same for PBR50 - PBR150) incl. a Nonius lower part of h=150 mm (Figure 2.64).

** The shortest possible hanger height with standard accessories

Minimum length of the upper part: $LO = A_H - 110 \text{ mm}$

Further upper parts for up to 3.00 m hanger height, in 10 cm intervals are available on request. For even greater hanger heights, extension pieces are available.

Security pins

Generally, Nonius lower parts and upper parts are connected with two security pins. If nails with a diameter of $\varnothing \geq 2.5 \text{ mm}$ are used instead, they have to be secured against sliding out (by bending over).

Nonius hanger lower part

Different Nonius lower parts are available for the various Bandraster widths of 50 to 150 mm, all of which have approximately the same construction height (approx. 135 mm).

Adjustments

The different hole centres of the upper and lower parts (Figure 2.66) enable fine adjustments to be made in millimetre increments. Starting from an overlapping hole pair, moving the security pin to the next hole results in a $\pm 1 \text{ mm}$ change of the construction height (Figure 2.67).

The minimum overlap of upper and lower parts is 40 mm.

Figure 2.64 - Nonius hanger

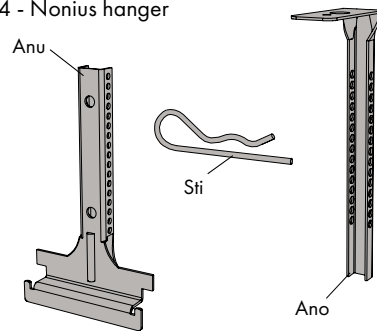


Figure 2.65 - hanger height

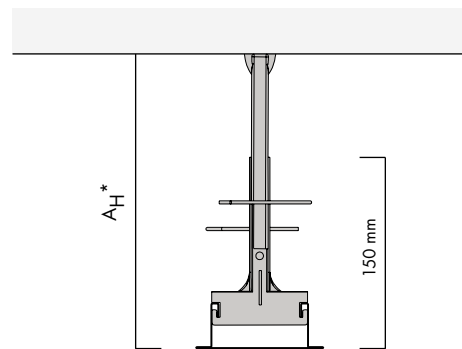


Figure 2.66 - hole spacing

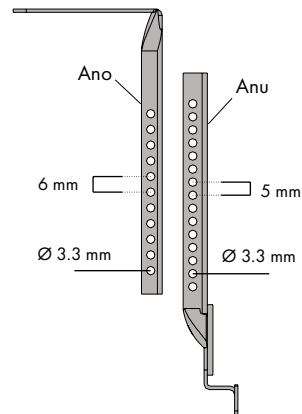
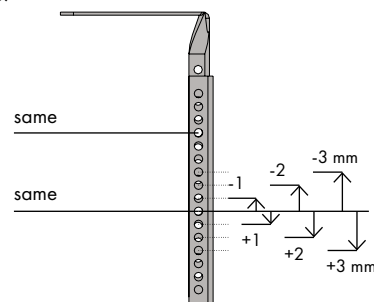


Figure 2.67

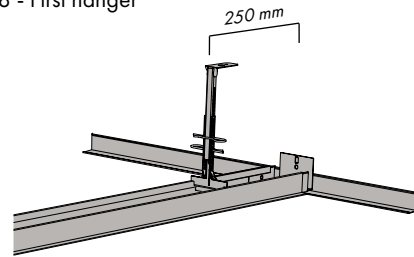


Hanger centres

First hanger (Figure 2.68):

For wall connections without a direct fixing (variant 1), the first and last hanger must be maximum 250 mm from the end of the profile. If a direct wall fixing is used, the distance can be increased to maximum 800 mm.

Figure 2.68 - First hanger



Following centres (Figure 2.69):

The following hanger centres, X for every Bandraster profile, can be increased to 1250 mm for all standard tiles, regardless of the tile size.

Figure 2.69 - Hanger centres

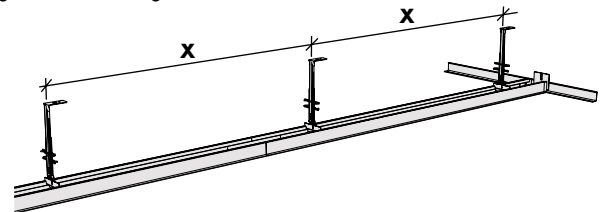


Table 2.5 - Hanger centres

Tile weight [kg/m ²]	Up to 7.5											
Tile width [mm]	300				312.5				400			
Tile length [mm]	1200	1800	2000	2500	1200	1800	2000	2500	1200	1800	2000	2500
Hanger centres x [m]	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25

Tile weight [kg/m ²]	Up to 9.5											
Tile width [mm]	300				312.5				400			
Tile length [mm]	1200	1800	2000	2500	1200	1800	2000	2500	1200	1800	2000	2500
Hanger centres x [m]	1.25	1.00	1.00	1.00	1.25	1.00	1.00	1.00	1.25	1.00	1.00	1.00

Note

For an optimised profile layout (main and reinforcement profiles) to meet the requirements of EN 13964, please contact our technical department.

Cross-bracing

To accommodate horizontal forces during installation and maintenance, cross braces need to be **permanently** installed.

Nonius lower parts as angled braces (Figure 2.70)

Nonius lower parts Anu S (45°) are used in connection with Nonius upper parts as cross-bracing. These are screwed to the Bandrastrer from the outside with two 3.9 x 9 mm self-tapping screws appropriate for 0.6 mm material. The Nonius upper part is then fixed with suitable fixings. For a rigid construction, two security pins can be used. Upper and lower parts must overlap by a minimum of 40 mm.

Angle of the cross-brace (Figure 2.71)

The cross braces are to be installed at an angle of 45°-60°.

Installation angle 45° (Figure 2.72)

The required length of the cross brace is dependent on the hanger height and is calculated as follows:

1. angled length $LD = (\text{hanger height} - 32 \text{ mm}) \times 1.414$
2. min. upper part length $LO = LD - 120 \text{ mm}$

Example: hanger height 300 mm

1. angled length $LD = (300 - 32) \times 1.414 \sim 380 \text{ mm}$
2. min. upper part length $LO = 380 - 120 = 260 \text{ mm}$

Example: hanger height 640 mm

1. angled length $LD = (640 - 32) \times 1.414 \sim 860 \text{ mm}$
2. min. upper part length $LO = 860 - 120 = 740 \text{ mm}$

Installation angle 60° (Figure 2.73)

As above, but with the factor 1.155 instead of 1.414.

1. angled length $LD = (\text{hanger height} - 32 \text{ mm}) \times 1.155$
2. min. upper part length $LO = LD - 120 \text{ mm}$

Example: hanger height 640 mm

1. angled length $LD = (640 - 32) \times 1.155 \sim 705 \text{ mm}$
2. min. upper part length $LO = 705 - 120 = 585 \text{ mm}$

Cross brace centres (Figure 2.74)

The cross braces should be installed at the following maximum centres:

X = cross brace centre $\leq 2.00 \text{ m}$

For large hanger heights it is recommended to reduce the centres.

Figure 2.70 - cross-brace

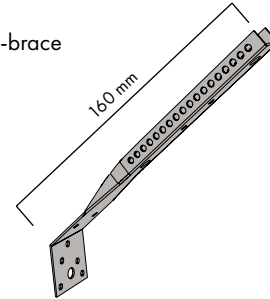


Figure 2.71 - angle

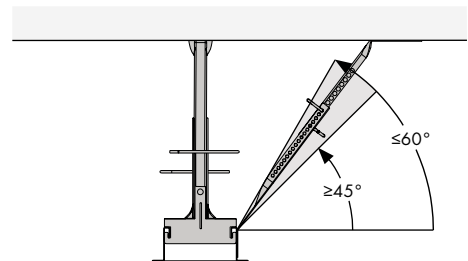


Figure 2.72 - angle 45°

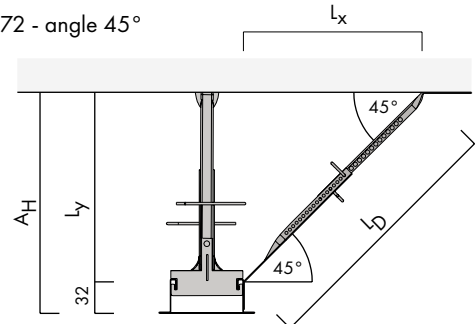


Figure 2.73 - angle 60°

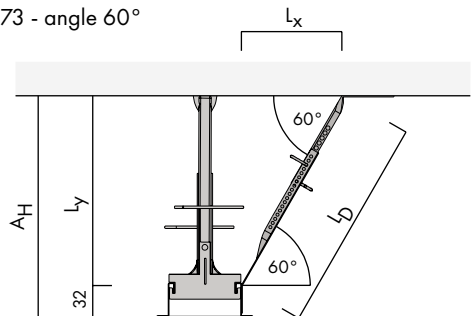
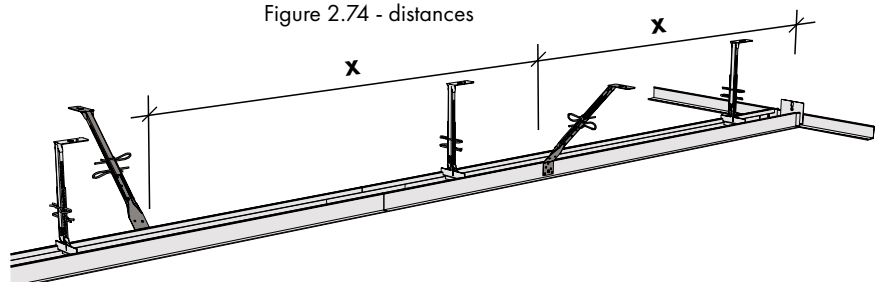


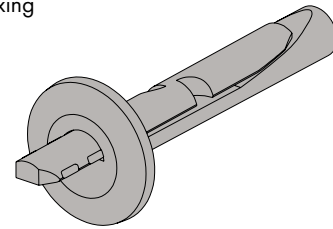
Figure 2.74 - distances



Fixings

The fixing of the perimeter trim to adjacent walls as well as the installation of the hangers and cross bracing should be carried out with approved fixings e.g. ceiling anchors (Figure 2.75). As this is dependent on what material is being fixed to, the choice of fixing should always be carried out in consultation with the fixing manufacturer and approvals (ETA: European Technical Approval).

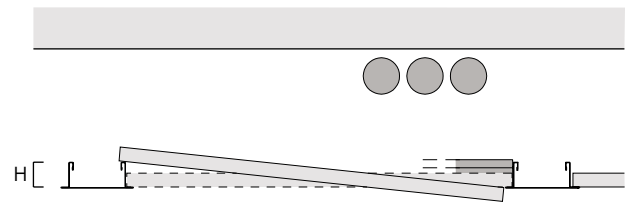
Figure 2.75 - fixing



Installation height

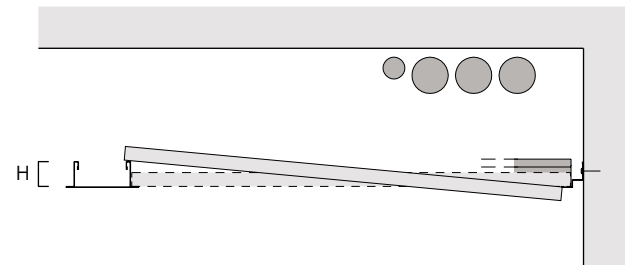
The minimum installation height is calculated according to the tile length and the required space for the installation of the various components. System I has the advantage that it is possible to install components such as the reinforcement profiles through lifting and sliding them over the Bandraster (Figure 2.76). Perimeter tiles (Figure 2.77) can always be pushed over the Bandraster on one side. Consequently, easy installation is still possible with a minimum hanger height of 165 mm. Ensure that a gap of approx. 100 mm is left between services in the ceiling void and the reinforcement profiles.

Figure 2.76 - Bandraster - Bandraster



When removing tiles, care should be taken to avoid the hangers and reinforcement profiles as inadvertent contact with these could damage the tiles.

Figure 2.77 - Bandraster - perimeter trim



Room layout / ceiling symmetry

Module

As each element has a 10 mm overlay on the Bandraster, the module size is calculated as follows (Figure 2.78):

$$B^* = \text{Bandraster width} - 20 \text{ mm}$$

$$\text{Module } R = \text{element length} + B^*$$

Example:

Bandraster width: 100 mm

Element length: 1800 mm

$$\text{Module: } R = 1800 + (100 - 20) \text{ mm}$$

$$R = 1880 \text{ mm}$$

Layout

Starting from the middle of the room, the room is lay out $(L/2)$ in modules = R .

In the example shown (Figure 2.79) the cut tile at the perimeter is larger than half an element length and is therefore a correct layout.

Note

If the cut tile is less than half the tile width $(\leq R/2)$, see Figure 2.80, it could appear aesthetically poor and is therefore not a recommended layout.

Correction

It is aesthetically more pleasing and more efficient to install a ceiling with larger cut tiles. If, as in Figure 2.80, the cut tiles are very small, the ceiling layout should be moved over by half a module width. This will result in a cut tile width greater than half the module width and therefore a correct layout (Figure 2.79).

Figure 2.78 - module

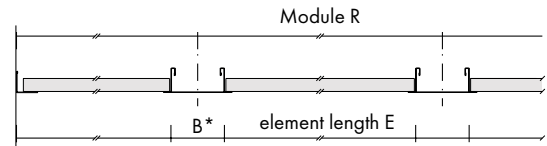


Figure 2.79 - correct layout

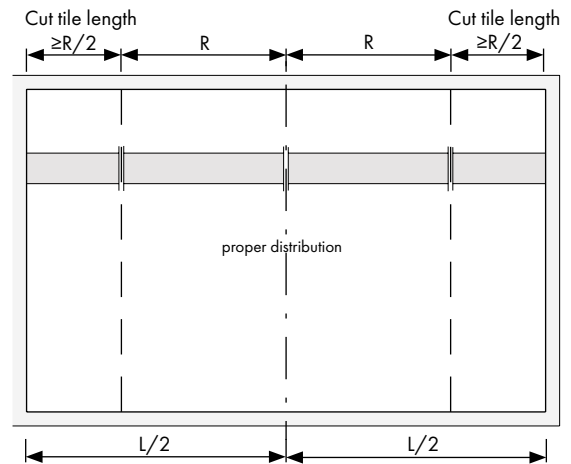
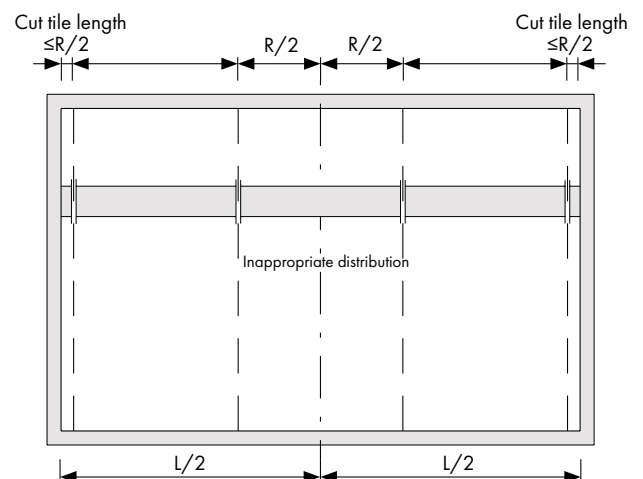


Figure 2.80 - Layout not recommended



Layout in width direction

Based on the layout of the Bandraster in the long direction, the installation continues in tile widths along the Bandraster.

Layout

The ceiling is lay out from the middle Bandraster and continues in element width = X.

In the example shown (Figure 2.81) the cut tile at the perimeter is very small.

Note

If the cut tile is less than half the tile width ($\leq X/2$), it can appear aesthetically poor and should therefore be avoided.

Correction

It is aesthetically more pleasing and more efficient to install a ceiling with larger cut tiles.

If, as described above, the cut tiles are very small, the ceiling layout should be moved over by half a module width. This will always result in a cut tile width greater than half the module width and therefore a correct layout (Figure 2.82).

Special cases

Should the cut tiles meet with an angled wall, the longest side (Figure 2.83 - measurement Y) should equal the tile length; otherwise the layout should be adjusted.

Figure 2.81 - width direction

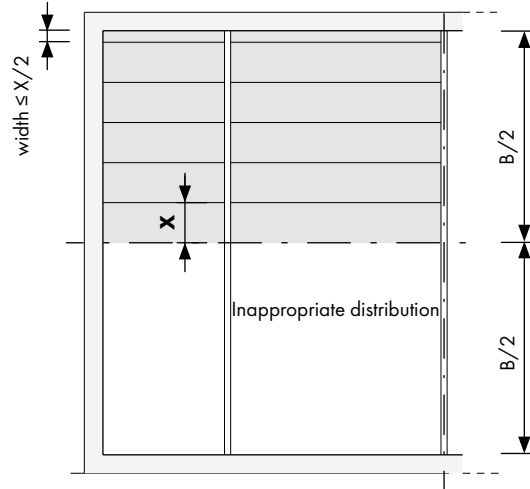


Figure 2.82 - correction

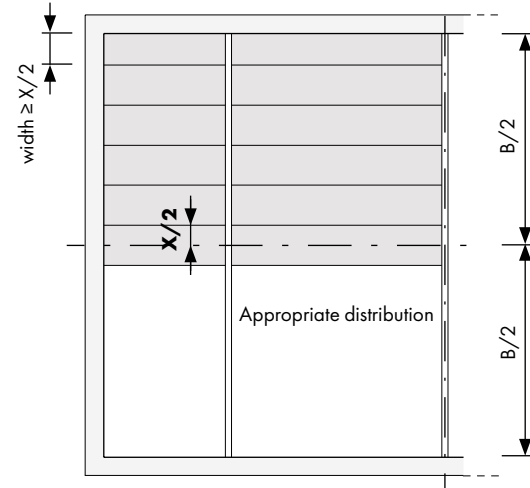
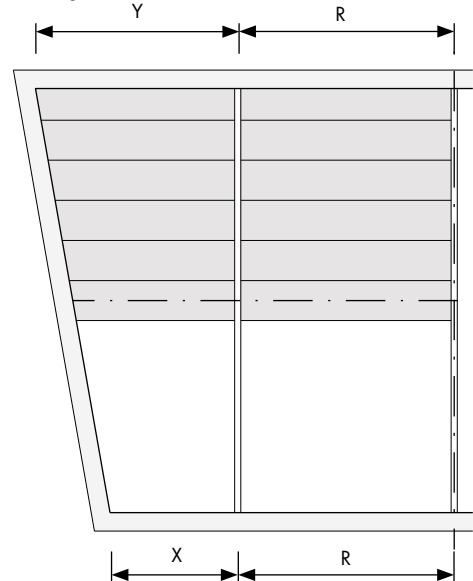


Figure 2.83 - angled wall



Installation guidelines

Please read the preceding chapters before continuing. In this chapter, detailed explanations and instructions for correct installation of the system are provided.

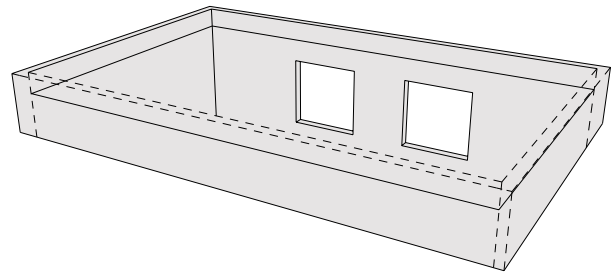
Note

The squareness of the room should be checked before starting installation.

Marking out (Figure 2.84)

Before proceeding with the installation, mark the desired suspension height on the surrounding structural elements (walls, supports...) all the way around the room (upper edge of perimeter trim).

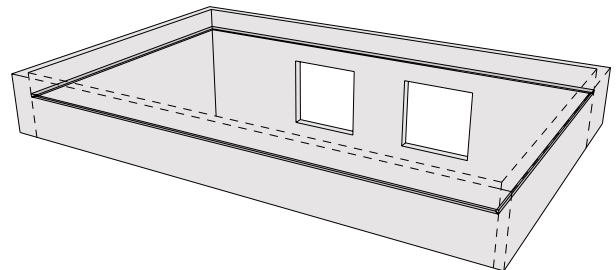
Figure 2.84 - Marking out



Perimeter trim installation (Figure 2.85)

The perimeter trim should be fixed with suitable fixings as stipulated in the chapter, Perimeter trims. The corners should be butt cut or mitred, depending on the perimeter trim.

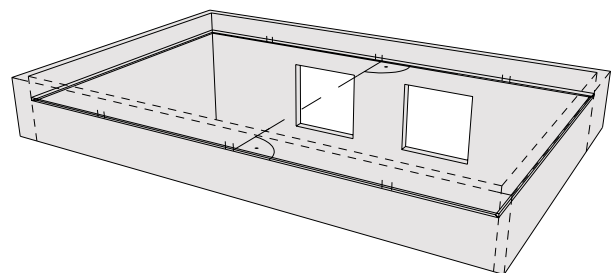
Figure 2.85 - Perimeter trim installation



Room layout (Figure 2.86)

The ceiling is lay out according to the recommendations in chapter, Room layout. The resulting module is constructed between the perimeter trim. When spanning to the opposite side, the elements should always be at right angles.

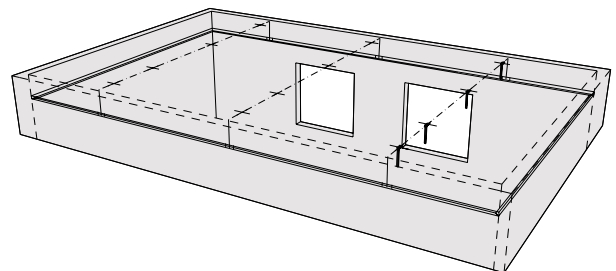
Figure 2.86 - Marking out the Bandraster



Marking out the hangers (Figure 2.87)

The module size is marked out on the soffit and the position of the top fixings established and marked according to the chapter, Hangers.

Figure 2.87 - Hangers



Hanger installation (Figure 2.88)

According to the hanger height, the selected Nonius upper parts are fixed to the soffit using suitable fixings. This is followed by the installation of the lower parts with the Bandraster profiles.

The Nonius lower parts can be installed at every required point by turning and pushing the hanger up. The lower parts are firstly turned with a little pressure (Figure 2.88) and then hooked onto the Bandraster by pushing them upwards (Figure 2.89).

Figure 2.88 - turning

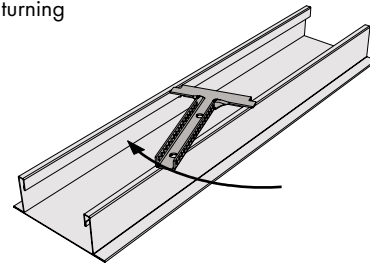
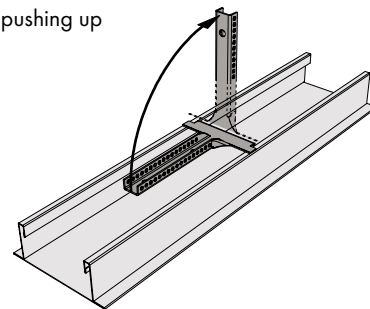


Figure 2.89 - pushing up

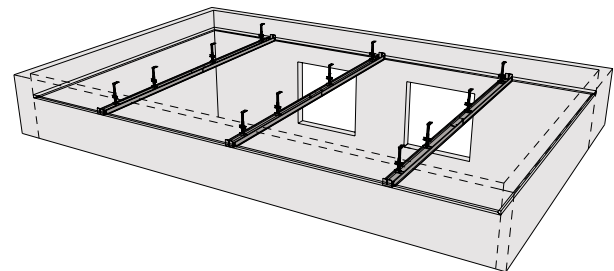


Bandraster installation (Figure 2.90)

To install the Bandraster, the Nonius lower parts are hooked into the profiles and fixed to the upper parts with 2 security pins at the required height.

Individual hangers are installed and the rest of the fixing points added. The Bandraster (see chapter, Main profiles) are butt cut against the perimeter trims (not lay on them), where necessary cut and fixed (PRB) and finished at the same level as the perimeter trim. Every long joint of the main profile is fitted with a splice. Before continuing, the grid should be aligned and levelled.

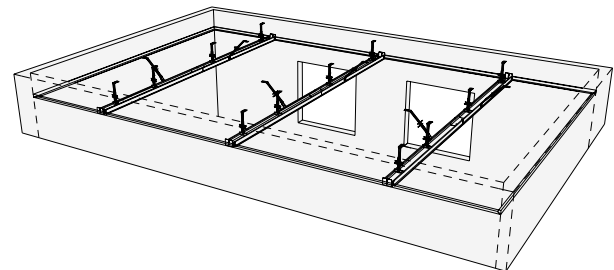
Figure 2.90 - Bandraster installation



Cross brace installation (Figure 2.91)

To accommodate horizontal forces during installation and later by maintenance, cross braces are permanently installed. The Nonius lower parts are fixed to the Bandraster from the side with two 3.9 x 9 mm self-tapping screws.

Figure 2.91 - cross brace installation



Guide string (Figure 2.92)

As the rest of the installation follows the first tile, special care should be taken to ensure its correct installation.

In order that the joints are aligned with the Bandraster, it is helpful to span a guide string or laser level across the entire room's length (Figure 2.92 and 2.93). Starting from this reference line, the tiles are cut to fit. It is usually enough to measure the width adjacent to the Bandraster profiles (Figure 2.92 A and B) and then transfer it to the tile to be cut. This can then be cut accordingly.

Figure 2.92 - guide string

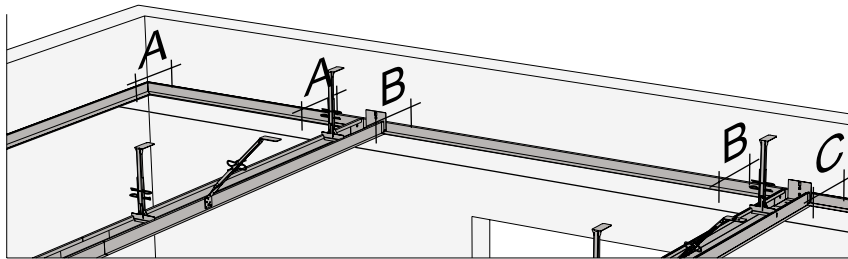
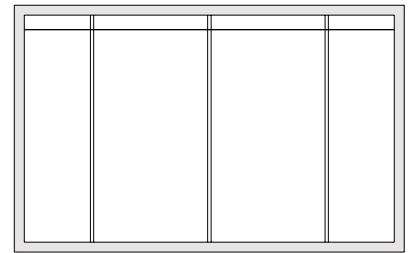
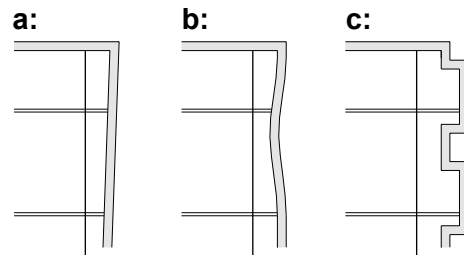


Figure 2.93 - reference string



Should the wall be at an angle (Figure 2.94a), this can also help to achieve a parallel joint pattern. Wall unevenness (Figure 2.94b) can also be better compensated for. For alcoves (Figure 2.94c) a reference line can also aid installation.

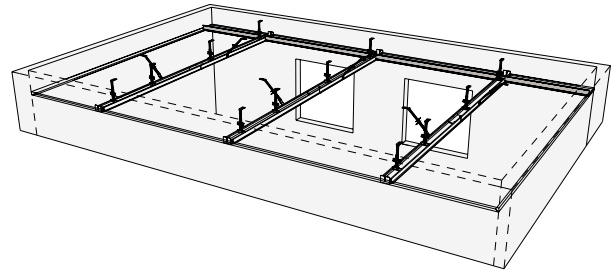
Figure 2.94 - special cases



Installation of the first row (Figure 2.95)

After the tiles have been cut they can be lay into the system. Always ensure that the tiles are installed with the reinforcement profiles. As all the other tiles are aligned against the first tile, it is especially important to ensure this is installed correctly, otherwise a uniform joint pattern can not be achieved.

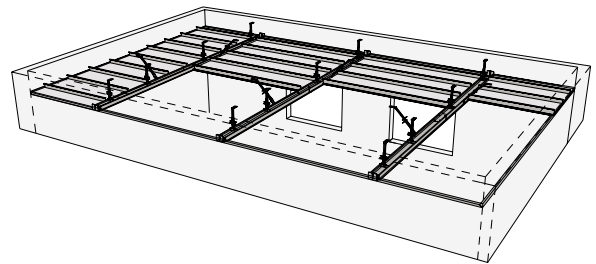
Figure 2.95 - installation of the first row



Tile installation (Figure 2.96)

The rest of the tiles are installed in full rows with their reinforcement profiles.

Figure 2.96 - tile installation



Last tile

Variant 1 – cut to fit exactly

If no perimeter wedges are to be installed, the last tile is cut to fit exactly, similar to the first (Figure 2.97). To install the tile, it is advised to gently lift the adjacent tile and drop both elements down together (Figure 2.98). Small perimeter cuts are to be avoided, as gaps could open up on the ceiling face due to tile movement.

Figure 2.97

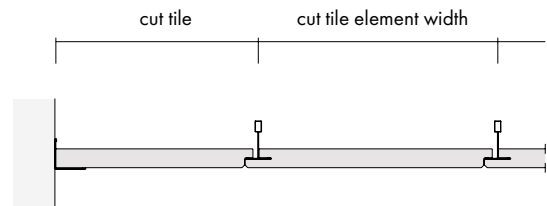
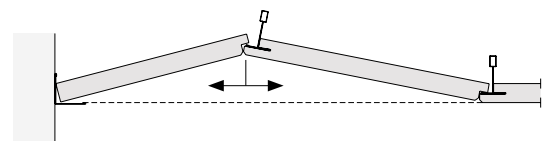


Figure 2.98



Variant 2 – with perimeter wedges (Figure 2.99)

The use of perimeter wedges makes the cutting of the last tile in a row easier, as it must not be so exact (Figure 2.100). Although this does require some practice to do.

The element width should be adjusted that a gap of approx. 10 mm is produced over the entire length of the tile (Figure 2.101).

Depending on the tightness of the wedges they may need to be loosened (with pliers) before installation as applying tight wedges with too much pressure could cause damage to the tile.

Generally, two perimeter wedges are required per cut edge (long edge) (Figure 2.102).

Shadow trim:

The installation can be carried out as variant 1 or variant 2 on the lower leg.

Figure 2.99 - perimeter wedge

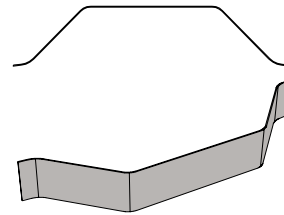


Figure 2.100 - variant with perimeter wedges

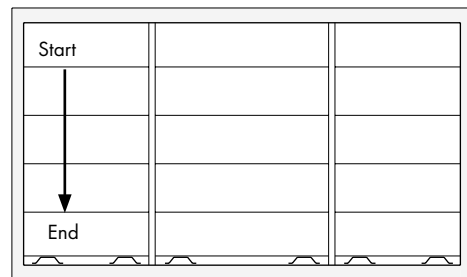


Figure 2.101 - gap size

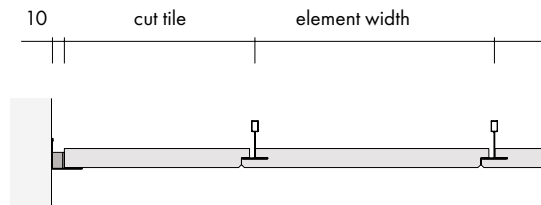
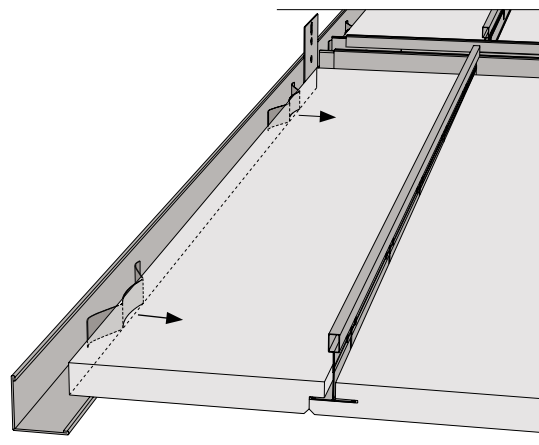


Figure 2.102 - lay out



Lighting / additional loads

General

Depending on type, size and weight of fixtures, various fixing possibilities are available. Generally, all additional loads require further measures to support the load (Figure 2.103). No loading should be applied to the tiles. An exception to this is for loads less than 0.3 kg, for which no additional measures are required. For screw-mounted items, always provide a patress (e.g. plaster board / plywood) (Figure 2.104).

If services such as downlights or loudspeakers etc. are not directly supported from the soffit, then reinforcement is required behind the tile to transfer the weight to the grid system (depending on loading capacity of the profiles with additional hangers, Figure 2.105).

Recessed lighting

All integrated fixtures, e.g. lighting, should be supported directly from the soffit by a minimum of two additional hangers to avoid any additional loading of the ceiling tiles or reinforcement profiles. To centre a light fitting on a tile with an SL2 edge configuration, make sure the small offset between the face and reverse sides is considered.

Figure 2.103

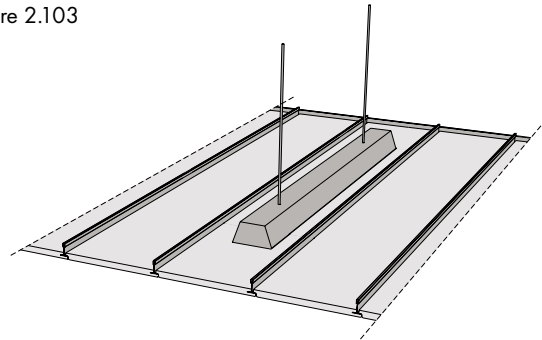


Figure 2.104

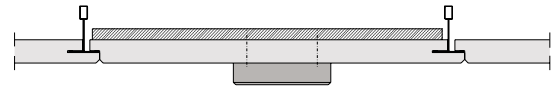
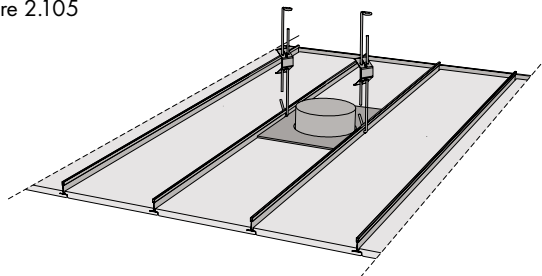


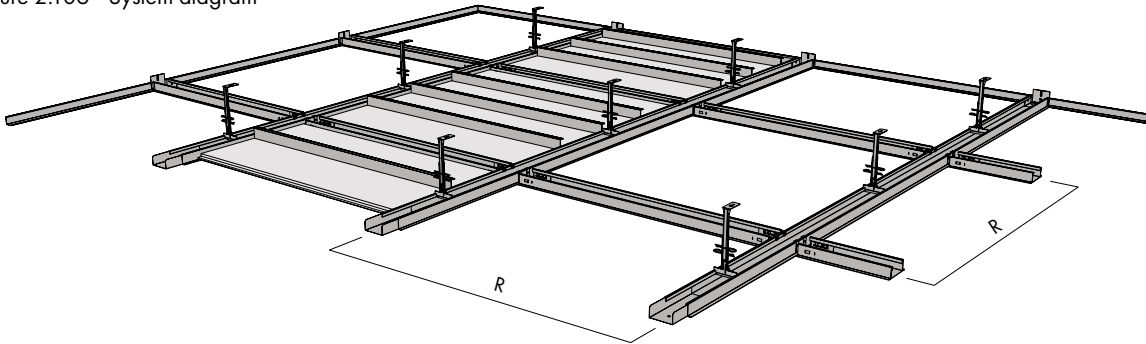
Figure 2.105



Cross Bandraster

Exposed grid patterns with flexible sizes to match the building geometry can be created using cross Bandraster. The main profiles are layout identically to system I1 or I2 in terms of centres. Cross Bandraster profiles are then laid between the main profiles to form the grid pattern and also act as cross bracing for the entire system.

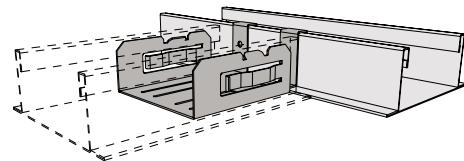
Figure 2.106 - System diagram



Material requirements

For the required quantities, please see chapter, System overview. For the requirement of cross profiles and the necessary Bandraster connectors (Figure 2.107), please contact our technical department.

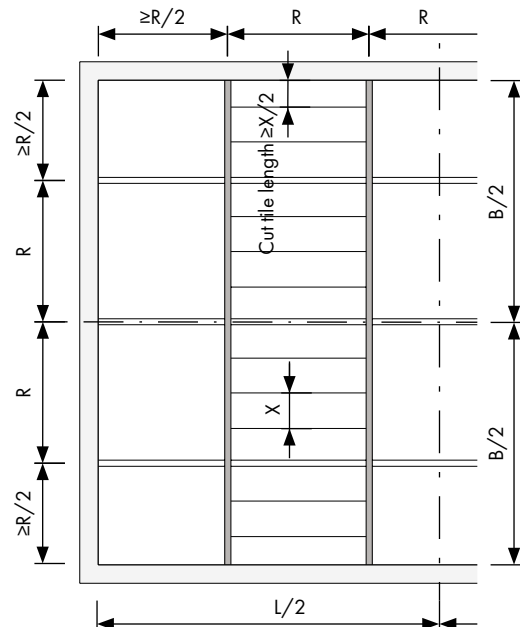
Figure 2.107 - Bandraster connector



Room layout

The layout can be carried out as in the previous chapter. Fields and cut tiles smaller as half the module size or tile size, should be avoided (Figure 2.108).

Figure 2.108 - correct layout



Reinforcement profiles

The necessary profile cross sections are given in the load tables (Table 2.2 and 2.3).

Cross bracing

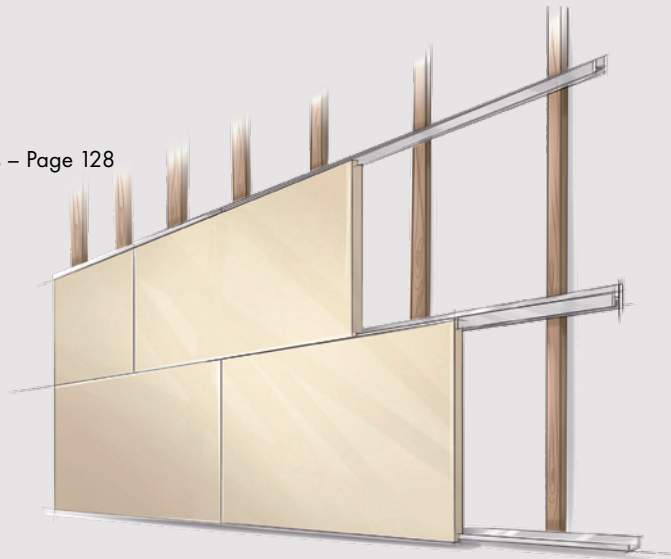
With this grid pattern arrangement, cross bracing between the main profiles is not required. However, a continuous layout of the cross Bandrasters must be installed, in both directions.

Perimeter fixings

The cross Bandraster must also be fixed at the perimeter trim.

Special Systems

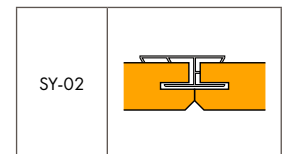
System S 2.1: HERADESIGN® installation with holding profiles – Page 128



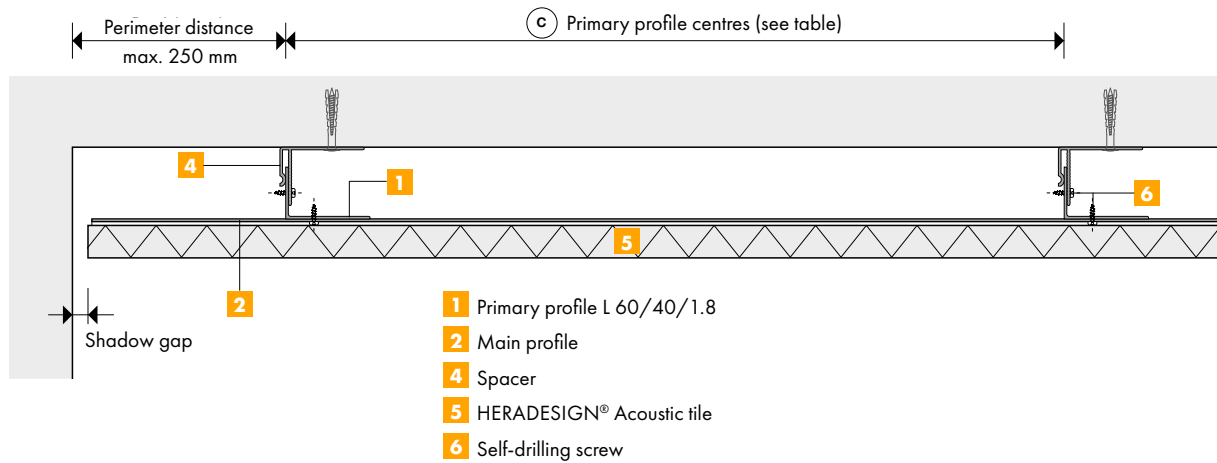
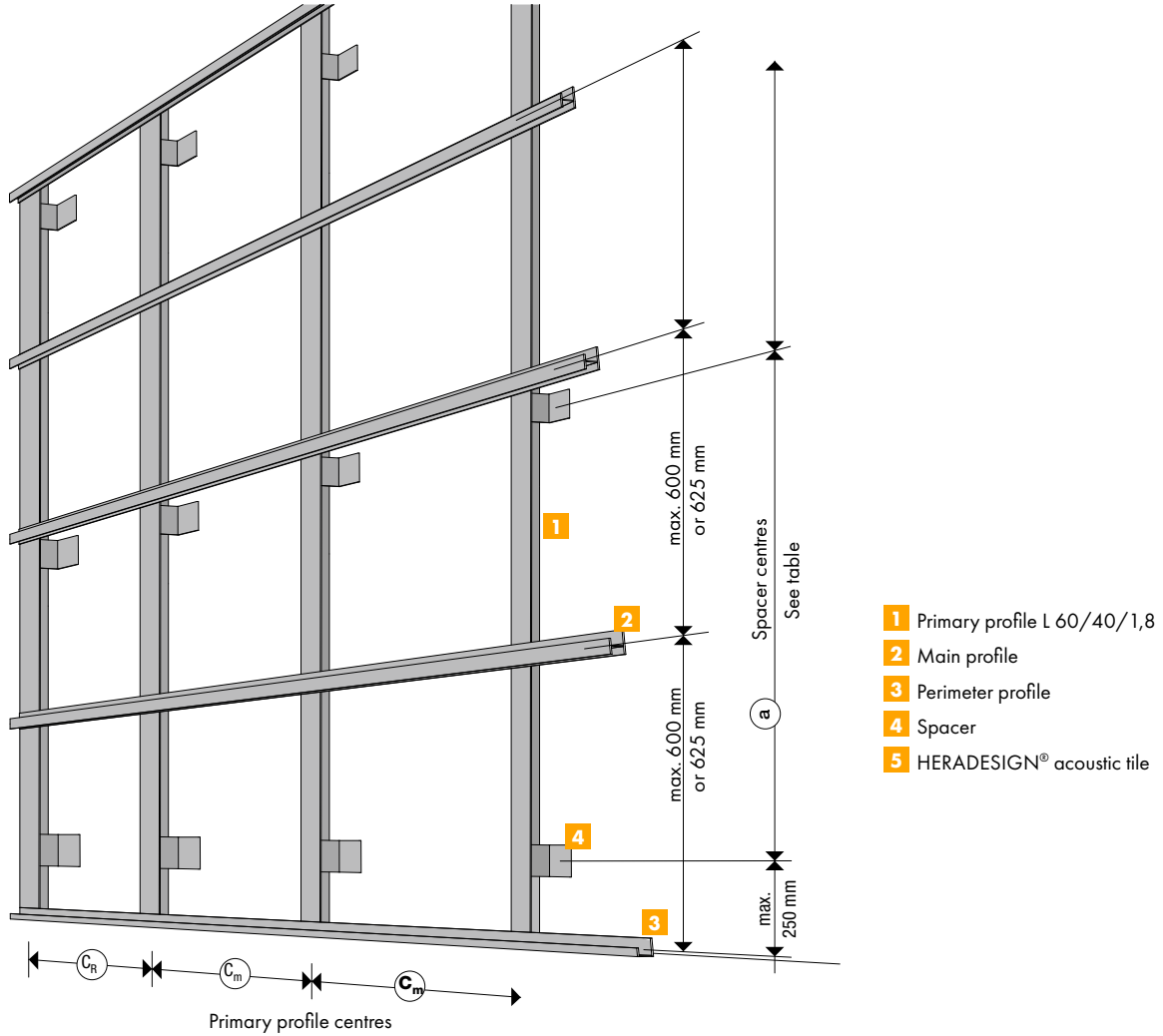
Product Range

	Product	Thickness [mm]	Weight [kg/m ²]	Edge Configuration	Profile centres [mm]	Tile size [mm]	Module [mm]
Product programme HERADESIGN®	HERADESIGN® superfine	25 / 35	11.3 / 15.0	SY-02	600; 625	600/600 625/625 600/1200 625/1250	600; 625
	HERADESIGN® fine	25 / 35	12.4 / 16.3				
	HERADESIGN® macro	25	12.4				
	HERADESIGN® micro	25 / 35	15.0 / 19.0				
	HERADESIGN® plano	25	15.0				
Product programme A2	HERADESIGN® superfine A2	25	18.0	SY-02	600	600/600 600/1200	600
	HERADESIGN® fine A2	25	19.0				

Edge Configurations



Sizes and dimensions



Maximum centres of the grid structure for cross construction and deflection class 1 according to EN 13964 (max. deflection L/500)

Primary profile angle 60/40/1.8 mm Max. centres (c) in mm ¹⁾	Max. spacer centres (a) for 0.25 kN/m ² loads ¹⁾ Max. additional horizontal loads (AL) in kN/m ²		
	a = 800 mm	a = 1000 mm	a = 1200 mm
c _m = 600 mm (middle field) c _r = 600 mm (perimeter field)	AL = 0.70 kN/m ²	AL = 0.65 kN/m ²	AL = 0.50 kN/m ²
c _m = 800 mm (middle field) c _r = 600 mm (perimeter field)	AL = 0.60 kN/m ²	AL = 0.50 kN/m ²	AL = 0.30 kN/m ²
c _m = 1000 mm (middle field) c _r = 800 mm (perimeter field)	AL = 0.30 kN/m ²	AL = 0.25 kN/m ²	AL = 0.20 kN/m ² ²⁾

Required load bearing capacity F_{zul} of the plugs:
 Up to 800 mm centres: plug min. 10 x 60 mm, with screw 7 x 69; with F_{zul} = 0.80 kN
 Up to 1000 mm centres: plug min. 10 x 80 mm, with screw 7 x 89; with F_{zul} = 1.00 kN
 Up to 1200 mm centres: plug min. 10 x 80 mm, with screw 7 x 89; with F_{zul} = 1.20 kN
 Only use approved plugs for anchoring the structure to the load-bearing base.

Note
 1) Higher loads or spacing of the profiles and spacers are to be confirmed through structural analysis before installation begins.
 2) Dead load:
 • c_r: max. permissible spacing for perimeter fields with multi-span profiles
 • Main profile L 60/40/1.8 mm with 40 mm statically effective height taken into consideration
 • Max. free overhang of primary and main profiles: 250 mm
 • Max. spacing for single-span beams on request
 • Per joint at least two self-drilling screws 4.8 x 20 mm

Material requirements

Component	Centres	Material requirement for every m ² ceiling ¹⁾		
		600/600		
1 Primary profile [lin. m]	c = 600 mm	1.7		
	c = 800 mm	1.25		
	c = 1000 mm	1		
2 Main profile [lin. m]	600 mm	1.7		
	625 mm	1.6		
3 Perimeter profile** [lin. m]	1200 mm	0.84		
	2400 mm			
	3000 mm	0.70		
	6000 mm	0.35		
	9000 mm	0.25		
	larger	As required		
4 Spacer *** [pcs.]	Centres	c = 600 mm	c = 800 mm	c = 1000 mm
	a = 800 mm	2.80	2.00	1.70
	a = 1000 mm	2.20	1.60	1.30
	a = 1200 mm	1.70	1.25	1.00
6 Self-drilling screws [pcs.]	a = 800 mm	7.50	6.50	6.00
	a = 1000 mm	7.00	6.00	5.00
	a = 1200 mm	6.50	5.50	5.00

*) The quantities are guideline only and do not include waste or other site specific scenarios
 **) For acoustic area widths of 1200, 2400, 3000, 6000, 9000 mm and taking into consideration the permissible spacing (a) of the spacer.
 ***) For primary profile lengths of 3000 mm.

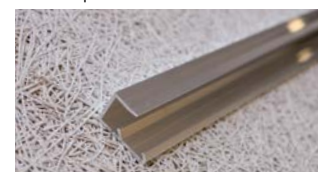
System components



1 - Primary profile L 60/40/1,



2 - Main profile



3 - Perimeter profile



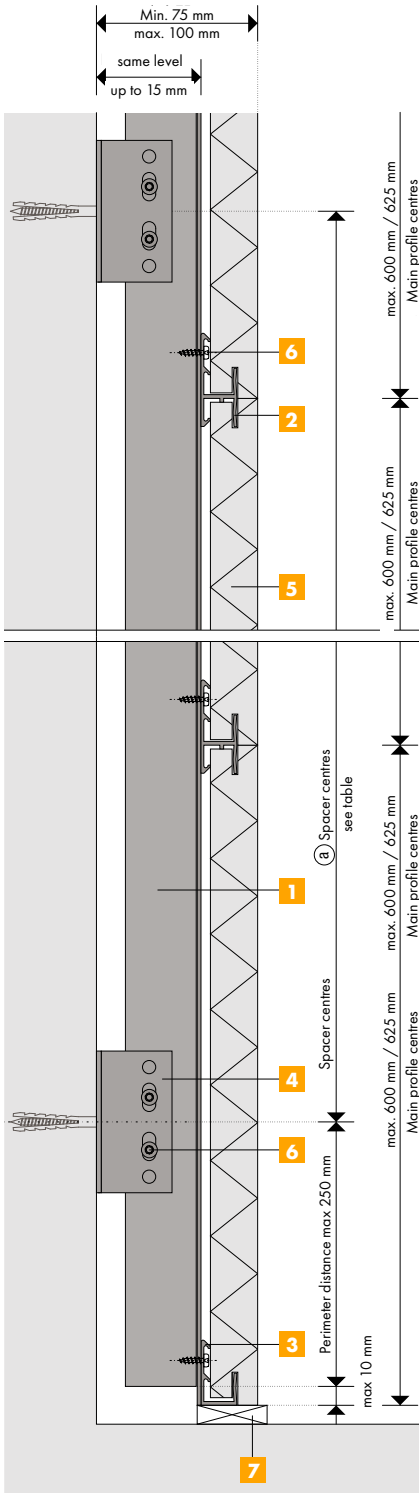
4 - Spacer



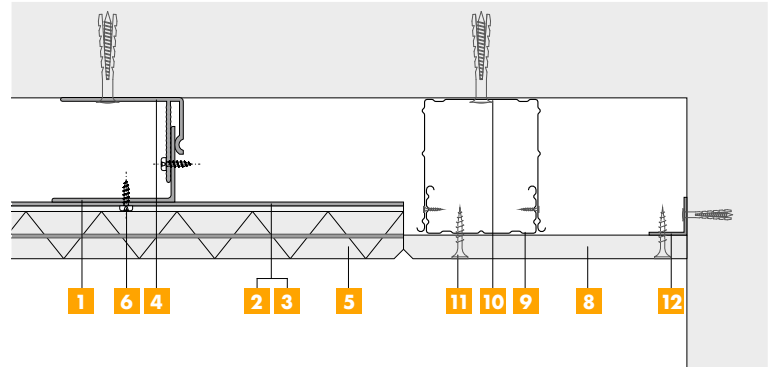
6 - Self-drilling screws

Installation guidelines and advice

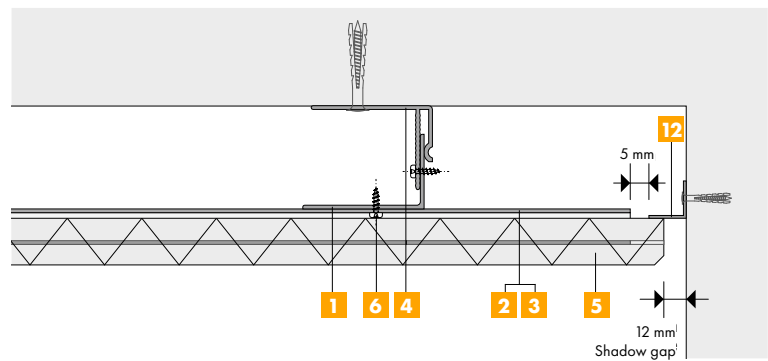
Vertical section



Horizontal section of perimeter connection with plasterboard margin



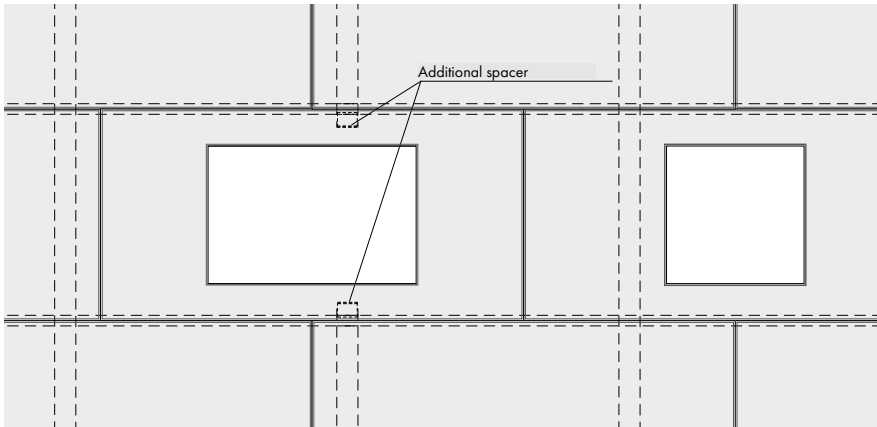
Horizontal section of perimeter connection with shadow gap



- 1** Primary profile L 60/40/1.8
- 2** Main profile
- 3** Perimeter profile
- 4** Spacer
- 5** HERADESIGN® acoustic tile, 25 or 35 mm thick, SY-02 edge
- 6** Self-drilling screws 4.8 x 20 mm
- 7** Base according to designer's specifications
- 8** GK tile
- 9** CD-profile 60/27/0.6 mm
- 10** Adjustable direct hanger
- 11** Dry wall screw
- 12** Perimeter angle 21/21 mm

Installation of maintenance openings

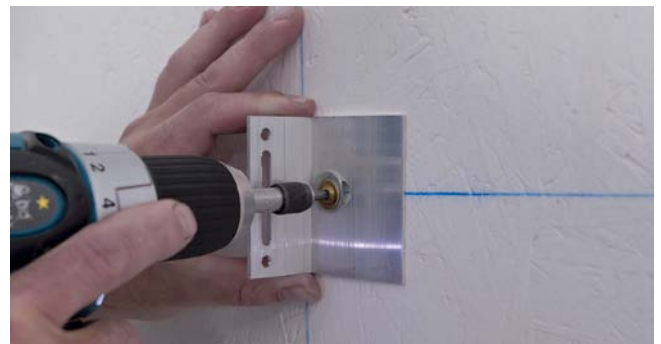
When installing maintenance openings with dimensions of 400 x 400 mm or 400 x 600 mm in 1200 x 600 mm or 1250 x 625 mm tile sizes, the middle profile must be left out over a length of 500 mm so that access to the ceiling void is possible.



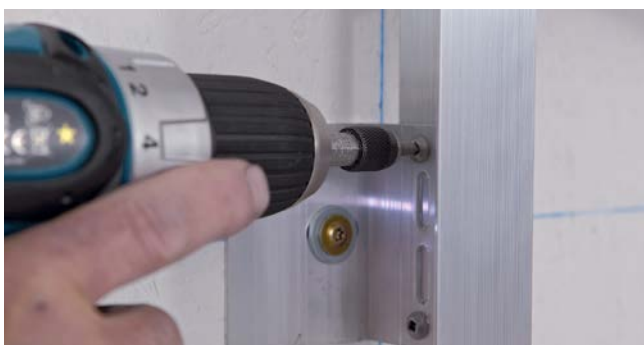
Installation photos



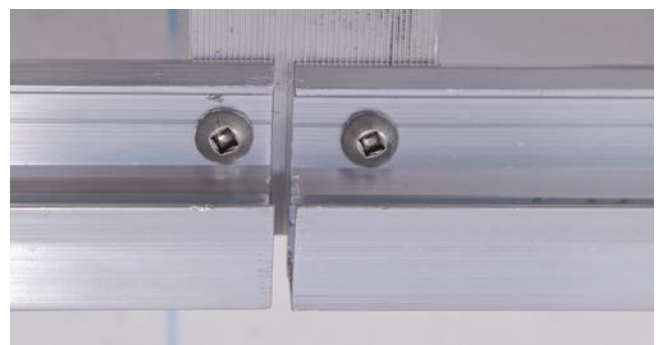
Lay out the profile centres from the middle of the room taking into account equally sized perimeter margins and the maximum permissible centres.



Installation of spacers with approved plugs (10 mm diameter) and screws with washers.



Fix the primary profile L 60/40/1.8 mm with two self-drilling screws, 4.8 x 20 mm, each. The second spacer from the top of each primary profile is designated as a fixed bearing. The self-drilling screws are set into the two round holes. All other spacers are designated as slide bearings. Height adjustment of up to 15 mm is possible by moving the primary profile in the spacer.



Install the perimeter profile with two self-drilling screws, 4.8 x 20 mm, per primary profile. Then insert the HERADESIGN® acoustic tiles. For longitudinal expansion of lengths > 6 m, install profiles with a 5mm gap.



Push the tiles together and align each row horizontally and vertically. Only handle tiles with clean hands.



Fix the main profile at the end with only one screw so that the other end remains adjustable. This makes inserting further tiles easier.



Align the tiles and the main profile before fixing it with the self-drilling screws.



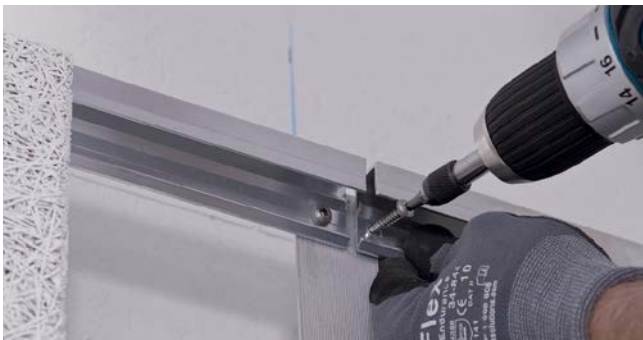
Fix the main profile with two self-drilling screws, 4.8 x 20 mm, per primary profile. Set the first self-drilling screw near the corner of the primary profile.



Installation of the upper edge profile. Space required from the ceiling approx. 40 mm. The first tile is moved approx. 10 cm towards the middle, the screws are fixed and then the tile is finally aligned in the grid.



Slide in the tiles from the side. The edge profile of the last field is installed after tile installation.



Align the tiles before fixing the perimeter profile with self-drilling screws.



If there is no space to move the tile across, fix the last tile by means of a screw. Cover unpainted screw heads with paint in the colour of the tile using a fine brush.

For the installation requirements see DIN 18168 “Lightweight ceiling linings and suspended ceilings”, as well as EN 13964 “Suspended ceilings – requirements and test methods”.

- **Installation of the spacers 4:** Before beginning installation, check the base for sufficient load bearing capacity.
- **Layout the spacers** from the centre of the room, taking into account equally sized end fields and the maximum permissible centres. For maximum centres, see table. Fix the spacers to the underlying surface with approved screws with washers and plugs according to static requirements. The plugs have to be appropriate for the load-bearing capacity of the underlying surface.
- **Installation of primary profiles 1:** Depending on the required perimeter distances of the HERADESIGN® acoustic tiles, insert the primary profile (angle 60/40/1.8 mm) into the spacer with either the 40 mm leg or the 60 mm leg and align it. Screw the primary profile to the spacers with two stainless steel self-drilling screws, 4.8 x 20 mm and make sure that the second spacer from the top of each primary profile is designated as a fixed bearing, i.e. the two screws are set into the round holes. All other screws are set into the slots in order to enable length adjustment of the profiles. Height adjustment of up to 15 mm is possible. See detail vertical section. For the maximum span of the primary profiles, see table.
- **Note:** At least three spacers have to be set per primary profile of 3000 mm length. If the primary profile is fixed with only two spacers, the maximum distance between these must not exceed 800 mm.
- **Installation of perimeter profile 3:** Fix the perimeter profiles 3 at the specified height, align them and fix each with two stainless steel self-drilling screws 4.8 x 20 mm to the primary profiles. Set the self-drilling screws in the groove which can be seen on the section. The upper edge is also formed with an edge profile; only push the tiles together after fixing the self-drilling screws. If the last tile is not movable, secure the outer corner of the tile with a screw. The screw head must be flush and covered using a fine brush and the supplied paint.
- **Installation of HERADESIGN® acoustic tiles and main profiles 2:**
The HERADESIGN® acoustic tiles with edge design SY-02 and the main profiles are installed step by step whilst considering the grid dimension 2 and equally sized end fields. Start inserting the HERADESIGN® acoustic tiles at the edge of the wall in smaller areas; in the centre of the wall in large areas. Insert the first HERADESIGN® acoustic tile into the perimeter profile, then slide in the main profile and finally fix it with a self-drilling screw so that the structure still remains movable in height. Then insert the other HERADESIGN® acoustic tiles, align the tiles and main profile and fix the main profile with two stainless steel self-drilling screws, 4.8 x 20 mm, to the primary profile. The screws are set into the pre-cut groove in the main profile.
- **Damaged or soiled tiles** may not be installed. Small mechanical damage may be improved by means of the supplied paint.
- **Mineral wool overlays:** Acoustic overlays or films are installed step by step with the installation of the acoustic tiles. If necessary, the lowest layer should be secured against downward movement. When trickle protection is required, we recommended wrapping the mineral wool in PE film. A PE film with a thickness of up to 30 µm does not affect the sound absorption of the underlying absorber and is recommended as trickle protection for mineral wool overlays.
- **Linear expansion with temperature changes of up to 30°C:** To compensate for this, there has to be a free distance of at least 5 mm at the longitudinal joints of primary or main profiles for lengths over 6 m. With temperature changes of over 30°C, position the expansion joints according to static requirements.
- **Corrosion protection requirements:** The plugs and screws have to be chosen according to the existing corrosion exposure. In order to avoid contact corrosion, stainless steel screws have to be used to connect the aluminium profiles with each other.
- **Installation of lighting:** The installation of modular lighting is not possible. Other recessed or surface lighting etc. requires separate suspension.

Ceiling Rafts

MINERAL Sonic Line – Page 133

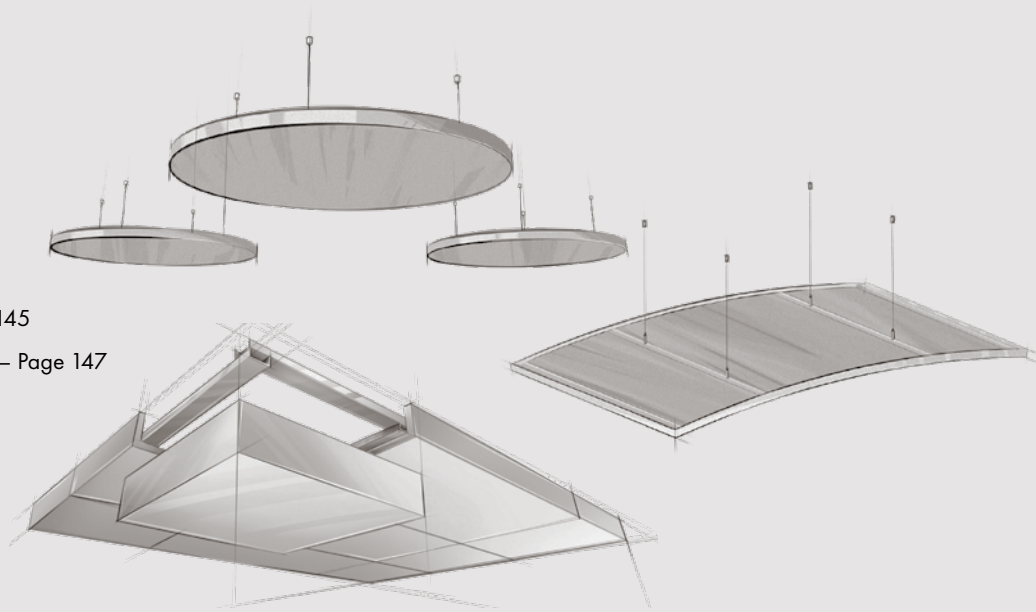
MINERAL Sonic Line Arc – Page 136

MINERAL Sky Line – Page 139

HERADESIGN® Sky Element – Page 145

HERADESIGN® Sonic Element Plus – Page 147

MINERAL Sonic Element – Page 152



Once buildings of all types are completed and occupied, subsequent acoustic optimisation often seems very difficult. Installation of a suspended ceiling isn't always an option to ensure a comfortable acoustic climate and less reverberation. Ceiling rafts from Knauf Ceiling Solutions can be quickly and simply retrofitted, efficiently avoiding unwanted sound configurations in rooms and at the same time are true objects of design.

MINERAL Sonic

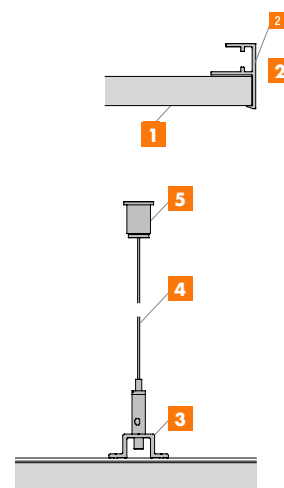
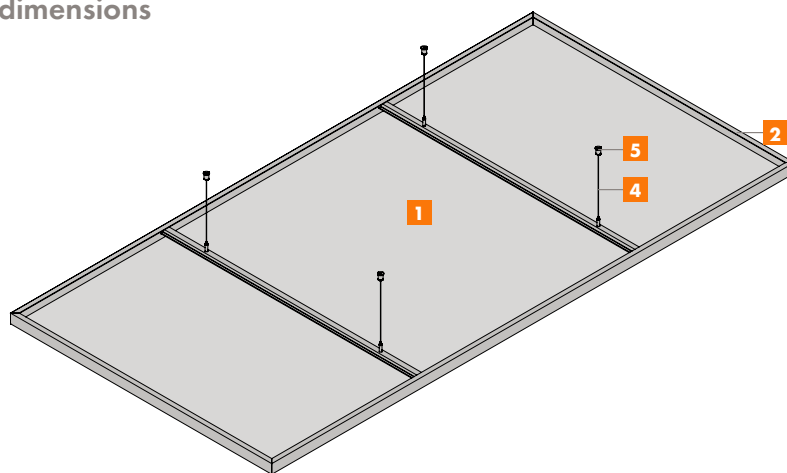
Product Range

Product	Thickness [mm]	Weight [kg]		Sizes L x W [mm]
		m ²	pcs.	
MINERAL Sonic Line	43		7	1200 x 600
	43		13	1200 x 1200
	43		18	1800 x 1200
	43		23	2400 x 1200
MINERAL Sonic Line Arc	35		16	1910 x 1180
MINERAL Sky Line	40	8		1200 x 1200
	40	8		2400 x 1200
	40	8		3600 x 1800

Other sizes on request

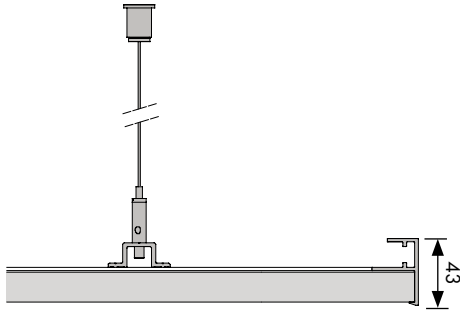
MINERAL Sonic Line

Sizes and dimensions



- 1** Board
- 2** Alu-frame profile
- 3** Alu main profile
- 4** Cable holder with cable
- 5** Cable suspension with cable and ceiling mount

Section MINERAL Sonic Line

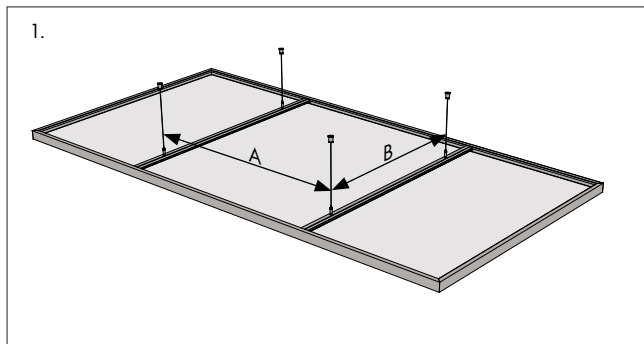


The raft is suspended by four cables. The suspension system enables the raft to be quickly and exactly installed and aligned. Every raft is delivered with suspension system.

They consist of:

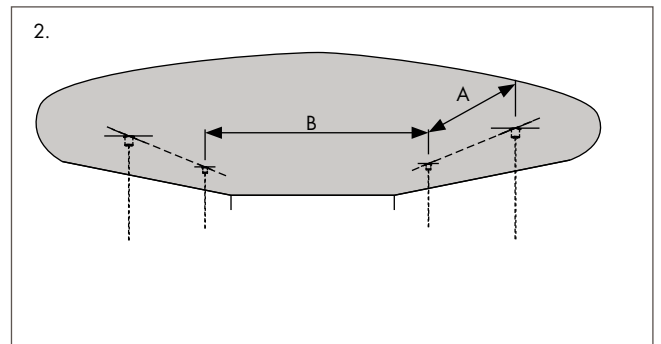
- Cable hanger with cable holder
- Cable (standard length 1.0 m, other cable lengths and ceiling mounts on request)
- Ceiling mount
- Building material class: A2-s1,d0 as per EN 13501-1 (or C-s1,d0 depending on printed motif)
- Sound absorption: EN ISO 354
- Humidity resistance: up to 90% relative humidity
- Frame colours: Alu anodised E6-EV1, white similar to RAL 9016, other colours on request
- Surface: fleece-coated white or motif printed

Installation guidelines and advice

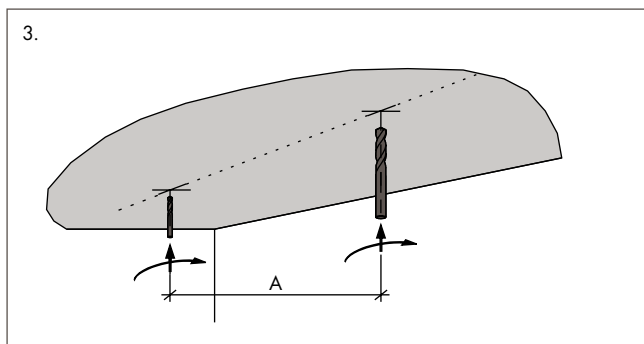


Fixing centres for sizes:

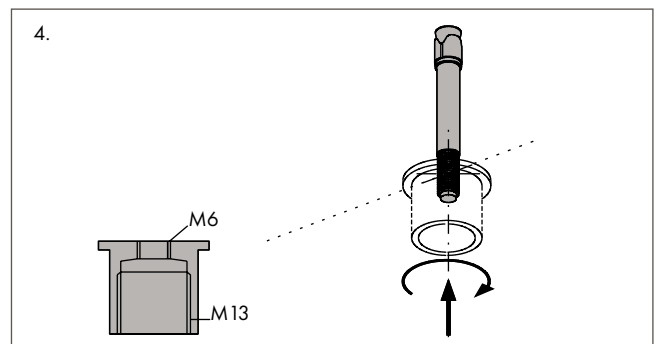
	A	B
1200 x 1200 mm	500	800
1200 x 1800 mm	700	800
1200 x 2400 mm	1000	800



The centres in both directions are transferred to the desired fixing positions.

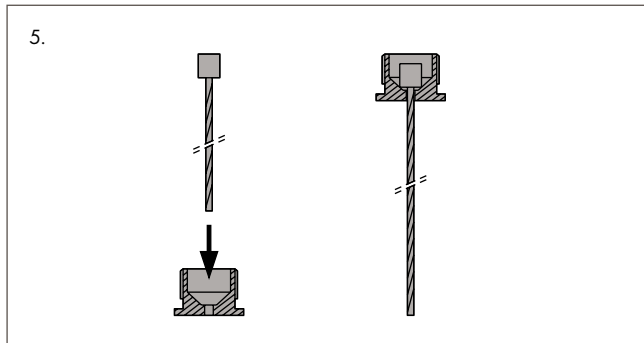


Depending on the soffit material and type of fixing, drilling may be necessary.

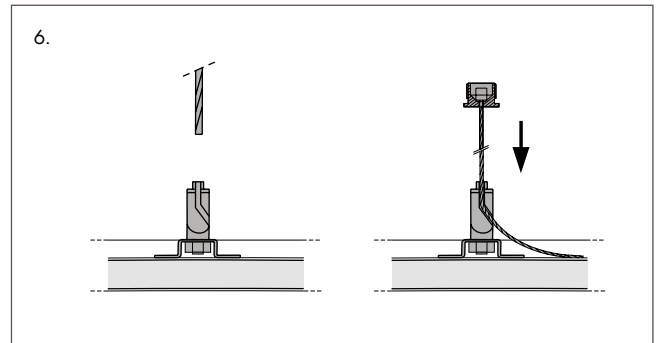


The included ceiling mounts feature an M6 internal thread for installation to the ceiling (soffit). Suitable fixings should be chosen for the specific installation and the type of soffit in consultation with the screw/plug manufacturer. Possible fixings: M6 bolt or appropriate screw and plug combination

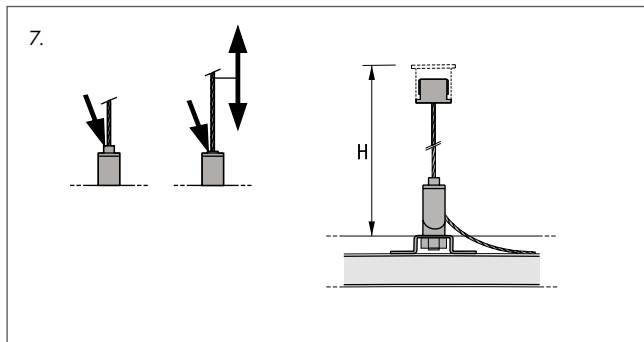
Installation guidelines and advice



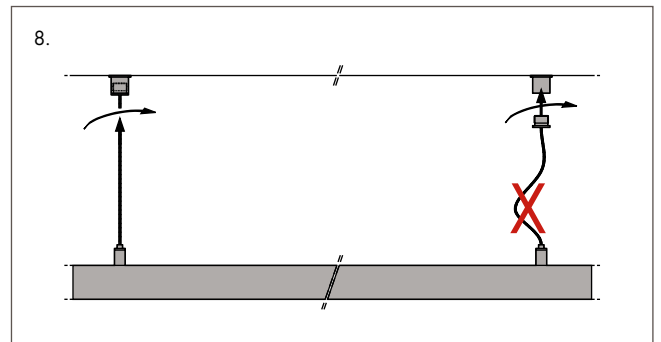
5. Thread the cables with the unpressed end through the mounting cap.



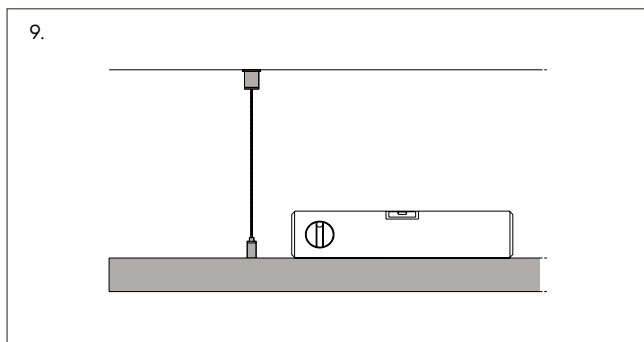
6. Subsequently, the cables are threaded through the adjustable, pre-installed cable holders.



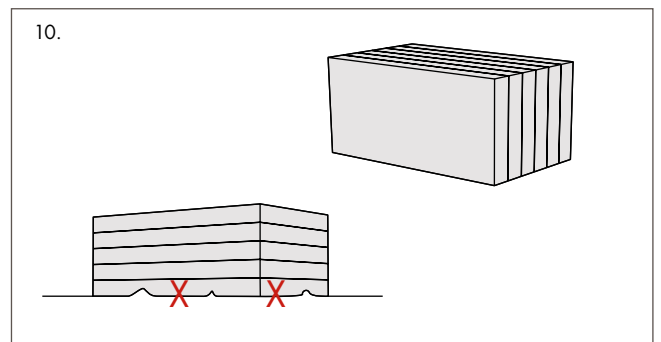
7. By releasing the clamping mechanism, the required suspension height can be set exactly before installation.



8. To install the rafts, the mounting caps should be completely screwed into the pre-installed ceiling fixings by two people. The raft should be supported equally through all four cables, no loose cables are permitted.



9. Finally, the entire ceiling raft is aligned

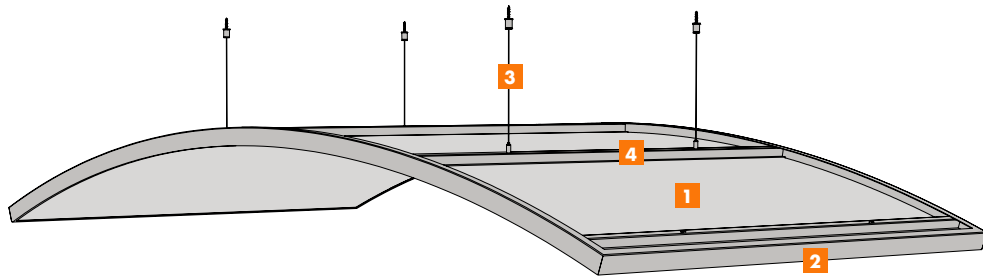


10. The rafts must always be stored on a dry and flat surface and can either be stacked (max 8 pieces) or stand on the long edge (no stacking permitted). Mechanical stress (impacts etc.) can cause damage to the product.

During transport and installation of ceiling rafts, the rafts must always be carried by two people. When removing the packaging and at all times when handling the rafts, clean white cotton gloves should be worn. Ensure that only the frames of the ceiling rafts are handled.

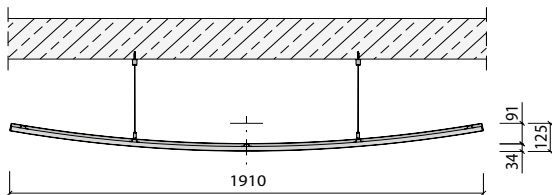
MINERAL Sonic Line Arc

Sizes and dimensions

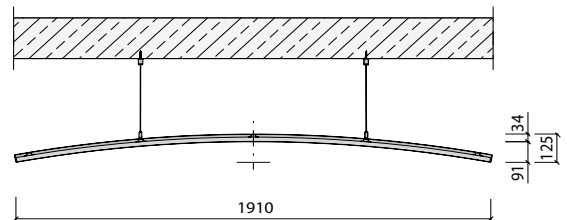


- 1** Board
- 2** Frame system 15 x 34 x 7 mm / size 1910 x 1180 mm, radius approx. 5.0 m
- 3** Cable holder with cable
- 4** Cross brace to fix cable hanger

Section MINERAL Sonic Line Arc convex



Section MINERAL Sonic Line Arc concave



Delivery

The raft is suspended by four cables. The suspension system enables the raft to be quickly and exactly installed and aligned. Every raft is delivered with suspension system.

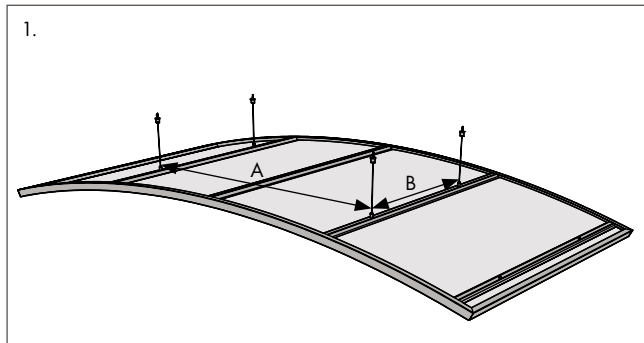
They consist of:

- Cable hanger with cable holder
- Cable (standard length 1.0 m, other cable lengths and ceiling mounts on request)
- Ceiling mount

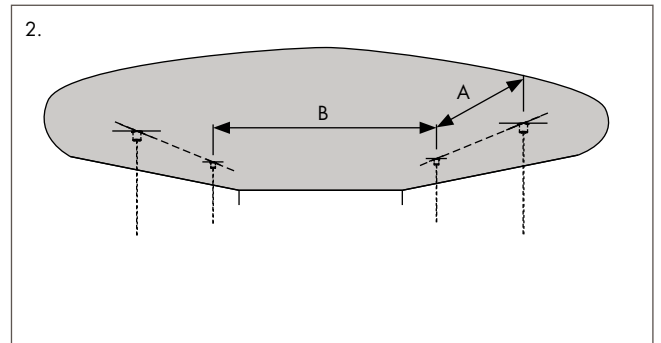
Properties

- Sound absorption: EN ISO 354
- Humidity resistance: up to 90% relative humidity
- Depth: 91 mm
- Frame colours: white similar to RAL 9010, all RAL colours on request
- Surface: fleece-coated (black, white, creme, silver, other surfaces on request)

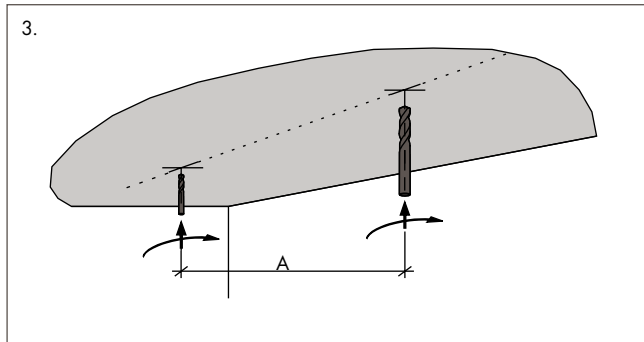
Installation guidelines and advice



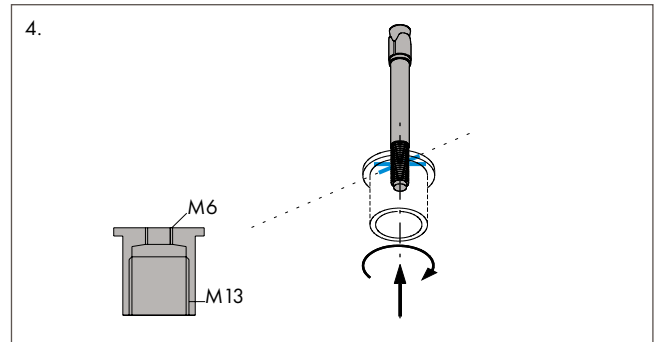
Fixing centres:
 A = 900 mm
 B = 600 mm



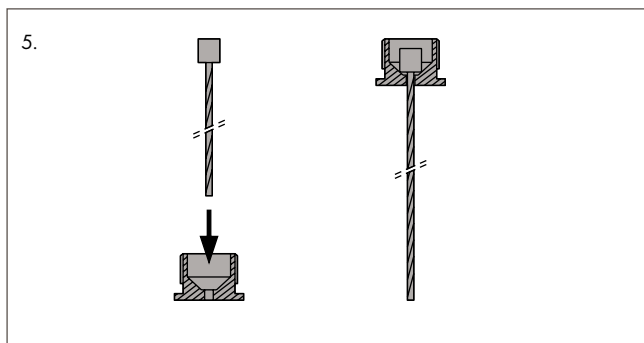
The centres in both directions are transferred to the desired fixing positions.



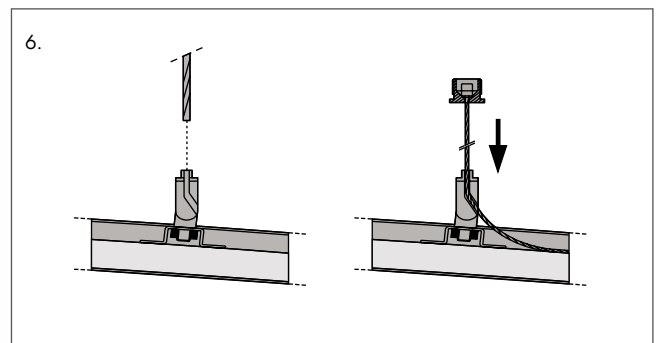
Depending on the soffit material and type of fixing, drilling may be necessary.



The included ceiling mounts feature an M6 internal thread for installation to the ceiling (soffit). Suitable fixings should be chosen for the specific installation and the type of soffit in consultation with the screw/plug manufacturer.
 Possible fixings: M6 bolt or appropriate screw and plug combination

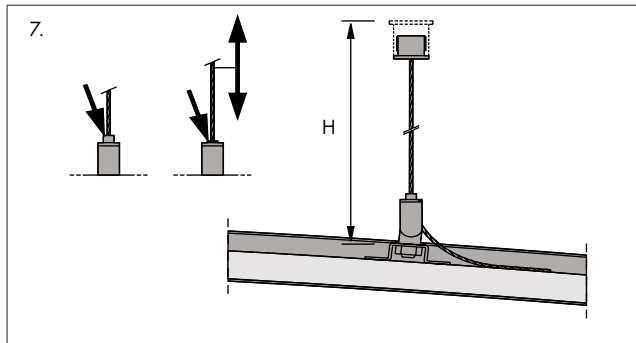


Thread the cables with the unpressed end through the mounting cap.

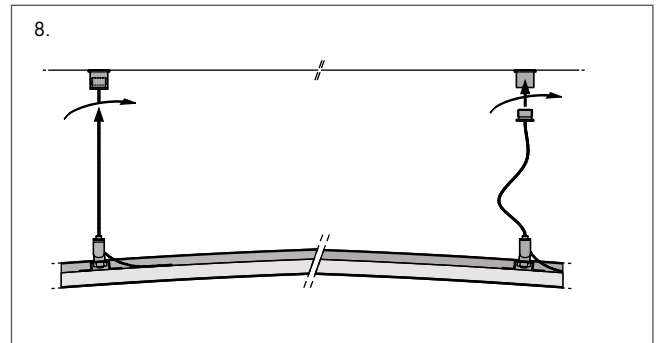


Subsequently, the cables are threaded through the adjustable, pre-installed cable holders.

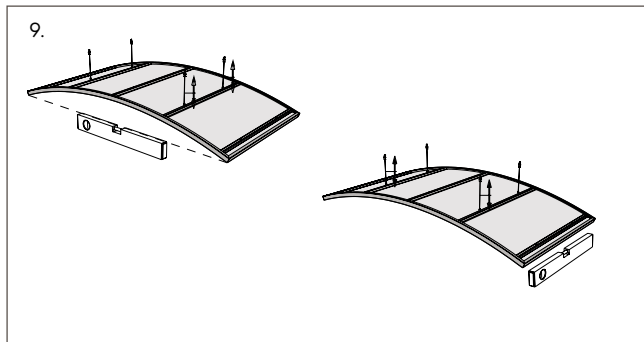
Installation guidelines and advice



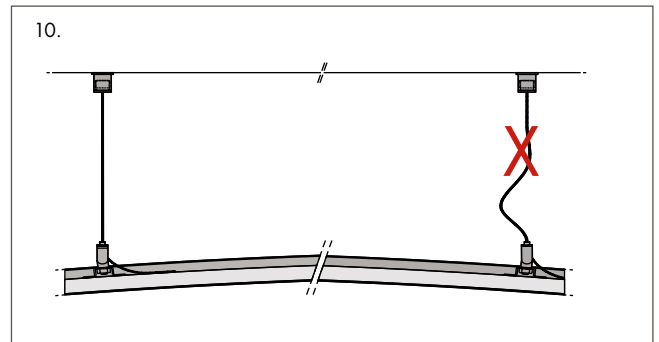
By releasing the clamping mechanism, the required suspension height can be set exactly before installation.



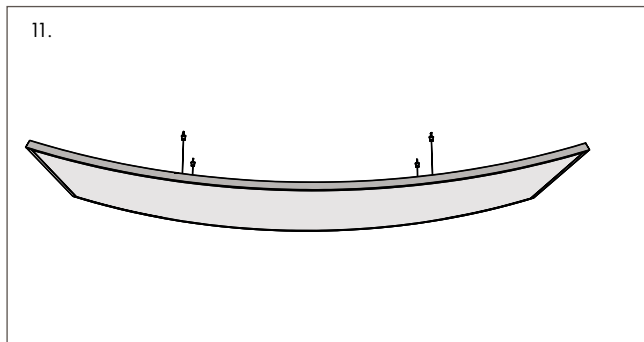
To install the rafts, the mounting caps should be completely screwed into the pre-installed ceiling fixings by two people.



Finally, the entire ceiling raft is aligned.

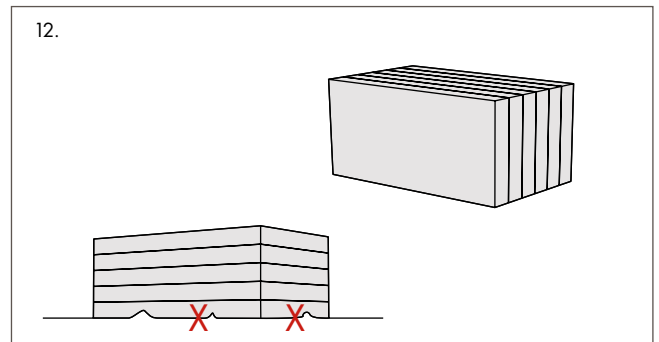


The rafts should be supported equally through all four cables, no loose cables are permitted.



The steps apply to both convex and concave ceiling rafts, regardless of the version.

Fixing, installation and handling is exactly the same for convex and concave rafts.

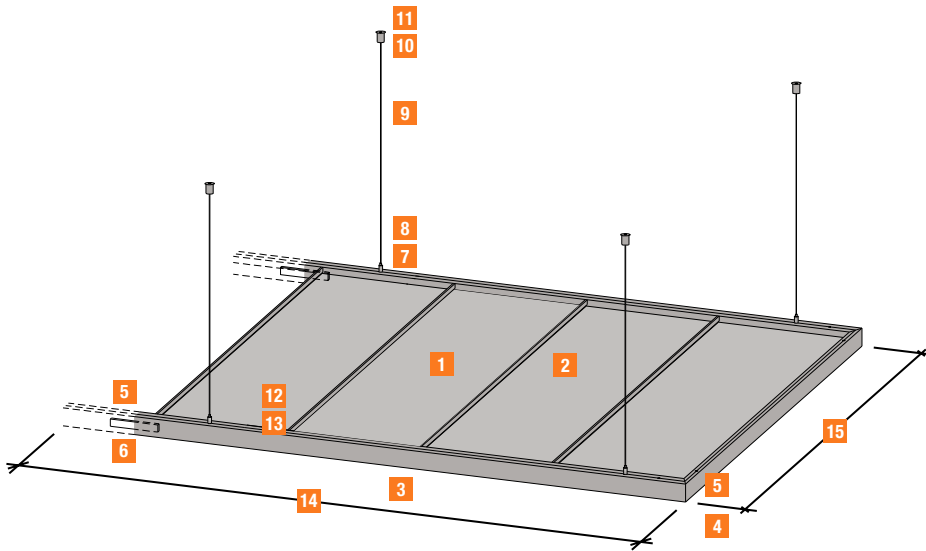


The rafts must always be stored on a dry and flat surface and can either be stacked (max 8 pieces) or stand on the long edge (no stacking permitted). Mechanical stress (impacts etc.) can cause damage to the product.

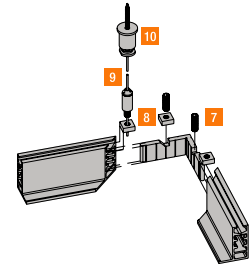
During transport and installation of ceiling rafts, the rafts must always be carried by two people. When removing the packaging and at all times when handling the rafts, clean white cotton gloves should be worn. Ensure that only the frames of the ceiling rafts are handled.

MINERAL Sky Line

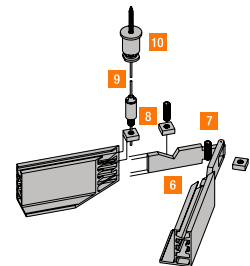
Sizes and dimensions



Frame construction with corner connectors



Frame construction with corner connectors



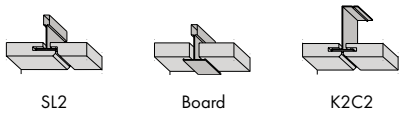
- Tiles:
- 1** AMF THERMATEX® Acoustic alternative, elements as per System F
 - 2** Main profile according to span table System F
- Frame:
- 3** Aluminium L-Profile 40 x 30 mm
 - 4** Corner connector
 - 5** Adjustment screws
 - 6** Splice

- Hanger:
- 7** Slot nut
 - 8** Lower cable holder
 - 9** Cable
 - 10** Upper cable holder
 - 11** Ceiling mount

- Cross bracing (for lengths over 3.00 m)
- 12** Angle bracket 50 x 50 x 1.75 mm
 - 13** Screws 3.5 mm x 13.5 mm

- Dimensions:
- 14** Length as per client requirements
 - 15** Width dependent on tile size, max. 2500 mm

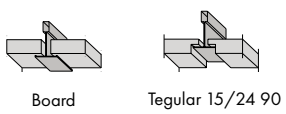
Edge configuration (plank tiles)



Profile	Height [mm]	Thickness [mm]	Tile size [mm]
PQZ 19/40	50	0.5	300 x 1800
T 24/38	38	0.4	300 x 1500

Profile dependent on selected tile type and tile size

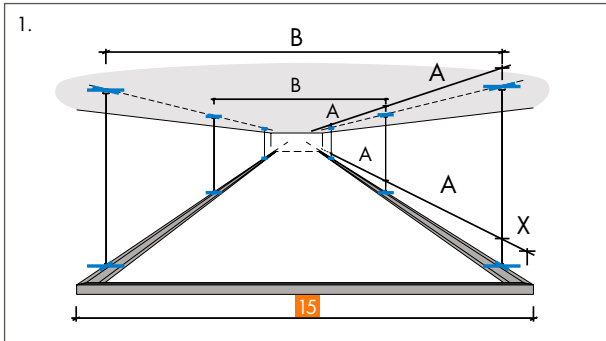
Edge configuration (square tiles)



Properties

- Building material class: A2-s1,d0 as per EN 13501-1
- Sound absorption: EN ISO 354
- Humidity resistance: up to 90% relative humidity
- Frame colours: Alu anodised E6-EV1, white similar to RAL 9016, other colours on request
- Surface: THERMATEX® Alpha (black, white, creme, silver)
THERMATEX® Alpha HD fleece laminated (white)
- Edges: Tegular, SL2, K2C2

Installation guidelines and advice

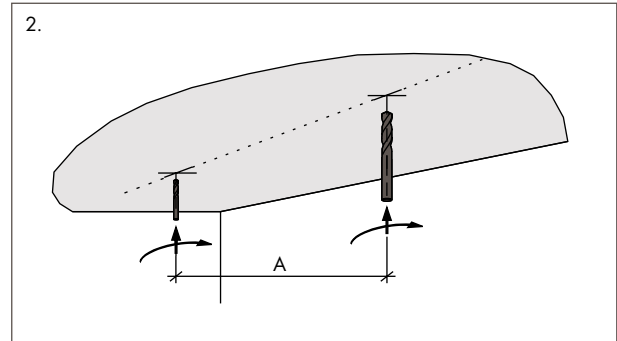


Fixing centres:

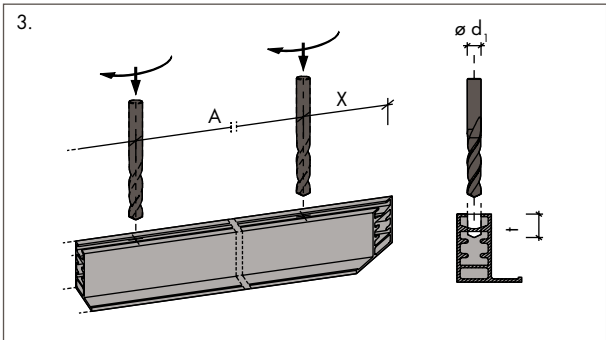
$B = 15 - 16 \text{ mm}$

$A \leq 1500 \text{ mm}$

$X \leq 150 \text{ mm (max. distance from perimeter)}$



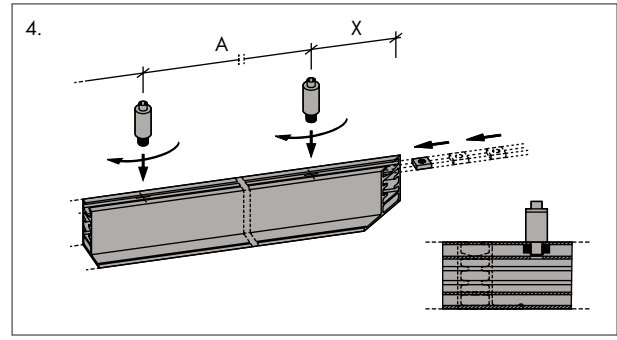
Depending on the soffit material and type of fixing, drilling may be necessary.



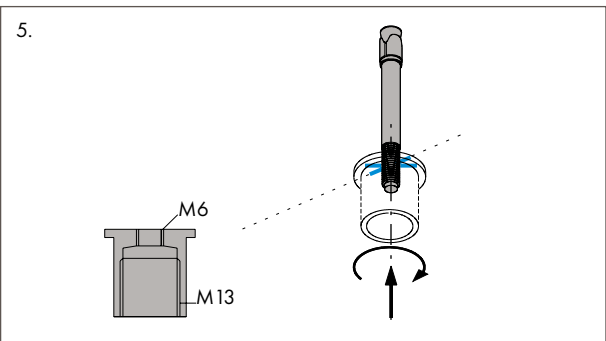
Profile holes:

$\varnothing d1 = 6,0 \text{ mm}$

$t \geq 12 \text{ mm}$

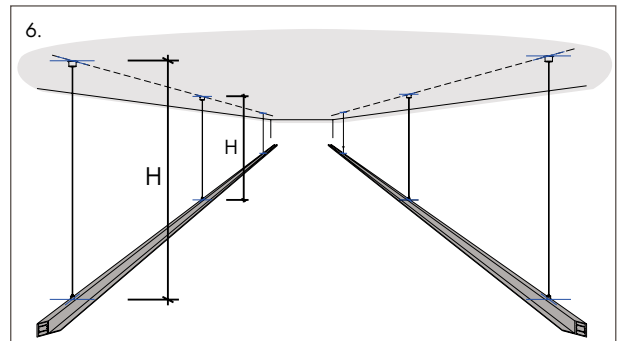


All suspension screw connections have to be secured with a chemical screw-lock.



The included ceiling mounts feature an M6 internal thread for installation to the ceiling (soffit). Suitable fixings should be chosen for the specific installation and the type of soffit in consultation with the screw/plug manufacturer.

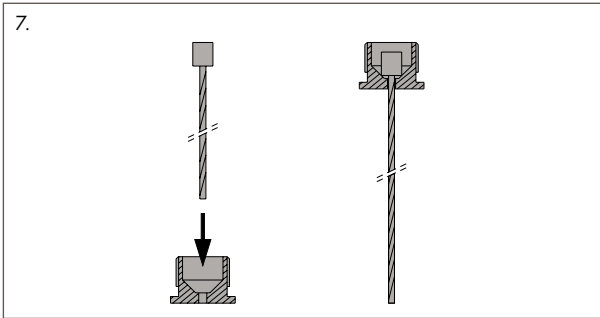
Possible fixings: M6 bolt or appropriate screw and plug combination.



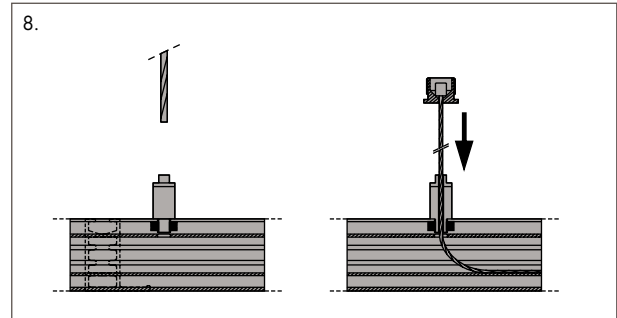
Lower edge of soffit – lower edge of ceiling raft = $H + 40 \text{ mm}$

The rafts must be suspended from the soffit by using approved fixings (plugs, screws, wires, etc.). Each fixing (plug, screw) needs to be mechanically pretested to a loading of 750N using appropriate testing equipment and this testing should be documented. Additional loads such as light fittings, signs, etc. have to be separately supported from the soffit using additional means. Note that the requirements of EN 13964 section 5.3 (testing of metal suspension and connecting components) should be observed.

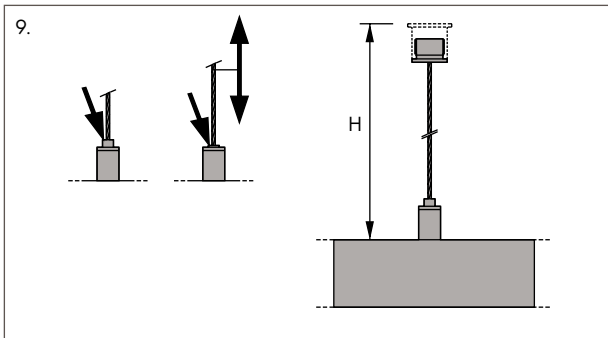
Installation guidelines and advice



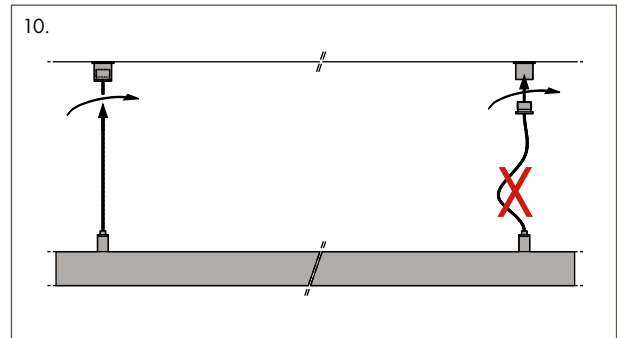
Thread the cables with the unpressed end through the mounting cap.



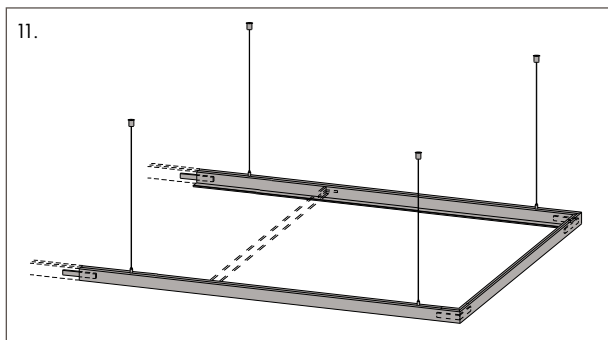
Subsequently, the cables are threaded through the adjustable, preinstalled cable holders.



By releasing the clamping mechanism, the required suspension height can be set exactly before installation.

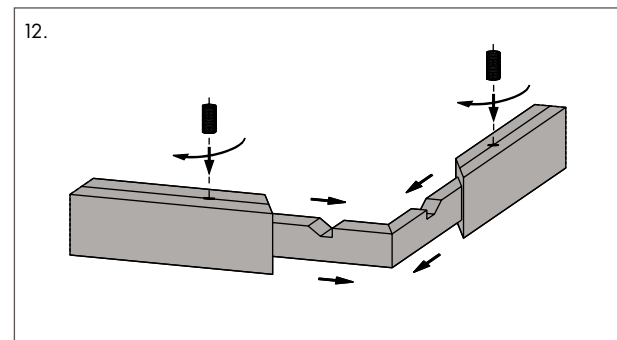


The rafts should be supported equally through all four cables, no loose cables are permitted.

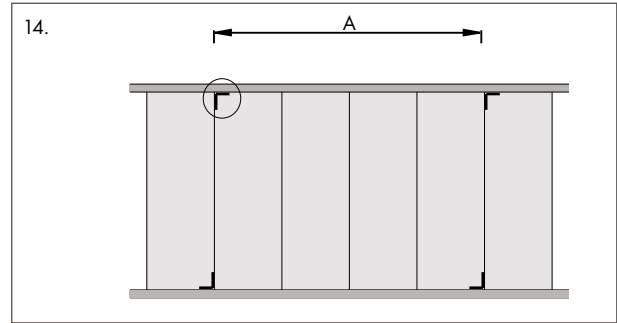
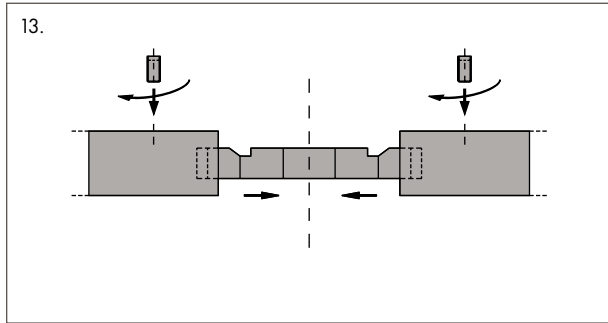


Corner and splice cross bracing:

- Installation takes place after each element is installed.
- The cross braces are to be fixed across the full raft (same raft width across the entire length)
- Exact lay out is required for a flawless joint pattern.

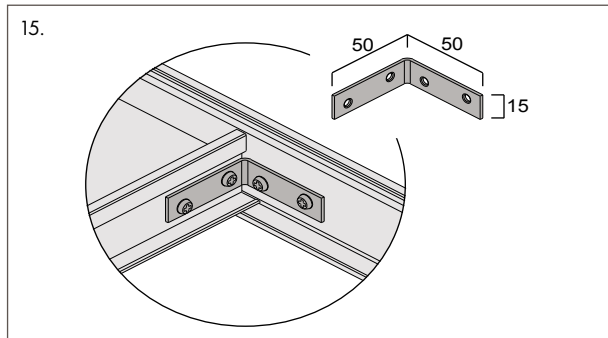


Installation guidelines and advice

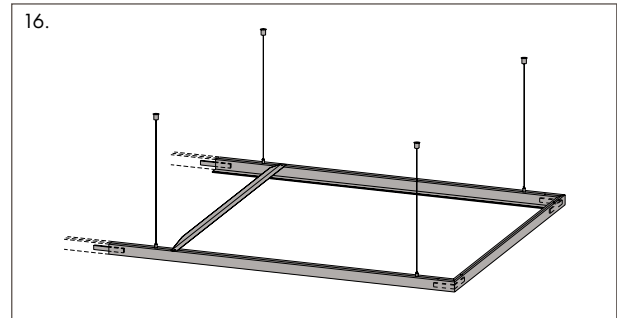


Cross bracing:
 $A \leq 2000$ mm

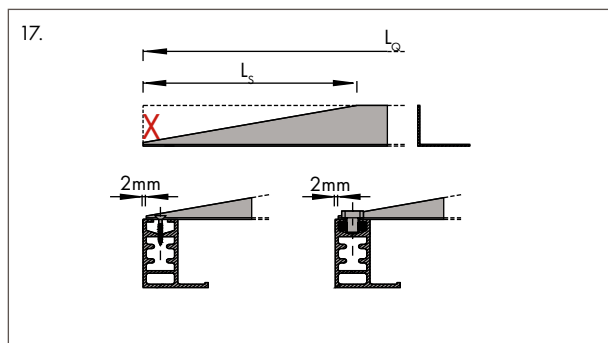
For rafts with a complete length of over 3.0 m, screw the reinforcement profiles to the frame profile at regular intervals ≤ 2000 mm.



The necessary 50 x 50 x 15 x 1.75 mm angle brackets as well as the 3.5 x 13.5 mm screws are included in the delivery.

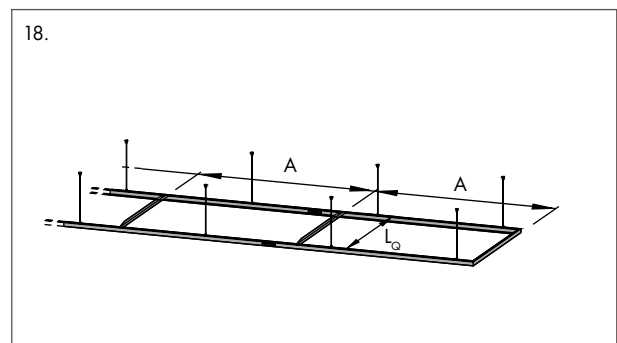


The cross profiles shown, including fixings, are not included in the standard delivery.

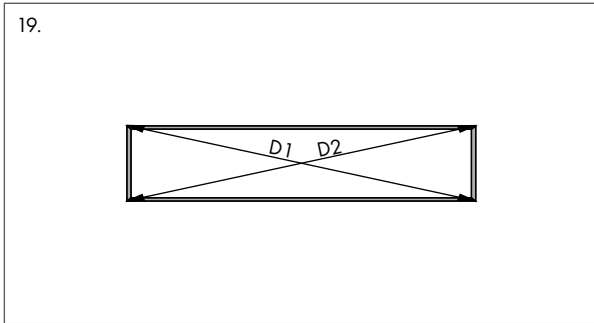


Cross bracing:
 $L_Q = 15 - 4$ mm
 $A \leq 2000$ mm

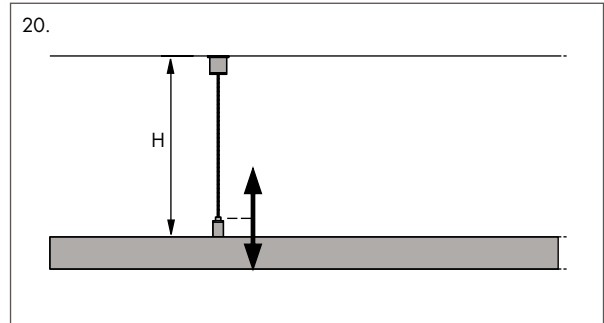
Angle of cross bracing:
 $L_s \sim 100$ mm



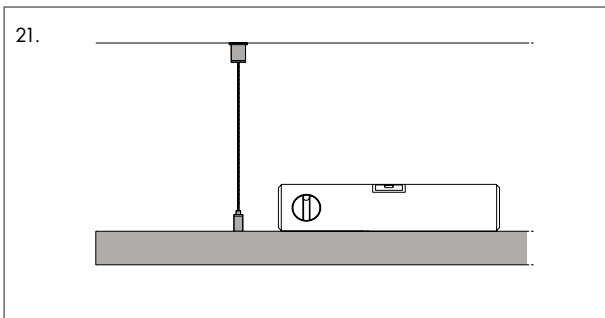
Installation guidelines and advice



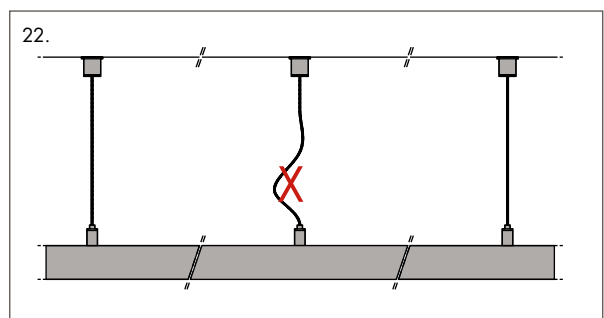
D1 = D2



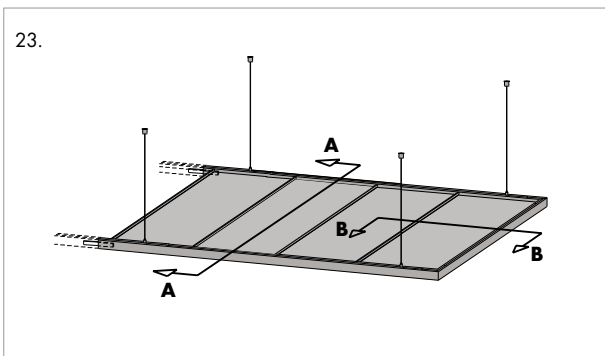
After installing the suspension (cable hanger to raft and ceiling mount including cable), the suspension height can be checked and when necessary corrected. The raft is then fixed on all hangers by two people.



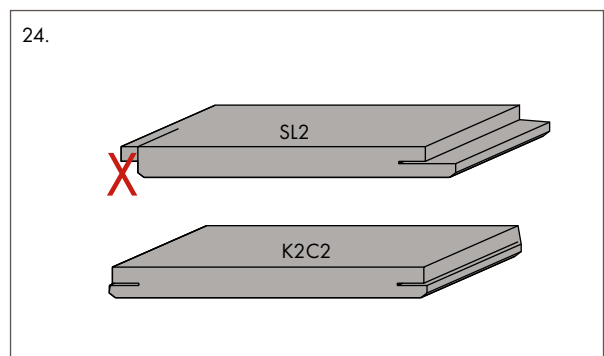
The entire ceiling raft is then aligned.



The raft should be supported equally through all four cables, no loose cables are permitted.



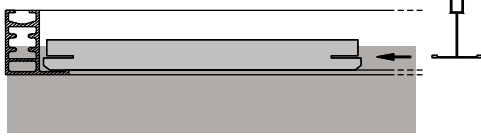
The ceiling tiles are inserted.



First tile

Installation guidelines and advice

25.



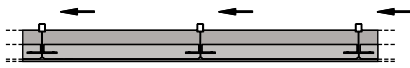
B - B

26.



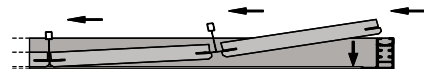
A - A

27.



B - B

28.



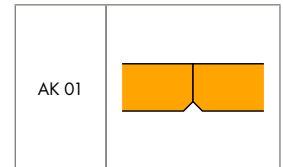
B - B

HERADESIGN® Sonic / Sky

Product Range

Product	Thickness [mm]	Weight [kg/pcs.]		Edge configuration	System component	Size L x W x H [mm]	
HERADESIGN® superfine / HERADESIGN® superfine A2	25	superfine	superfine A2	5.8	8.8	1) Corner component	600 x 600 x 125
				4.9	7.8	2) Side component 600	600 x 600 x 125
				9.8	15.5	3) Side component 1200	1200 x 600 x 125
				4.1	6.5	4) Standard 600	600 x 600
				8.1	13.0	5) Standard 1200	1200 x 600
HERADESIGN® fine / HERADESIGN® fine A2	25	fine	fine A2	6.3	9.3	1) Corner component	600 x 600 x 125
				5.4	8.2	2) Side component 600	600 x 600 x 125
				10.8	16.2	3) Side component 1200	1200 x 600 x 125
				4.5	6.8	4) Standard 600	600 x 600
				8.9	13.7	5) Standard 1200	1200 x 600

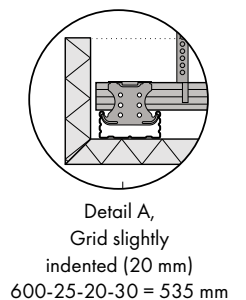
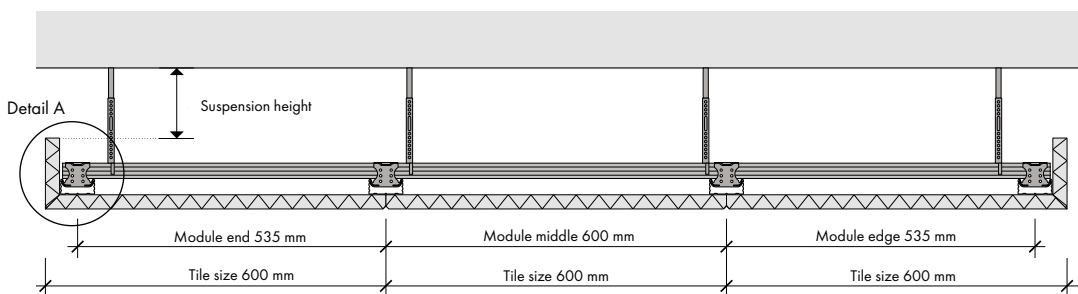
Edge Configurations



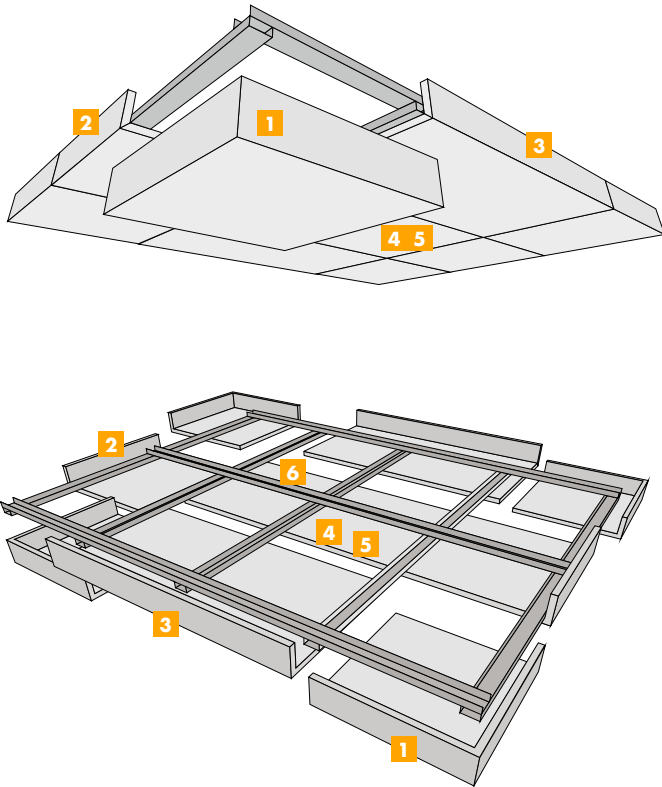
Product	Thickness [mm]	Weight [kg/ceiling raft]	Edge configuration	Size L x W x H [mm]
HERADESIGN® Sonic Element Plus	25	53.70	AK-01	2400 x 1200 x 125
		27.10		1200 x 1200 x 125
HERADESIGN® fine	25	57.90	AK-01	2400 x 1200 x 125
		29.20		1200 x 1200 x 125

HERADESIGN® Sky Element

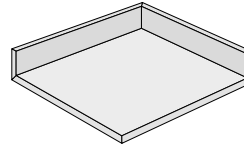
Sizes and dimensions



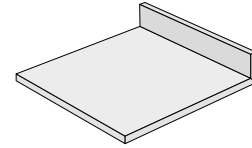
Sizes and dimensions



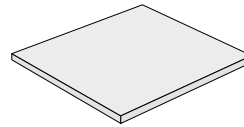
1 Corner component



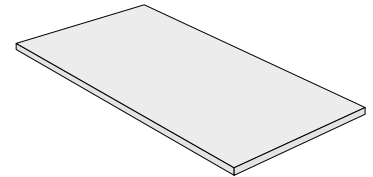
2 Side component 600



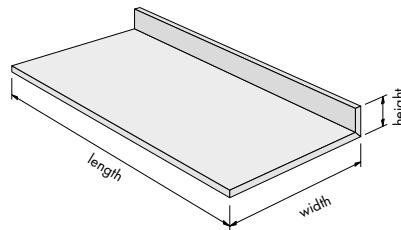
4 Standard 600



5 Standard 1200



3 Side component 1200



	System component	size L x W x H [mm]	Thickness [mm]	Edge configuration
1	Corner component	600 x 600 x 125	25	AK-01
2	Side component 600	600 x 600 x 125	25	AK-01
3	Side component 1200	1200 x 600 x 125	25	AK-01
4	Standard 600	600 x 600	25	AK-01
5	Standard 1200	1200 x 600	25	AK-01

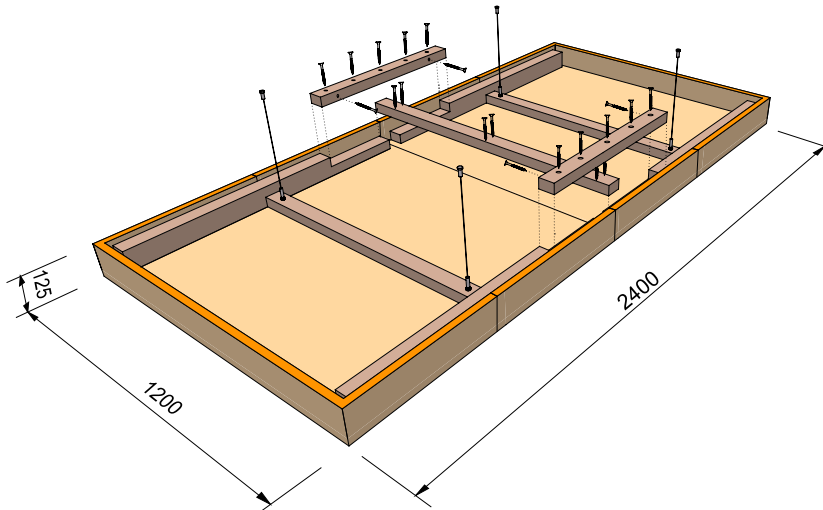
Installation guidelines and advice

For the installation requirements see DIN 18168 "Lightweight ceiling linings and suspended ceilings", as well as EN 13964 "Suspended ceilings – requirements and test methods".

- Installation of primary profiles: centres according to System B 2.1/B 2.2. In the long direction, set one primary profile into each corner of the upstand of the ceiling raft.
- Distribute main profiles symmetrically in the module, a main profile in each corner of the upstand.
- A 10 mm gap should be ensured between the inside of the upstand and the cross profile.
- Screw patterns see chapter B 2.1/B 2.2.
- Begin tile installation from the middle of the raft.
- Push together and align acoustic tiles – plank formats, across the profile direction and fix to the main profiles with HERADESIGN® screws. For each tile width and centre distance, two screws are required. For indoor swimming pools and vibrating constructions three screws.
- Note: Observe the necessary corrosion protection requirements.
- Square tiles: Observe the installation direction marked on the reverse of the tile when installing the tiles.
- Cross joints: four tile corners meet at one point, which means increased accuracy is required when installing!!
- Screws: HERADESIGN® screws. Corrosion protection must be determined by the prevailing room conditions. The screw heads must be set flush with the tile surface and when coloured HERADESIGN® screws are not used, the screw heads should be painted after installation with the delivered or equivalent paint.
- Acoustic overlays or films are installed step by step with the installation of the acoustic tiles. A PE film with a thickness of up to 30 µm does not affect the sound absorption of the underlying absorber and is recommended as trickle protection for mineral wool overlays
- Damaged or soiled tiles or tiles with colour deviations may not be installed. Tiles with edge configurations for T-profile installations can not be used, as the tile size is smaller than the module.
- Seek professional advice where necessary.

HERADESIGN® Sonic Element Plus 2400 x 1200

Sizes and dimensions

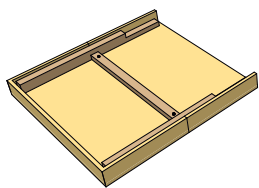


Delivery

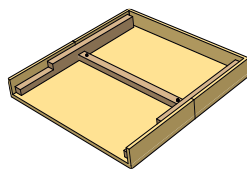
The set delivered consists of:

- Element A with preassembled grid structure and hanger base
- Element B with preassembled grid structure and hanger base
- 3 x connecting elements with the appropriate number of connecting screws, supplied in a plastic bag.
- 4 x individual hangers (hanger height < 500 mm) in a plastic bag
- Elements A and B from different sets are not compatible and should only be used as part of the set provided.

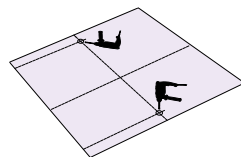
Product	Size L x W x H	Weight kg/ceiling raft
HERADESIGN® superfine	2400 x 1200 x 125 mm tile thickness 25 mm	53.70
HERADESIGN® fine		57.90



1 x element A



1 x element B



1 x drilling template



4 x individual hangers



20 x screws



1 x connection component C



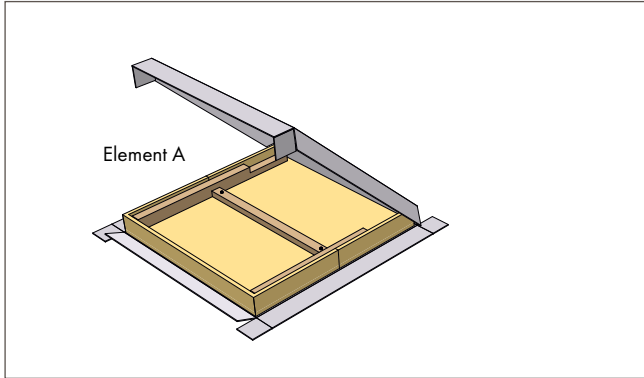
2 x connection components D

Properties

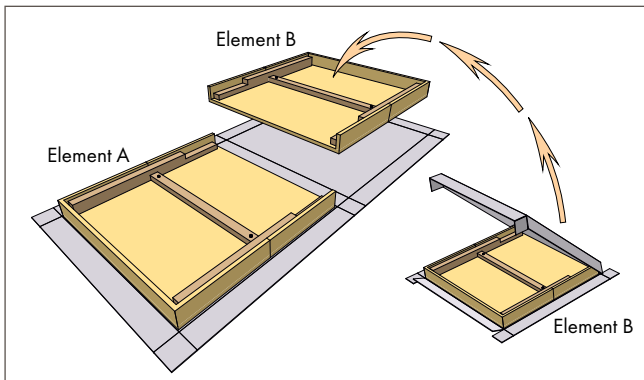
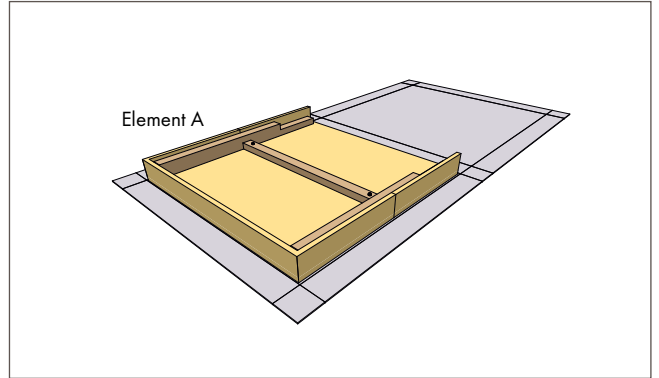
- The ceiling raft set is not suitable for use in indoor swimming pools or spas.
- Surface: The surface layer consists of biologically recommended, magnesite bonded wood wool acoustic tiles.
- Colour: The standard colours of Heradesign® ceiling tiles are white, similar to RAL 9010 or beige, natural tone 13. Other colours (RAL, NCS, StoColor) available on request.

Installation guidelines and advice

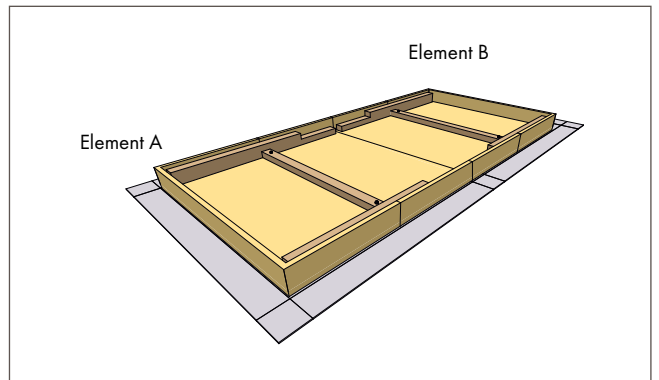
For the installation requirements see DIN 18168 "Lightweight ceiling linings and suspended ceilings", as well as EN 13964 "Suspended ceilings – requirements and test methods".



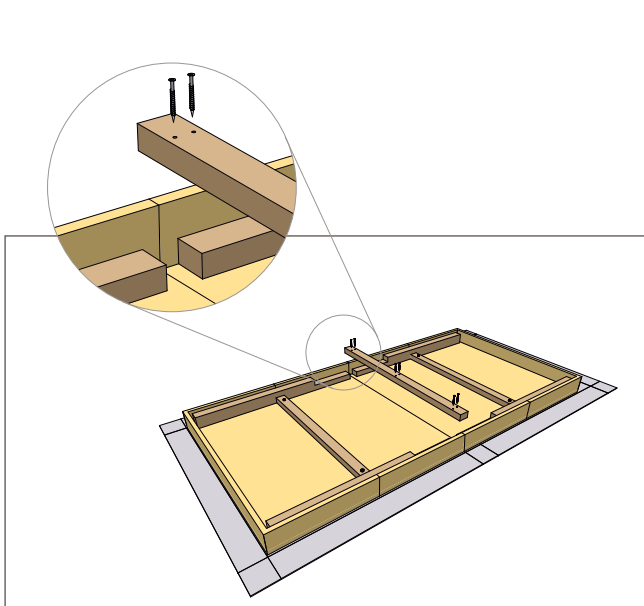
Carefully unpack the elements



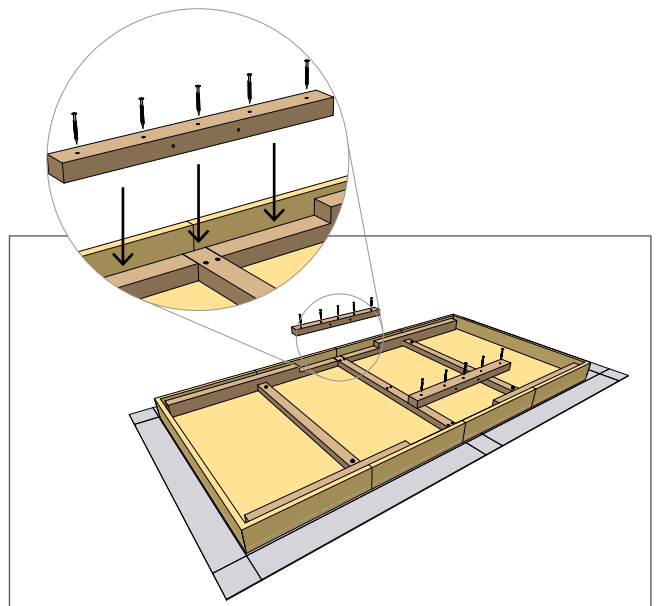
Put elements together



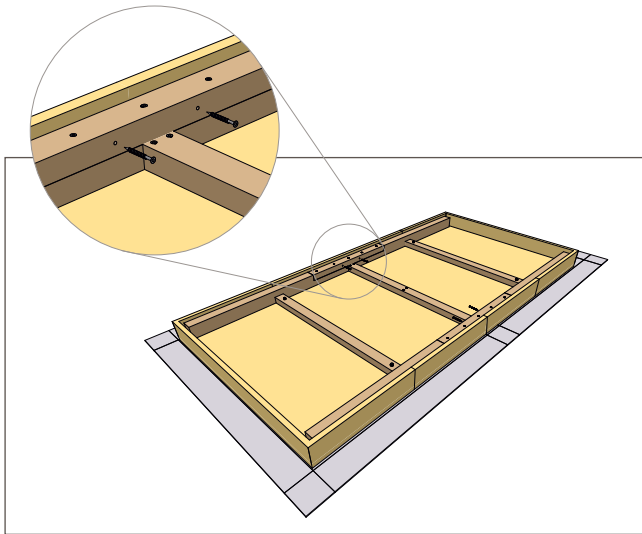
Ensure precise alignment



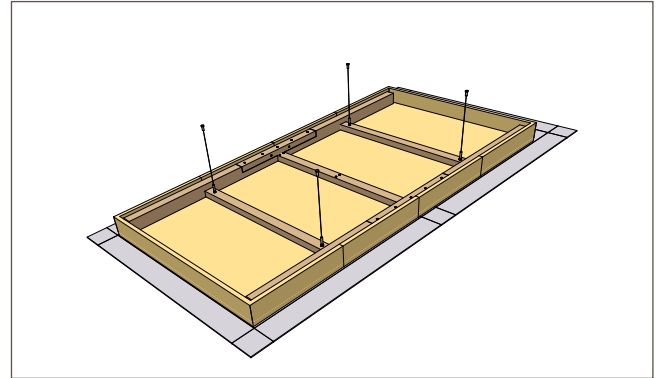
Install connection component C with 6 screws.



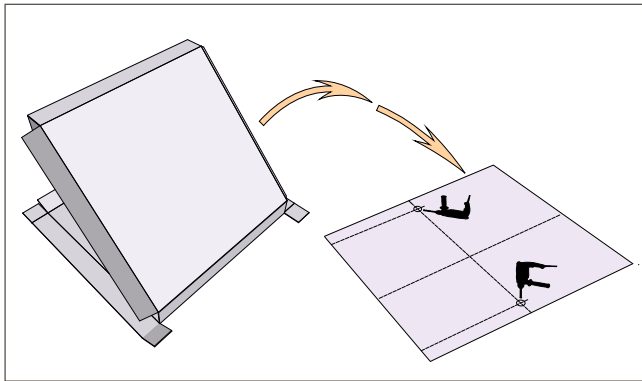
Install connection components D, each with 5 screws.



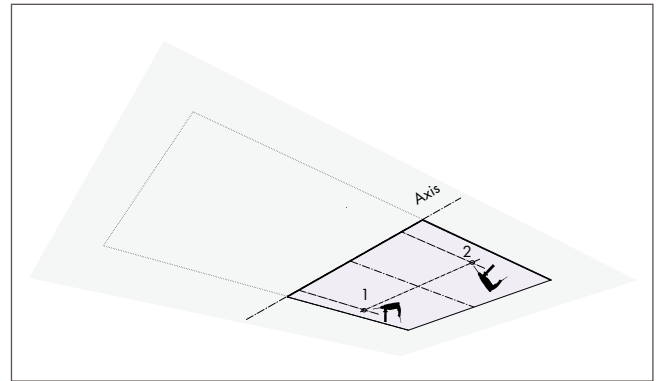
Fix connection component D with an additional 2 screws, horizontally.



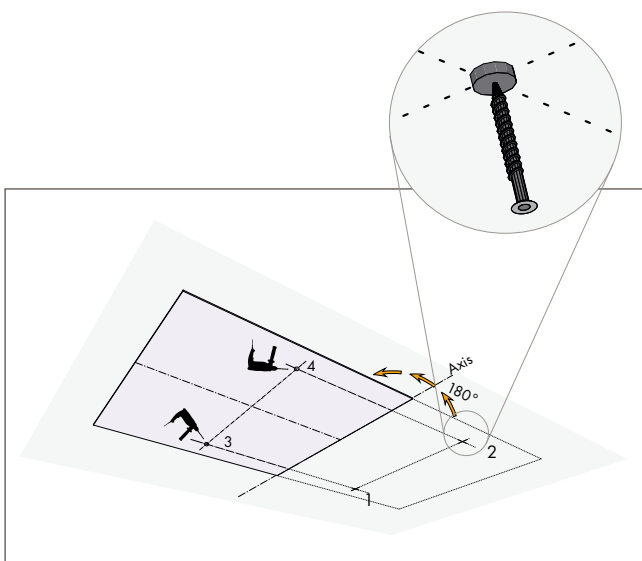
Install the 4 hangers.



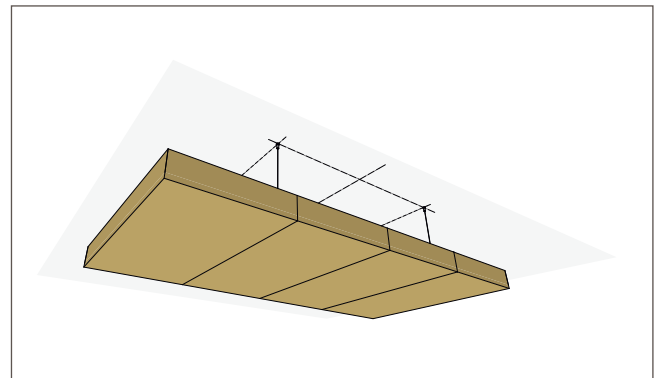
Remove the drilling template from the packaging.



Determine the axis for the ceiling raft. Lay the drilling template on the axis and mark the holes to be drilled for hangers 1 and 2.



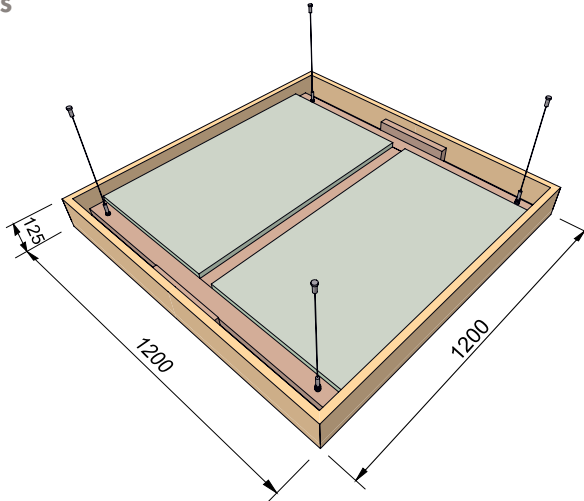
Turn the drilling template 180° on the axis and mark the holes to be drilled for hangers 3 and 4. Install upper hanger parts for hangers 1 to 4.



Install the ceiling raft. Lift the ceiling raft, holding it level and fix the upper hangers to the lower parts.

HERADESIGN® Sonic Element Plus 1200 x 1200

Sizes and dimensions

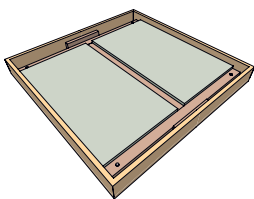


Delivery

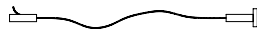
The set delivered consists of:

- Element A with preassembled grid structure and hanger base
- 4 x individual hangers (hanger height < 500 mm) in a plastic bag

Product	Size L x W x H	Weight kg/ceiling raft
HERADESIGN® superfine	1200 x 1200 x 125 mm	27.10
HERADESIGN® fine	Tile thickness 25 mm	29.20



1 x element A



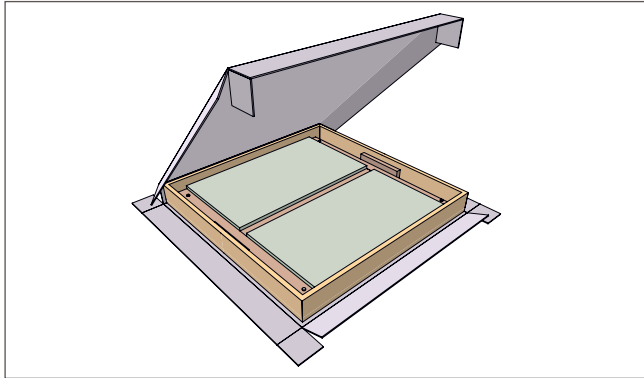
4 x individual hangers

Properties

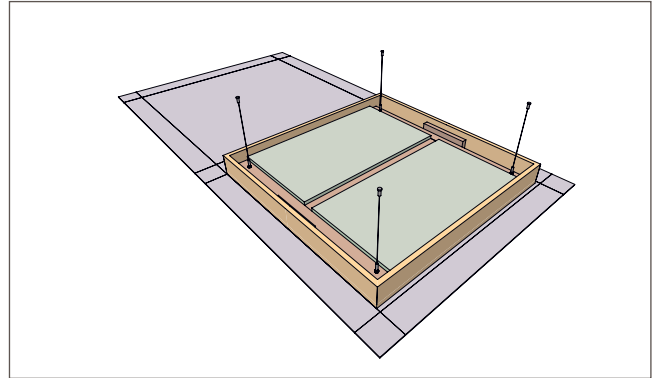
- The ceiling raft set is not suitable for use in indoor swimming pools or spas.
- Surface: The surface layer consists of biologically recommended, magnesite bonded wood wool acoustic tiles.
- Colour: The standard colours of Heradesign® ceiling tiles are white, similar to RAL 9010 or beige, natural tone 13. Other colours (RAL, NCS, StoColor) available on request.

Installation guidelines and advice

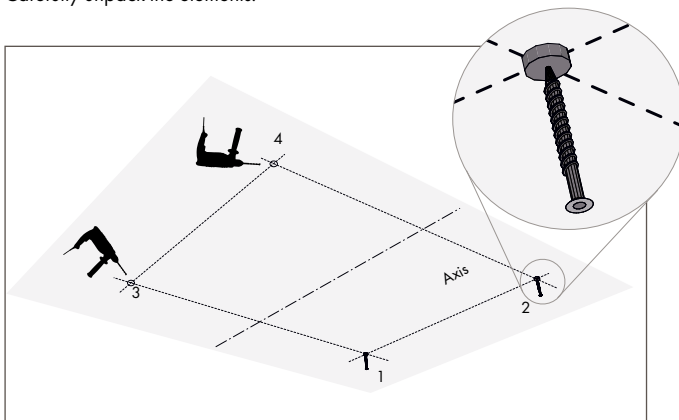
For the installation requirements see DIN 18168 "Lightweight ceiling linings and suspended ceilings", as well as EN 13964 "Suspended ceilings – requirements and test methods".



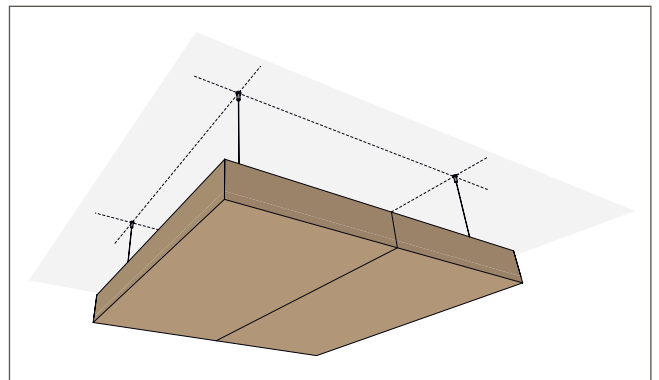
Carefully unpack the elements.



Screw the enclosed cable hanger onto the hanger base.



Mark the holes on the soffit at the correct centres and drill according to the plugs being used. Fix the upper hanger parts using suitable screws for the underlying surface.



Install the ceiling raft. Lift the ceiling raft, holding it level and fix the upper hangers to the lower parts.

MINERAL Sonic element

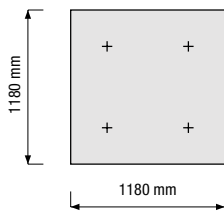
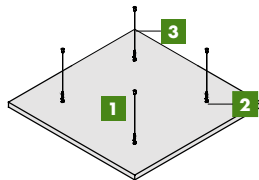
Product Range

Product	Thickness [mm]	Weight [kg/m ²]	Size L x W [mm]
MINERAL Sonic element circular	40	5.6	up to ø 1200
MINERAL Sonic element square	40	5.6	up to max. 1180 x 1180
MINERAL Sonic element rectangular	40	5.6	up to max. 2380 x 1180
MINERAL Sonic element oval	40	5.6	up to max. 2400 x 1200

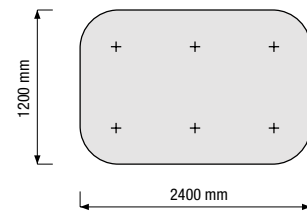
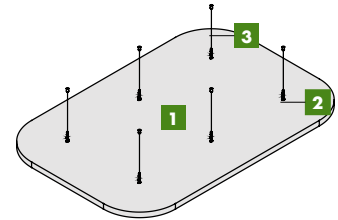
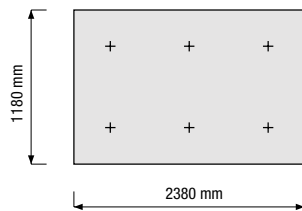
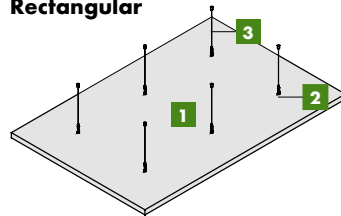
Other shapes/sizes on request

Sizes and dimensions of standard elements

Square

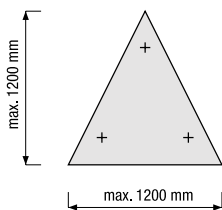
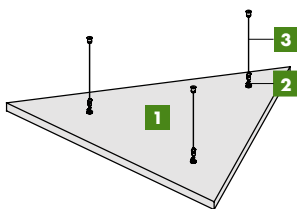


Rectangular

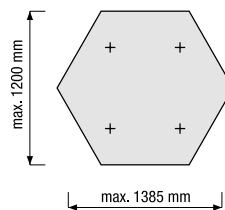
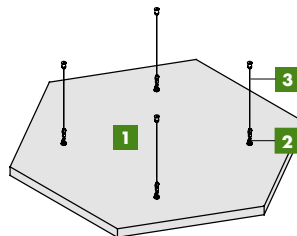


Sizes and dimensions of special elements

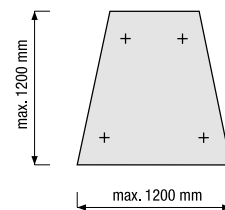
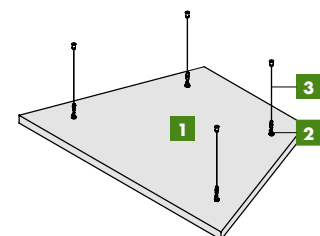
Triangular



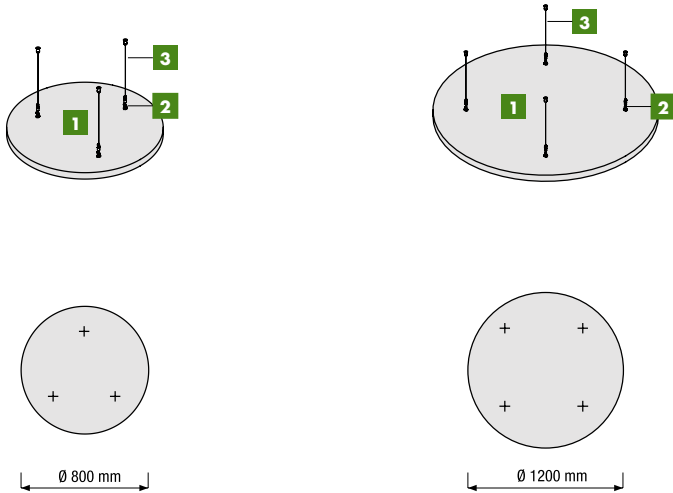
Hexagonal



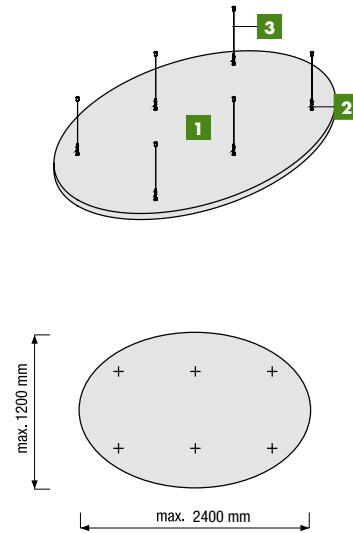
Trapezoid



Circular



Oval

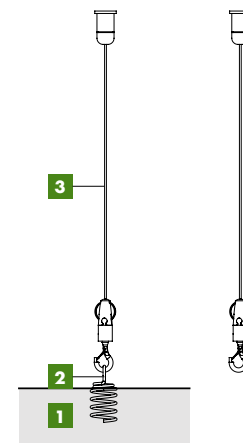


Suspension

Every ceiling raft is delivered including spiral anchors (fixing to raft). The rafts are suspended by cables, attached to the spiral anchors with hooks.

Technical Properties

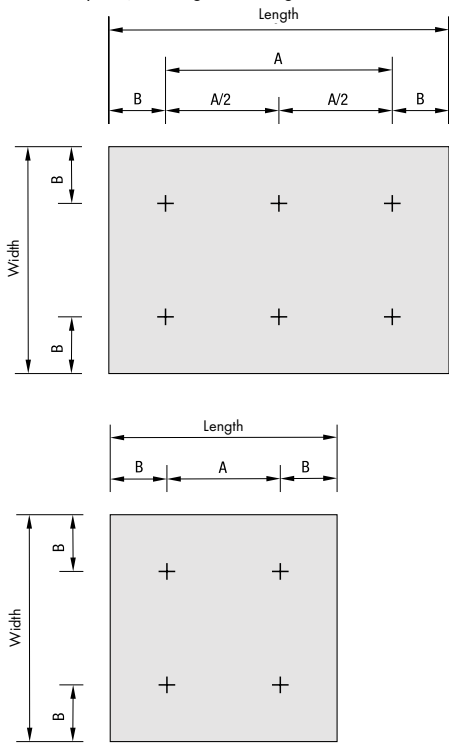
- Sound absorption: EN ISO 354
- Humidity resistance: up to 95% relative humidity
- Shapes / sizes:
 - Circular up to \varnothing 1200 mm
 - Square up to max. 1180 x 1180 mm
 - Rectangular up max. 1180 x 2380 mm
 - Oval up to max. 1200 x 2400 mm
- Special shapes/sizes: Triangular, hexagonal, trapezoid
Other shapes/sizes on request
- Thickness: Approx. 40 mm
- Weight per raft: Approx. 6.0 kg/m² (incl. suspension)



- 1** MINERAL Sonic element
- 2** Spiral anchor
- 3** Cable suspension with hooks, cable and ceiling mount

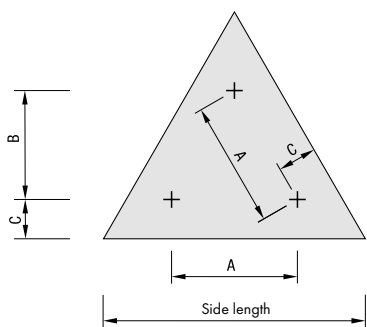
Installation advice


Fixing points for square/rectangular ceiling rafts



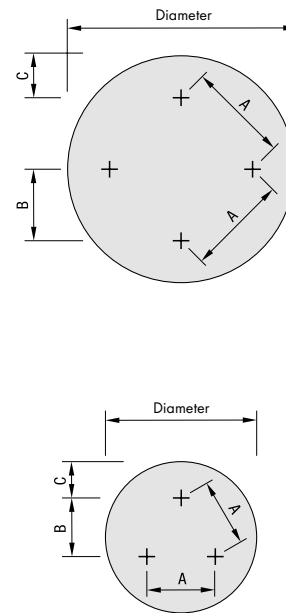
Length [mm]	Width [mm]		B [mm]
2380	1180	6x	300
1780	1180	6x	250
1180	1180	4x	250
900	900	4x	150


Fixing points for triangular ceiling rafts



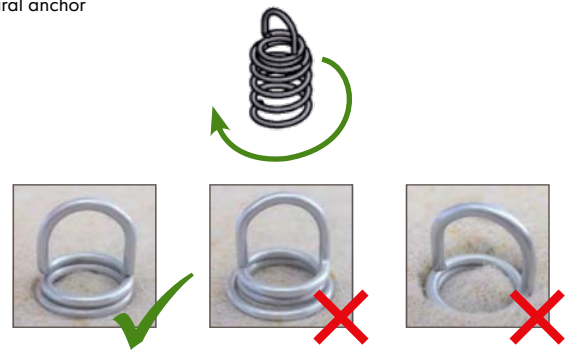
Side length [mm]		A [mm]	B [mm]	C [mm]
1200	3x	680	589	150
1000	3x	480	416	150
800	3x	280	243	150

Fixing points for circular ceiling rafts



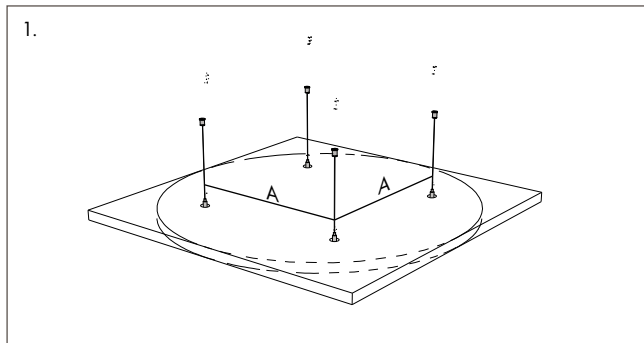
Diameter [mm]		A [mm]	B [mm]	C [mm]
1200	4x	495	350	250
1000	4x	495	350	150
800	3x	346	300	200

Spiral anchor

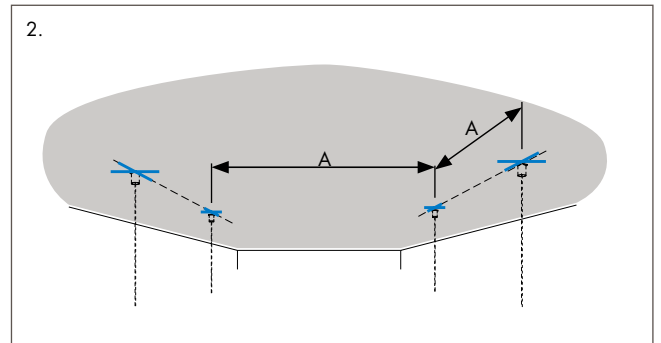


The spiral anchors are twisted in a clockwise direction into the ceiling rafts at the required fixing points. The exact depth of the spiral anchor in the ceiling raft is important!

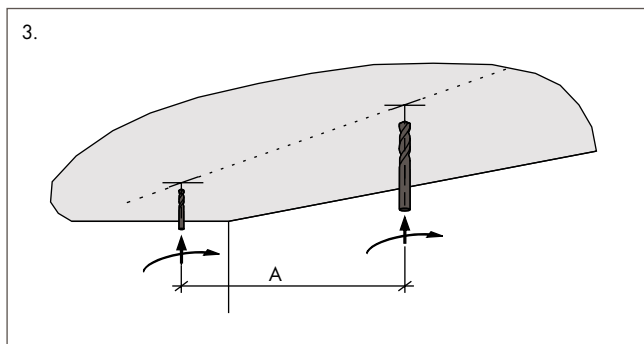
Installation guidelines and advice



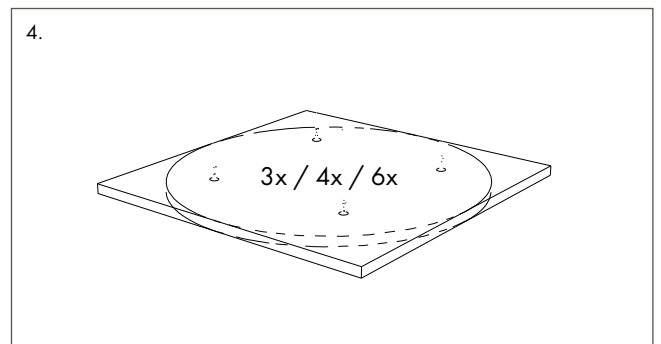
The steps apply to both circular and square/rectangular ceiling rafts, regardless of the version. The fixing centres for circular and square/rectangular rafts is $A = 600$ mm.



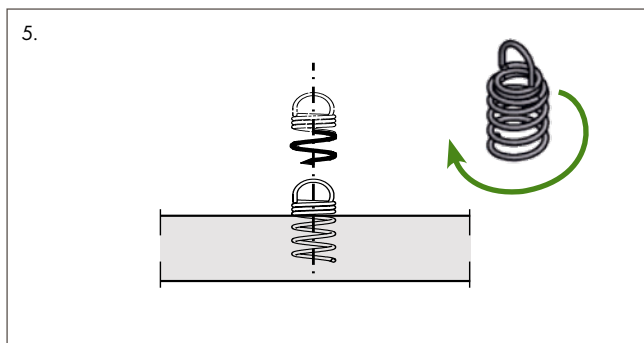
The centres in both directions are transferred to the desired fixing positions.



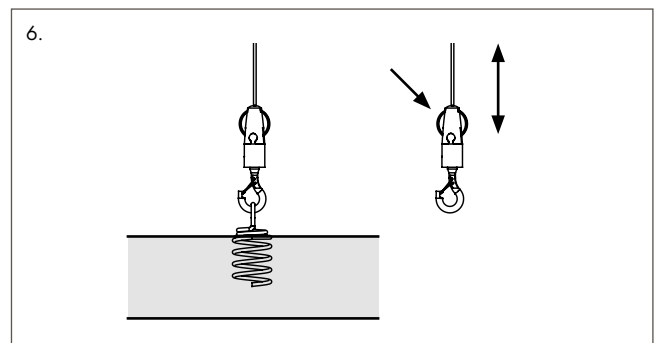
Depending on the soffit material and type of fixing, drilling may be necessary. Plugs and screws must be suitable for the underlying surface and used in accordance with the manufacturer's recommendations.



Every package includes a template to mark the fixing points. The required number and lay out of spiral anchors should be taken from the table on the previous page.



The spiral anchors are twisted in on the reverse side at the marked points.

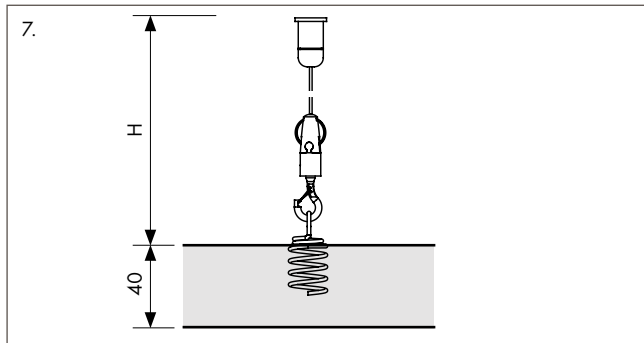


The raft is suspended with the included cables, attached to the spiral anchors with hooks. By releasing the clamping mechanism, the required suspension height can be set exactly before installation.

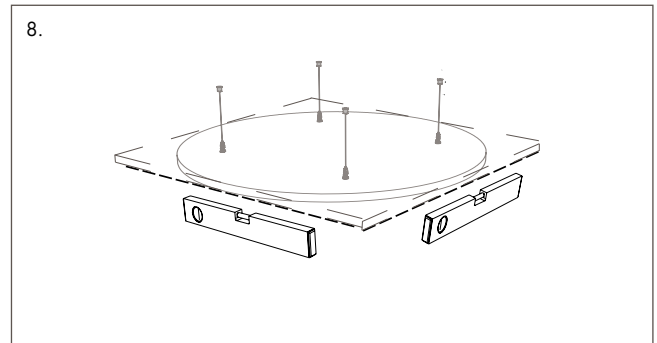


OBSERVE ANCHOR DEPTH!

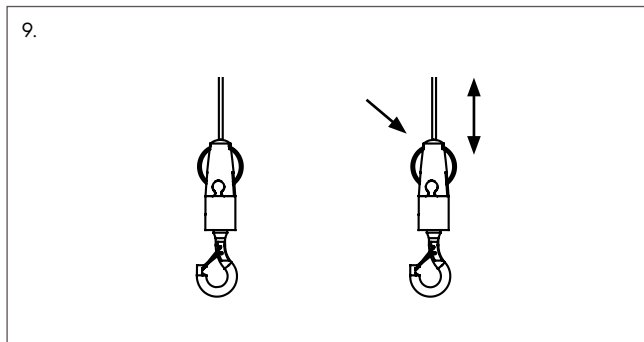
Installation guidelines and advice



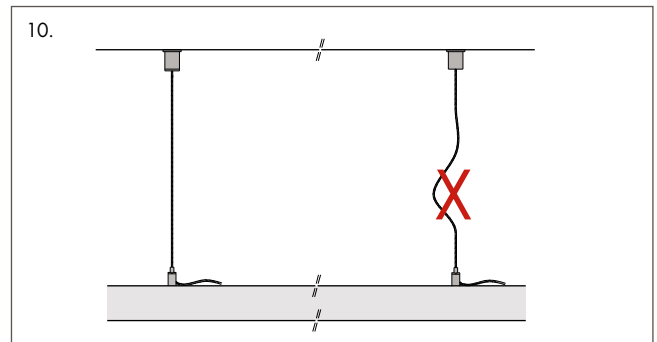
After installing the suspension (cable hanger to raft and ceiling mount including cable), the suspension height can be checked and when necessary corrected. The raft is then fixed on all hangers by two people.



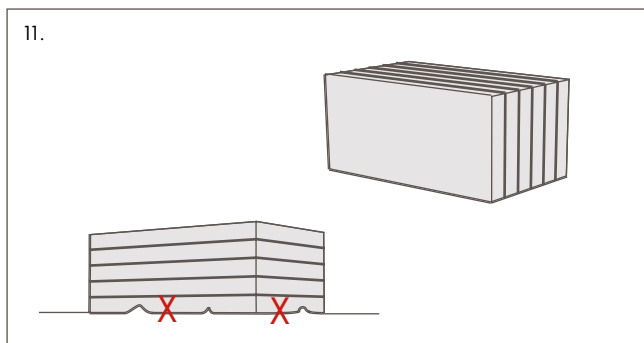
The entire ceiling raft is then aligned.



The cable hangers can be adjusted at any time. By releasing the clamping mechanism, the required suspension height can be set exactly.



The rafts should be supported equally through all four cables, no loose cables are permitted.

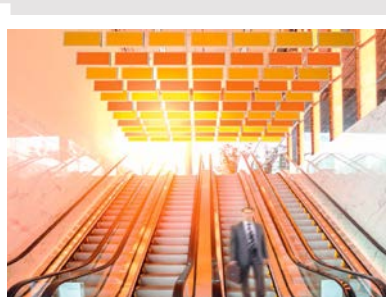
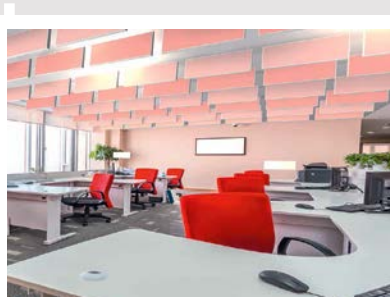
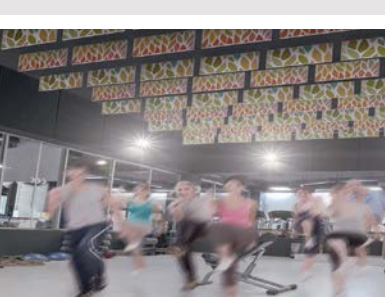
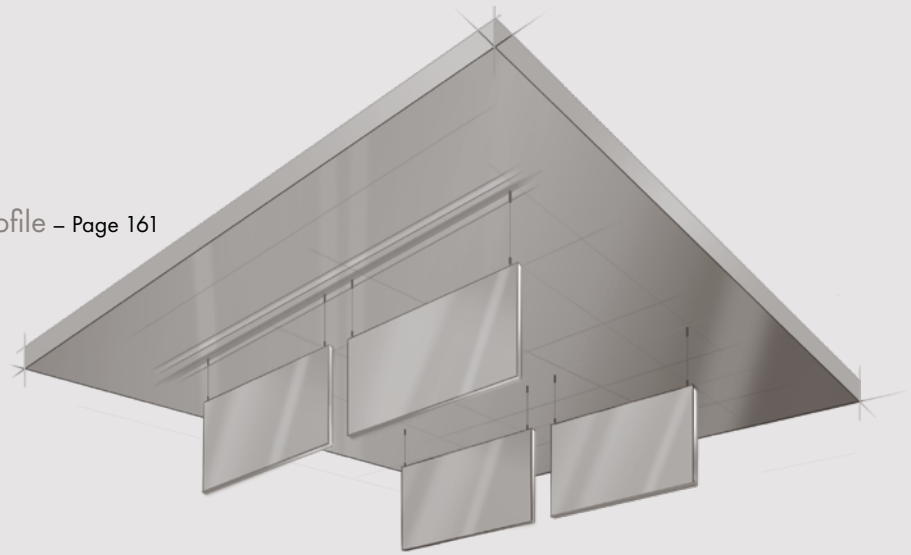


The rafts must always be stored on a dry and flat surface and can either be stacked (max 8 pieces) or stand on the long edge (no stacking permitted). Mechanical stress (impacts etc.) can cause damage to the product. During transport and installation of ceiling rafts, the rafts must always be carried by two people. When removing the packaging and at all times when handling the rafts, clean white cotton gloves should be worn. Ensure that only the frames of the ceiling rafts are handled.

Baffles

MINERAL Baffle Line L / N – Page 158

HERADESIGN® Baffle Line / Element Profile – Page 161



Product Range

Product programme MINERAL Baffle	Baffle size [mm]	Approx. weight [kg/baffle]		
		MINERAL Baffle Classic	MINERAL Baffle Colour	MINERAL Baffle Exclusive
	1200 x 300	3.0	3.0	3.0
1200 x 600	6.2	6.2	6.2	

Other dimensions on request

Product programme HERADESIGN® Baffle	Baffle size [mm]	Approx. weight [kg/baffle]							
		HERADESIGN® fine		HERADESIGN® fine A2		HERADESIGN® superfine		HERADESIGN® superfine A2	
		Element Profile	Line	Element Profile	Line	Element Profile	Line	Element Profile	Line
600 x 300	3.1	4.5	4.8	6.1	3.0	4.4	4.5	5.8	
1200 x 300	6.3	8.7	9.7	12.0	6.0	8.4	8.9	11.3	
1800 x 300	9.4	12.9	14.5	17.8	9.0	12.5	13.4	16.8	
600 x 600	6.1	8.3	9.5	11.6	5.8	8.0	8.8	10.9	
1200 x 600	12.2	15.9	19.0	22.5	11.6	15.3	17.6	21.1	
1800 x 600	18.3	23.4	28.5	33.5	17.4	22.6	26.4	31.4	

Other dimensions on request

MINERAL Baffle Line L / N

Product Range

MINERAL Baffle Classic



MINERAL Baffle Colour

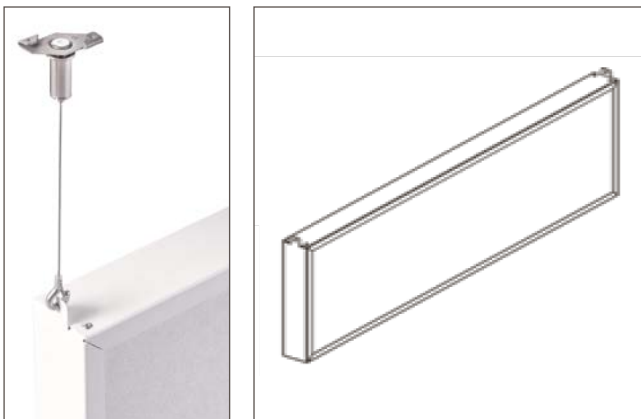


MINERAL Baffle Exclusive

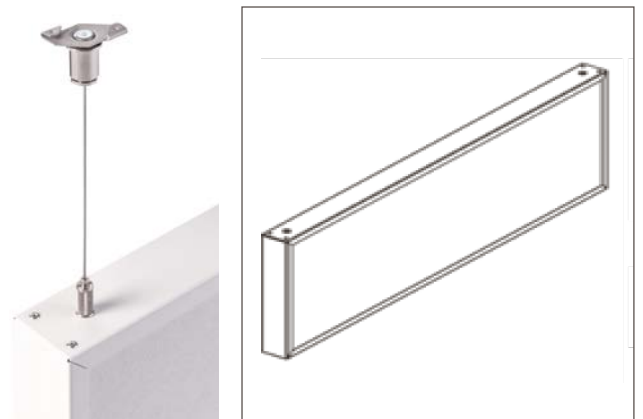


Suspension

Cable and tab connector on the side (Line L)



Cable and top screw thread (Line N)

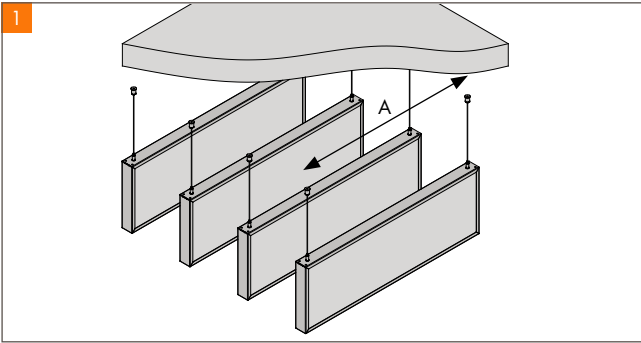


Caddy-clip and karabiner on tab connector

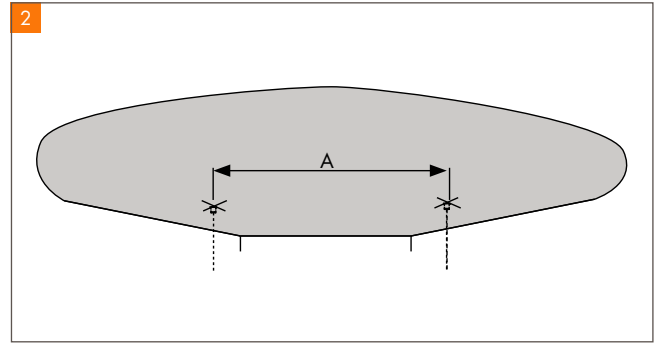


MINERAL Baffle Line N with M6 rivet nut

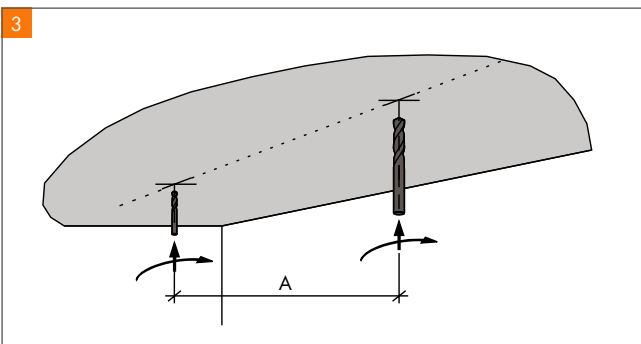
Installation guidelines and advice



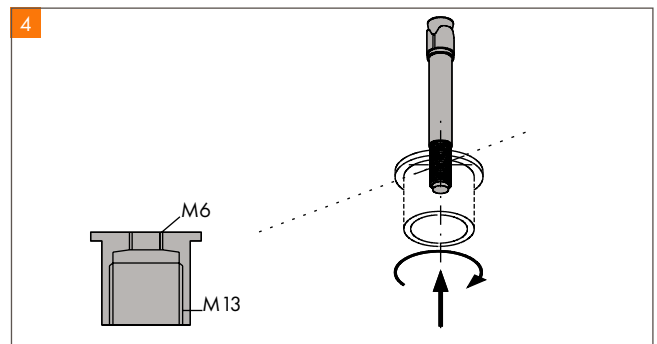
Installation with cable hanger and top screw thread



The centres in both directions are transferred to the desired fixing positions.

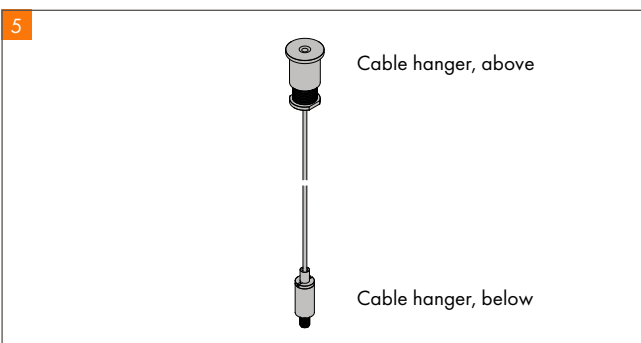


Depending on the soffit material and type of fixing, drilling may be necessary.

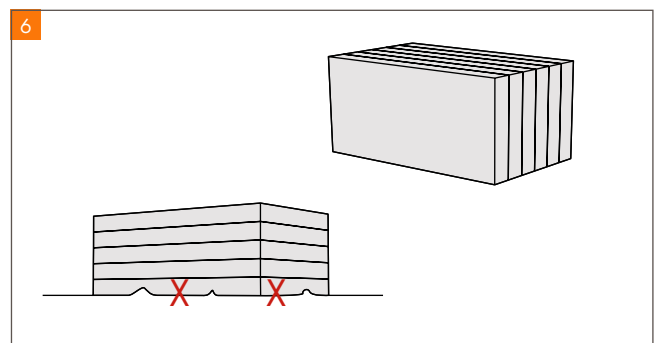


The included ceiling mounts feature an M6 internal thread for installation to the ceiling (soffit). Suitable fixings should be chosen for the specific installation and the type of soffit in consultation with the screw/plug manufacturer.

Possible fixings: M6 bolt or appropriate screw and plug combination.



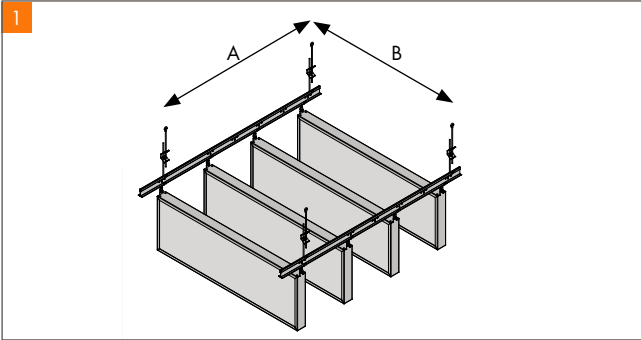
Install cable hanger



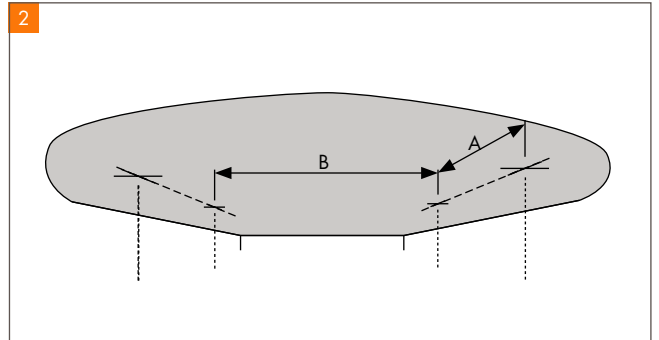
The rafts must always be stored on a dry and flat surface and can either be stacked (max 8 pieces) or stand on the long edge (no stacking permitted). Mechanical stress (impacts etc.) can cause damage to the product. During transport and installation of ceiling rafts, the rafts must always be carried by two people. When removing the packaging and at all times when handling the rafts, clean white cotton gloves should be worn. Ensure that only the frames of the ceiling rafts are handled.

MINERAL Baffle Line L with tab connector in T-profiles

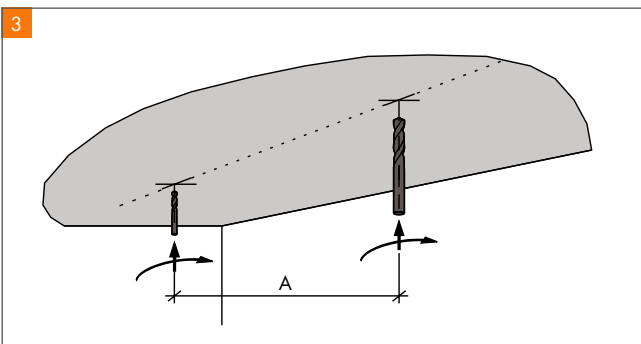
Installation guidelines and advice



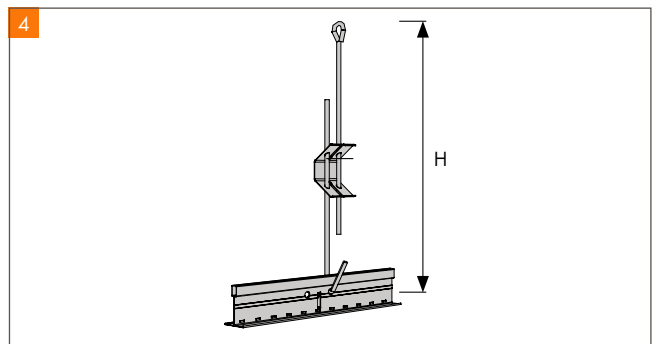
Installation using Caddy-clip and karabiner on tab connector



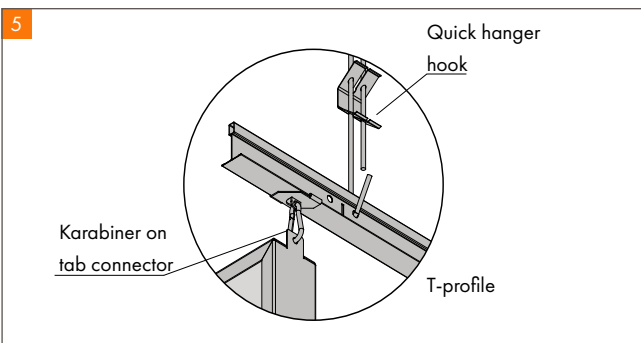
The centres in both directions are transferred to the desired fixing positions.



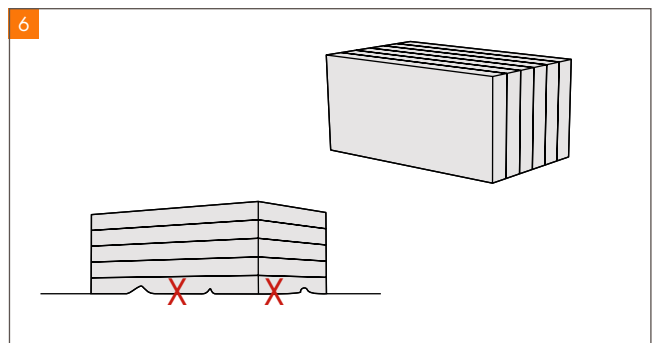
Depending on the soffit material and type of fixing, drilling may be necessary.



The hangers are always installed vertically. The maximum centres of the hangers is dependent on the row centres of the baffles. Subsequently, hang the T-profiles.



Install the Caddy-clip on the T-profile and hang the baffle on the tab connector using the karabiner.

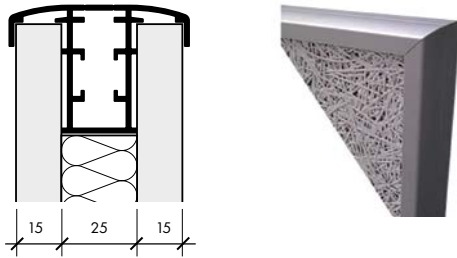


The baffles must always be stored on a dry and flat surface and can either be stacked (max 8 pieces) or stand on the long edge (no stacking permitted). Mechanical stress (impacts etc.) can cause damage to the product. During transport and installation of baffles, the baffles must always be carried by two people. When removing the packaging and at all times when handling the baffles, clean white cotton gloves should be worn. Ensure that only the frames of the baffles are handled.

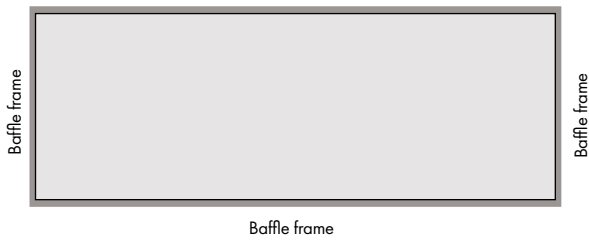
HERADESIGN® Baffle Line / Element Profile

Product Range

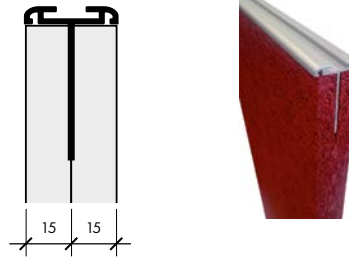
HERADESIGN® Baffle Line



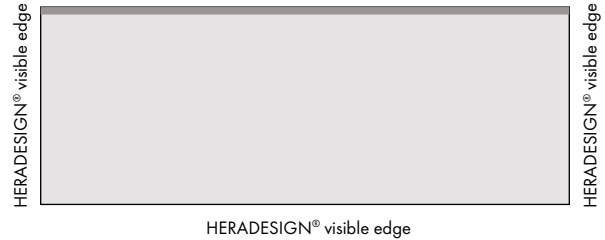
- 3-layer baffle with HERADESIGN® surface layer and mineral wool absorber core.
- Frame with completely closed anodised aluminium profile (colour A6/C0), with integrated punching for HERADESIGN® hangers.



HERADESIGN® Baffle Element Profile



- 2-layer baffle with HERADESIGN® surface layer and upper side anodised Alu-profile (colour A6/C0).

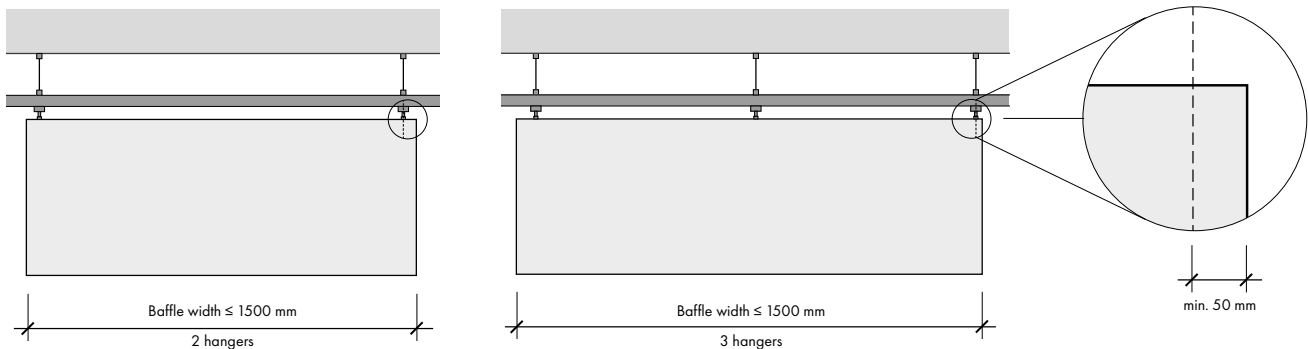


System component	Length [mm]	Packaging unit [pcs.]
Fixing profile and guide profile	3000	2

Special lengths available on request

System component	Suspension height [mm]	Packaging unit [pcs.]
Short hanger	45	12
Cable hanger	< 500	12
Angled hanger (only for Baffle Line)	< 500	12
Independent hanger (use WITHOUT fixing profile)	< 500	12

Number of hangers per baffle



Application areas

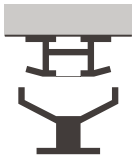
As a decorative and acoustic ceiling element for internal applications with a constant relative humidity of upto max. 85%.
Not suitable for use in indoor swimming pools, underground car parks and external applications!

Installation guidelines and advice

HERADESIGN® suspension system for Baffle Line and Baffle Element Profile

Short hanger

Pre-assembled hanger with integrated anti-twist device and easy-to-click metal clip for suspending HERADESIGN® Baffle Line or Baffle Element Profile from ceiling fixing profiles or guide profiles.



- Complete installation without tools
- Self-fixing
- Baffle base surface: matt nickel
- Quick and easy installation at the desired point
- Quickest possible installation due to easy-to-click function
- Suspension height 42.5 mm (upper edge of ceiling profile to upper edge of baffle)
- min. 2 hangers per baffle
- max. load per hanger 300 N/30 kg
- max. breaking load per hanger 1500 N/150 kg

Cable hanger

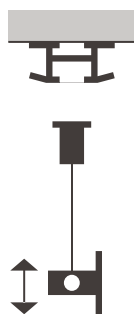
Pre-assembled hanger with integrated anti-twist device in the hanger and baffle base for suspending HERADESIGN® Baffle Line or Baffle Element Profile from ceiling fixing profiles or guide profiles.



- Complete installation without tools
- Millimetre exact height adjustment
- Cable Ø 1.2 mm, 7 x 7 galvanised steel, length 500 mm
- Nominal strength: 2400 N/mm²
- With side cable release
- Hanger and baffle base surface: matt nickel
- max. suspension height = 450 mm (upper edge of ceiling profile to upper edge of baffle)
- min. 2 hangers per baffle
- max. load per hanger 160N/16 kg
- max. breaking load per hanger 800N/80 kg

Angled hanger (only for HERADESIGN® Baffle Line)

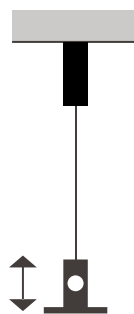
Pre-assembled hanger with integrated anti-twist device in the hanger and baffle base for the angled suspension of HERADESIGN® Baffle Line from ceiling fixing profiles or guide profiles.



- Complete installation without tools
- Required angle of the Baffle infinitely variable
- Millimetre exact height adjustment
- Cable Ø 1.2 mm, 7 x 7 galvanised steel, length 500 mm
- Nominal strength: 2400 N/mm²
- With side cable release
- Hanger and baffle base surface: matt nickel
- max. suspension height = 450 mm (upper edge of ceiling profile to upper edge of baffle)
- min. 4 hangers per baffle
- max. load per hanger 160 N/16 kg
- max. breaking load per hanger 800 N/80 kg

Independent hanger

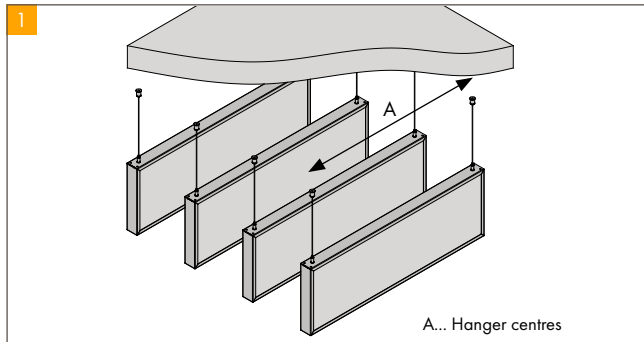
Pre-assembled hanger with integrated anti-twist device in the hanger and baffle base for suspending HERADESIGN® Baffle Line or Baffle Element Profile from the soffit or suspended ceiling system.



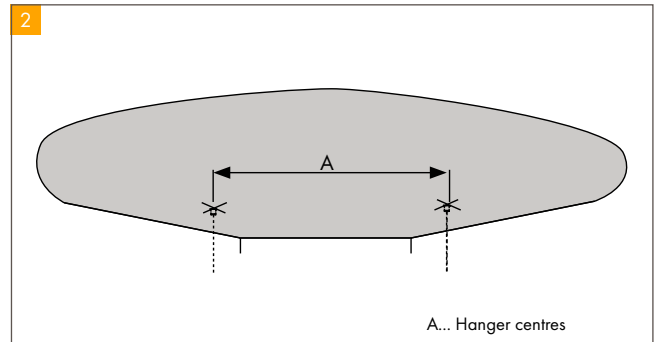
- Complete installation without tools
- Millimetre exact height adjustment
- Cable Ø 1.2 mm, 7x 7 galvanised steel, length 500 mm
- Nominal strength: 2400 N/mm²
- With side cable release
- Hanger and baffle base surface: matt nickel
- max. suspension height = 450 mm (upper edge of ceiling profile to upper edge of baffle)
- min. 2 hangers per baffle
- max. load per hanger 160 N/16 kg
- max. breaking load per hanger 800 N/80 kg
- **Note:** When installing HERADESIGN® Baffle Line with independent hangers, the positioning of the hanger base must be exact to the millimetre.

HERADESIGN® Baffle with independent hangers

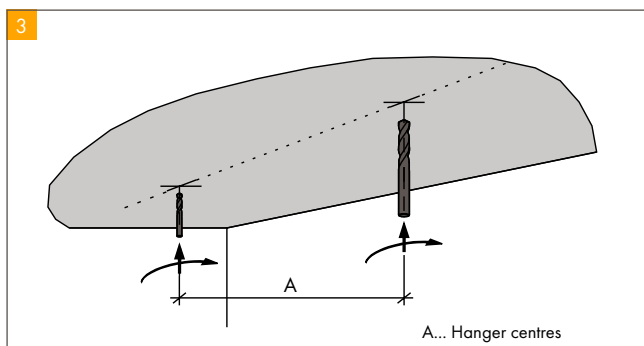
Installation guidelines and advice



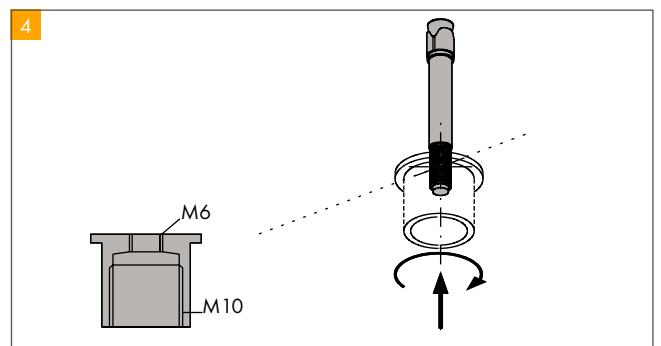
Installation using cable hangers and top screw thread.



The centres in both directions are transferred to the desired fixing positions.

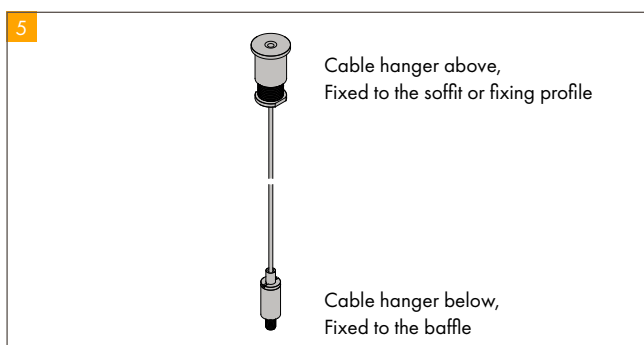


Depending on the soffit material and type of fixing, drilling may be necessary.

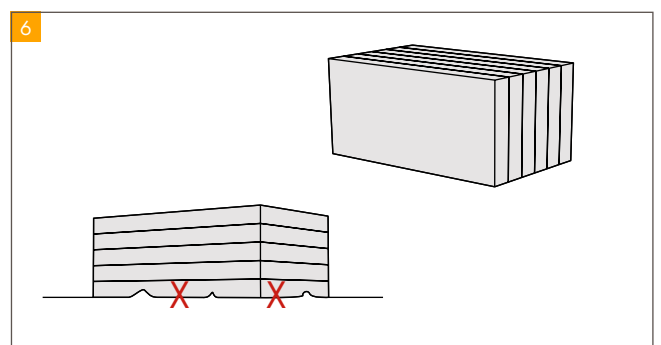


The included ceiling mounts feature an M6 internal thread for installation to the ceiling (soffit). Suitable fixings should be chosen for the specific installation and the type of soffit in consultation with the screw/plug manufacturer.

Possible fixings: M6 bolt or appropriate screw and plug combination.



Install cable hanger.



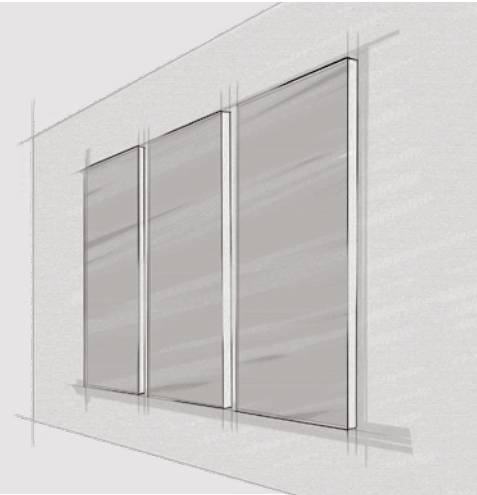
The baffles must always be stored on a dry and flat surface and can either be stacked (max 8 pieces) or stand on the long edge (no stacking permitted). Mechanical stress (impacts etc.) can cause damage to the product. During transport and installation of baffles, the baffles must always be carried by two people. When removing the packaging and at all times when handling the baffles, clean white cotton gloves should be worn. Ensure that only the frames of the baffles are handled.

Wall Absorbers

MINERAL Wallcoustic Line: Ready-to-install wall panel – Page 165

FABRIC Wallcoustic Line: Wall panel with frame – Page 166

HERADESIGN® Wallcoustic Element: Ready-to-install wall panel – Page 167



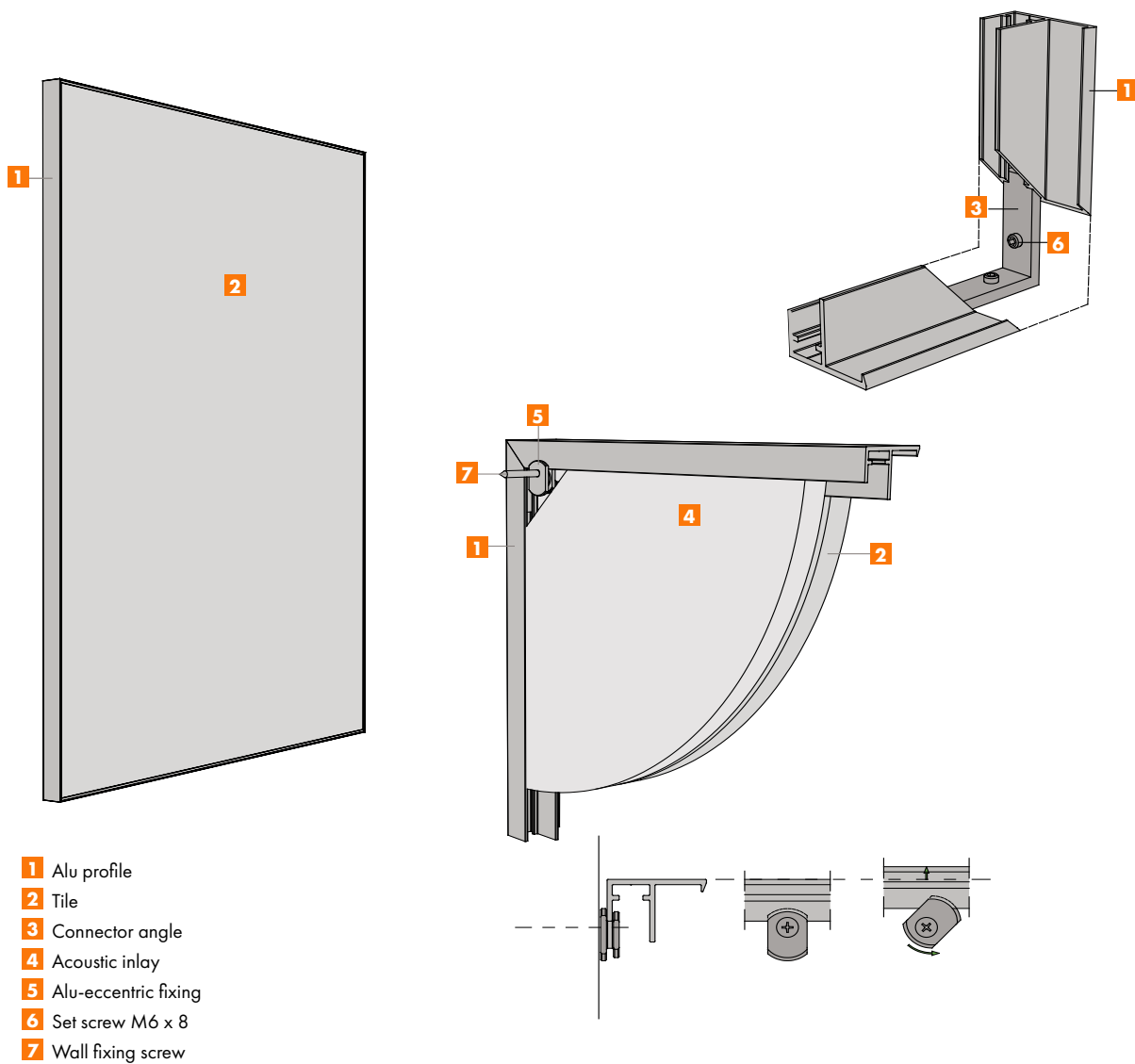
Product Range

Product	Thickness [mm]	Weight [kg]		Module [mm]
		m ²	Pcs.	
Wall absorber MINERAL Wallcoustic Line classic (white)	43		5	1200 x 600
			9	1200 x 1200
			16	1800 x 1200
			25	2400 x 1200
Wall absorber MINERAL Wallcoustic Line colour	43		5	1200 x 600
			9	1200 x 1200
			16	1800 x 1200
			25	2400 x 1200
Wall absorber MINERAL Wallcoustic Line exclusive (printed motif)	43		5	1200 x 600
			9	1200 x 1200
			16	1800 x 1200
			25	2400 x 1200
Wall absorber FABRIC Wallcoustic Line 27 classic (white) or exclusive (printed motif)	27		5	1200 x 1200
			5	1800 x 1200
			5	2400 x 1200
			5	2400 x 2400
Wall absorber FABRIC Wallcoustic Line 50 classic (white) or exclusive (printed motif)	50		6	600 x 1200
			6	1200 x 1200
			6	1800 x 1200
			6	2400 x 1200
			6	2400 x 2400
			6	4000 x 3000
Wall absorber FABRIC Wallcoustic Line 20	20		3	600 x 600
			4	1200 x 600
HERADESIGN® Wallcoustic Element	100		18.3	1200 x 600

Other formats on request

MINERAL Wallcoustic Line - Ready-to-install wall panel

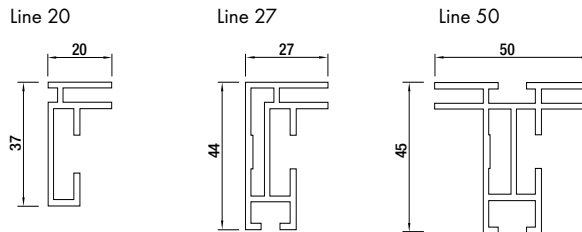
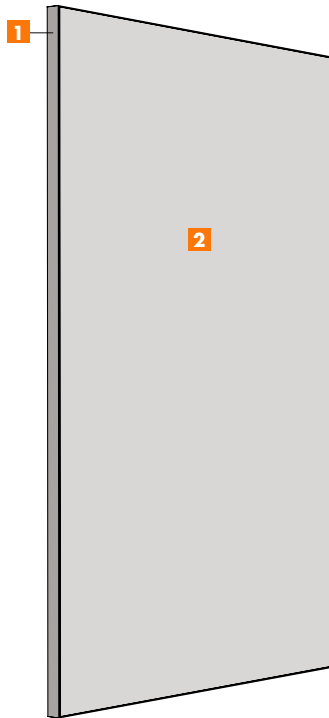
Installation guidelines and advice



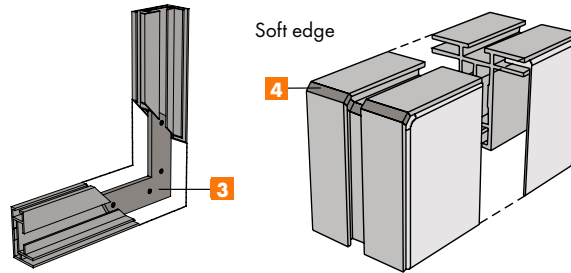
MINERAL Wallcoustic Line is a wall absorber consisting of a mineral tile with an aluminium frame. The wall panel is delivered in one piece, ready to install and can be installed quickly and simply using eccentric fixings and the installation key provided.

FABRIC Wallcoustic Line - Wall panel with frame

Installation guidelines and advice



Corner connector



- 1 Alu profile
- 2 Fabric cover
- 3 Corner angle
- 4 Fabric edge

Soft edge only available for:
Line 27 and Line 50

The customisable, printable fabric cover with an elegant aluminium frame – that is FABRIC Wallcoustic Line. The alu-frame is fitted with an all-round groove in which the printed fabric is held using beading. This means the fabric cover can easily be removed and replaced with a new motif – quick, simple and no need for special tools!

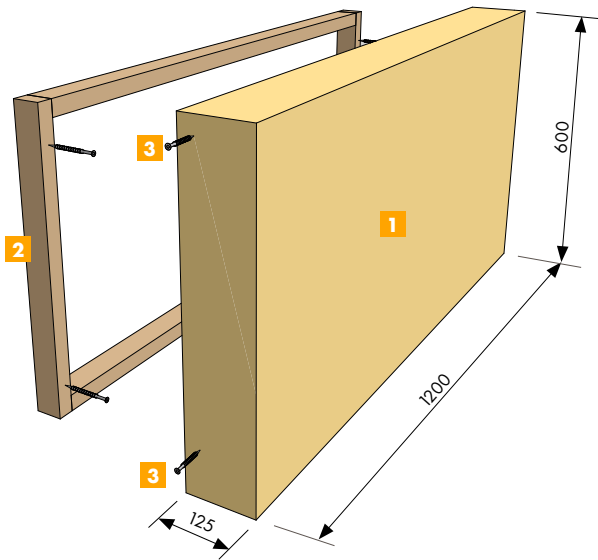
The profile is delivered with an integrated corner connection system.

- Line 20: Light-weight profile for single sided covers in small sizes
- Line 27: Profile for all sizes with single sided covers
- Line 50: Profile for wall panels with double sided covers and for highly absorbing acoustic inlays

Other frame sizes and colours on request.

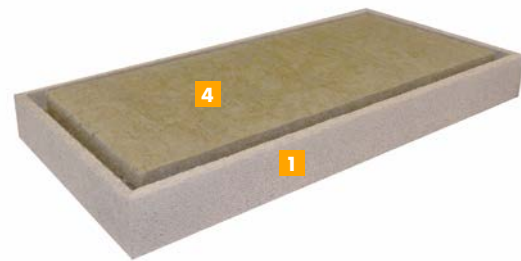
HERADESIGN® Wallcoustic Element - Ready-to-install wall panel

Sizes and dimensions



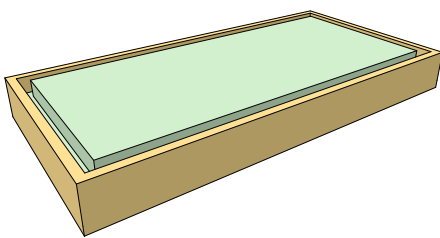
The HERADESIGN® Wallcoustic Element is an acoustic wall panel (1200/600/125 mm) consisting of magnesite bonded wood wool tiles and an adhered acoustic inlay (100 mm). The element is delivered in one piece, read-to-install and can, together with the included wooden frame, be quickly installed on a stable, vertical surface.

- 1 HERADESIGN® absorber
- 2 Installation frame
- 3 Fixing screws
- 4 Adhered acoustic inlay

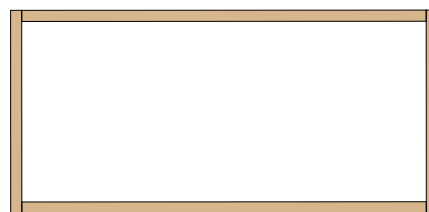


Product	Size L x W x H	Weight kg/ wall absorber
HERADESIGN® Wallcoustic Element surface superfine	1200 x 600 x 125 mm Tile thickness 25 mm	18,30

Delivery



1x wall element with acoustic inlay



1x installation frame

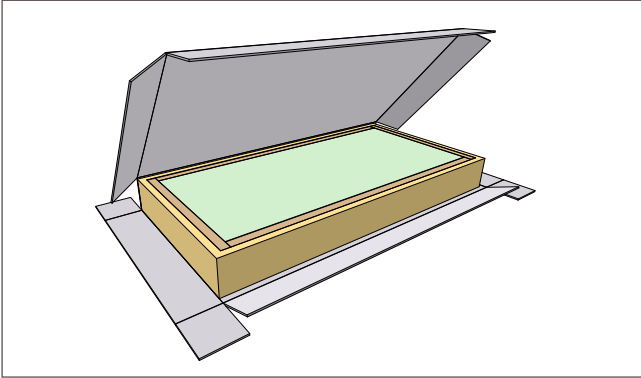


4x fixing screws

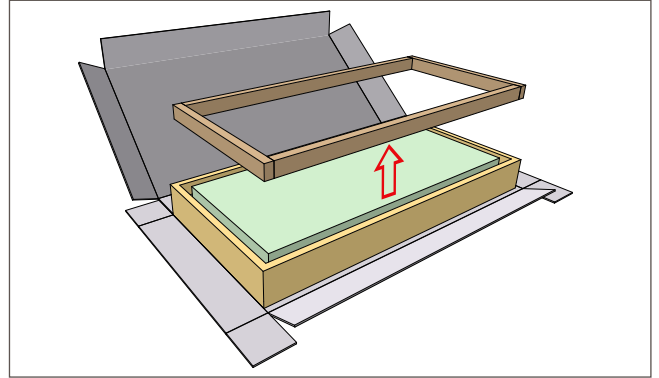
Properties

- The wall absorber is not suitable for use in indoor swimming pools or spas.
- Surface: The surface layer consists of biologically recommended, magnesite bonded wood wool acoustic tiles.
- Colour: The standard colours of HERADESIGN® tiles are white, similar to RAL 9010 or beige, natural tone 13. Other colours (RAL, NCS, StoColor) available on request.

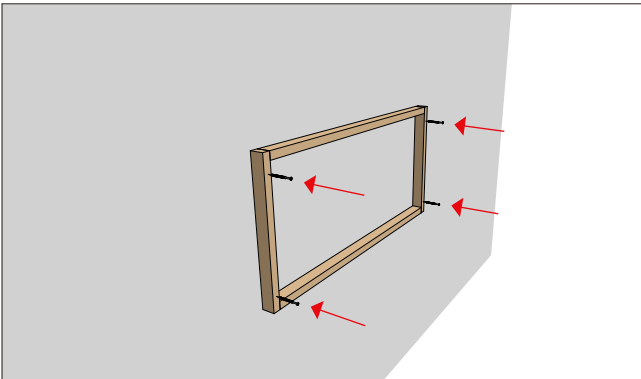
Installation guidelines and advice



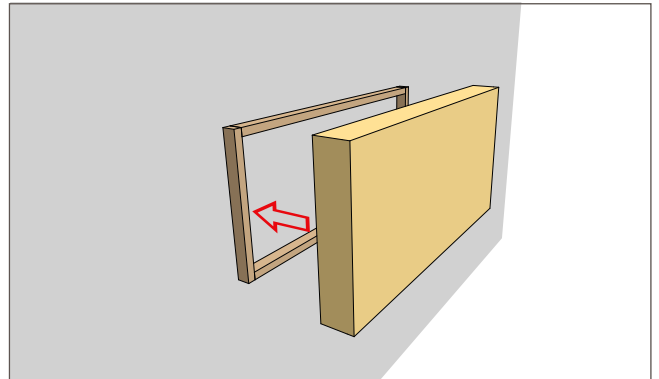
Carefully remove the element from the packaging.



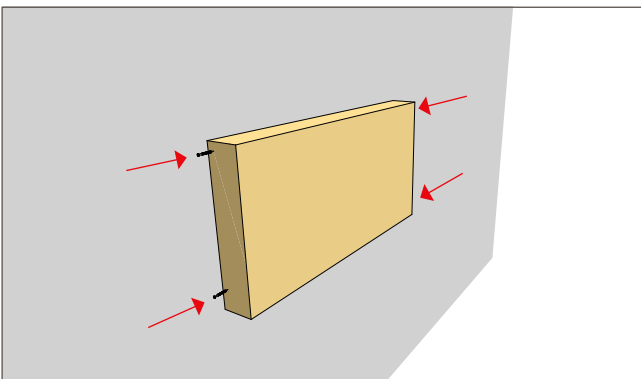
Carefully remove the installation frame.



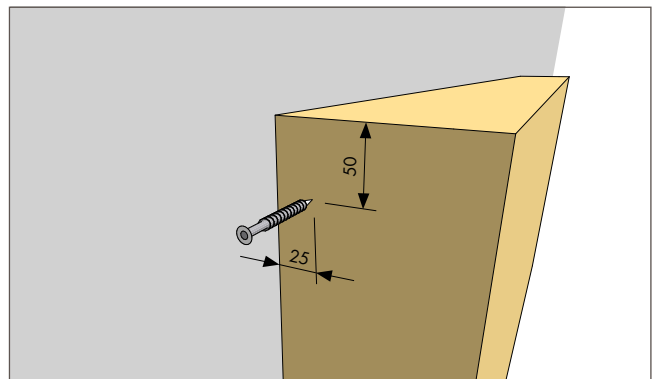
Fix the installation to the desired location with four suitable plugs and screws.



Carefully push the absorber element over the installation frame.



Fix on two opposite sides using two screws, included in the delivery.



Observe the screw centres!

Application, Handling and Accessories

THERMATEX®
Application and handling – Page 170

HERADESIGN®
Application and handling – Page 177

HERADESIGN®
Accessories – Page 190

VENTATEC® – Page 193

DONN® – Page 196



Accessories

Product	General Information
HERADESIGN® Maintenance opening	Ball impact resistant maintenance opening for integration in HERADESIGN® ceilings and wall constructions
HERADESIGN® Acoustic overlay	Mineral wool absorber in various strengths and densities for increased acoustic performance requirements
HERADESIGN® Film bags	Trickle protection for acoustic overlays without influencing the sound absorption
HERADESIGN® Screws	Countersunk screws with Torx T20 in various lengths with coloured screw heads
HERADESIGN® Drilling template	Metal template to exactly set out the screw holes
HERADESIGN® Ceiling angle	Mitred and glued L-element in various dimensions
HERADESIGN® Paint spray	Improvement and cover spray in the standard colours white and beige
HERADESIGN® Bit holder „easy“	The HERADESIGN® bit holder easy enables simple and flush installation of HERADESIGN® screws without damaging the wood wool surface.

THERMATEX® Application and handling

General

Transport and storage

During transport and subsequent storage, the tiles should be protected against humidity.

Attention should be given to the underlying surface which should be clean, dry and flat (full surface support) to avoid soiling or damage.

Tiles from different production dates/batches should not be installed within the same room.

Handling

It is essential to carefully handle both full cartons as well as individual tiles. They must not be thrown, dragged or pushed. Even short-term mechanical influences can lead to damage.

Cartons and tiles should not be stood or turned on their corners or edges.

To remove the tiles, the packaging should be opened and removed all the way around. Individual tiles should be handled using suitable, clean installation gloves (white material).

Installation conditions

Knauf Ceiling Solutions tiles may only be installed once all wet trades have been completed, doors and windows fitted and the room completely dried out. The heating system should be in operation in order to ensure a working temperature of 15 - 20°C. Before starting the installation, we recommend taking measurements with regards humidity and temperature. It is not recommended to start the installation if the humidity is over 70%.

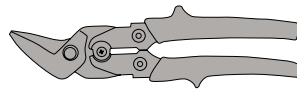
During the subsequent period of use, the relative humidity may not exceed 90% or 95% depending on the type of tile used (see product data sheet). In rooms with continually high relative humidity, special provisions should be made (see installation guidelines for wet rooms and swimming pools).

Improper handling and not observing the installation conditions invalidates all warranties.

Tools

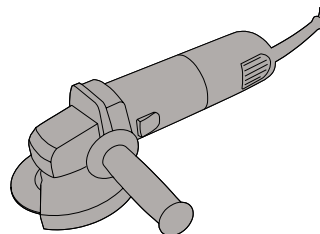
Tin snips

Primarily for butt cuts (L- and SRW-profiles as well as all types of main and cross profiles) but only suitable for mitre cuts to a limited extent (L-profile). Generally, use is limited to profiles with a material thickness of max $d = 0.5-0.7$ mm.



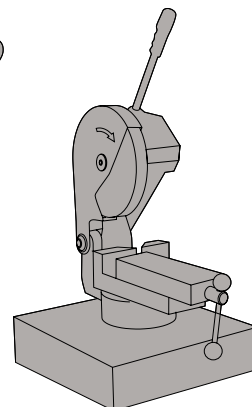
Angle grinder

This is only suitable to a limited extent due to the heat development and the resultant discoloration of the metal. When using angle grinders, particularly for large material thicknesses of ≥ 1.0 mm, the heat development can be reduced by using suitable thin separation sheets, approx. 1.0 mm thick. Even then, proceed with care.



Mitre saw (for metal)

The use of a metal-mitre saw delivers by far the best results for butt and mitre cuts. Proceeding with care (low cutting speed) is also essential. Avoid damaging the surface with metal cuttings. When cutting shadow trims it is advantageous to use a suitable wooden batten underlay.



Cleaning of THERMATEX® and TOPIQ® tiles

General

Knauf Ceiling Solutions mineral tiles are available with many different surface finishes, of which the visible face can be cleaned using a variety of types and methods. Normally ceiling tiles do not need to be cleaned for the duration of their use in most standard applications. Nevertheless, it may be necessary to clean local soiling.

Procedure

The cleaning methods described below cannot be applied to all surfaces. The applicable methods for finishes are given in the table below.

1. Dry cleaning

For standard cleaning of dust, loose dirt or deposits, a normal vacuum cleaner with a soft brush can be used.

2. Damp cleaning

For more intensive cleaning, the surfaces can be damp cleaned. This should be carried out with a wrung-out soft cloth or sponge. After cleaning, the surface should be dried with a soft cloth.

3. Wet cleaning

Wet cleaning should be carried out with lukewarm water (up to 40°C), using a sponge and mild cleaning agent (with a pH value between 7 and 9). It is important that the edges and the reverse side of the tile do not come into contact with moisture. After cleaning the surface should be dried with a soft cloth.

Tile types

Not all mineral surfaces are suitable, for example, for wet or pressure cleaning. Suitable cleaning measures are to be taken as per the table below right.

4. Pressure cleaning

Pressure cleaning is only for ceilings with an exposed grid construction (System C, edge Board), carried out with the following technical restrictions:

- Water temperature: max. 40°
- Working pressure: max. 80 bar, flow rate max. 500 l/h
- Spray angle (nozzle): min. 30°
- Minimum distance: 1.0 m (nozzle – mineral surface)

Penetration of water into the grid system should be avoided. Following cleaning, the surface should be dried.

Note

The mechanical stresses of cleaning (scrubbing) may lead to changes to the surface. Highly adhesive dirt (grease, oils, acids and bases) can be resistant to cleaning and can affect the surface permanently. It is recommended to test the proposed cleaning method on a sample piece or a non-visible part of the ceiling. The cleaning should also be carried out over a large area and not limited to individual tiles or small areas.

Powder coated surfaces

The cleaning of powder coated surfaces should be carried out with a soft, dry cloth. If dirt cannot be removed in this way, the cloth can be dampened or a pH-neutral cleaning agent used. The powder coating should not come in to contact with alkaline or acidic substances. Metallic powder coatings are particularly sensitive.

If the use of special cleaning agents for the removal of certain soiling is unavoidable, we recommend testing the suitability of the agent on a hidden part of the paint finish before proceeding.

We accept no liability for damage as a result of improper cleaning. Exceptions require prior examination.



Tile types

Not all mineral surfaces are suitable, for example, for wet or pressure cleaning.

Suitable cleaning measures are to be taken as per the table below right:

Table 1: Overview of cleaning methods

Surface	Cleaning method				Cleaning cycle
	dry	damp	wet	pressure	
THERMATEX®	✓	✓			
plain - e. g. Schlicht	✓	✓			daily
textured - e. g. Feinstratos micro, Star	✓	✓			daily
textured - e. g. Mercure, Fresko	✓	✓			daily
THERMATEX® fleece-coated e. g. Alpha, Thermofofon	✓	✓			daily
THERMATEX® Metall / Kombimetall perforated	✓	✓			daily
THERMATEX® Metall / Kombimetall plain	✓	✓	✓		1 x weekly
TOPIQ®	✓	✓	✓		
THERMATEX® Thermaclean S	✓	✓	✓		1 x weekly
THERMATEX® Aquatec	✓	✓	✓	✓	1 x weekly

Cleaning agents

Generally, surfaces should only be treated using a mild cleaning agent (pH value between 7 and 9).

The ability of the material to resist disinfection agents was tested in accordance with EN ISO 2812-3:2012 and EN 12720:2013.

Overview of disinfectant resistance

	THERMATEX® paint-coated	THERMATEX® fleece-coated	THERMATEX® Thermaclean S	TOPIQ® fleece-coated	VENTATEC® / DONN® grid systems
(A) Biguacid S (active agents: didecyldimethylammonium chloride, polyhexanide)	x	✓	✓	✓	✓
(B) Incidin Active (active agent: peracetic acid)	x	✓	✓	✓	✓
(C) Kohrsolin FF (active agents: glutaral, Benzyl-C12-18- alkyldimethylammonium chloride)	x	✓	✓	✓	✓
(D) Mikrozid AF (active agents: ethanol, 1-propanol)	✓	✓	✓	✓	✓
(E) Desinfect Surface (Active agent: sodium hypochlorite)	x	✓	✓	✓	✓
(F) Reference agent didecyldimethylammonium chloride	x	x	✓	x	✓
(G) Reference agent carcoat	x	✓	✓	✓	✓
(H) Reference agent glutaral	x	✓	✓	✓	✓
(I) Reference agent ethanol and n-propanol	✓	✓	✓	✓	✓
(J) Reference agent Hydrogen peroxide	x	✓	✓	✓	✓
Isopropanol	x	✓	✓	✓	x
Acetone	x	✓	x	✓	x
Formalin	x	x	✓	x	x
Ultrapure water	x	x	✓	x	x
Hydrochloric acid (5%)	x	x	✓	x	x
Caustic soda	x	x	✓	x	x

It is recommended to test and assess the proposed cleaning method on a sample piece or non-visible part of the ceiling to rule out colour reactions with the cleaning agent as well as scrubbing effects. Abrasive cleaners are not suitable and may not be used.

Note

Increased humidity due to regular cleaning or climate conditions means that enhanced corrosion protection requirements with regard to the supporting grid and fixings may be necessary. When the suspended ceiling is subject to uplift pressure loading, further measures again may be necessary dependant on the installation.

Resistance of THERMATEX® tiles

Corrosion protection

As standard, all metallic components of the grid construction such as profiles, perimeter trims and hangers should be carried out according to exposure class B (DIN EN 13964). If increased demands with regards corrosion protection can be expected during the service life of the suspended ceiling, construction components should be selected that fulfil class C or D.

Depending on humidity and corrosive pollutants, the ceiling is classified with a relevant exposure class:

Class	Conditions	Application examples	Recommended grid structure
A	Building components generally exposed to varying relative humidity up to 70% and varying temperature up to 25°C, but without corrosive pollutants.	Offices, shops, schools, hotels, sport halls, storage areas	Conventional grid system e.g. VENTATEC® or DONN®
B	Building components regularly exposed to varying relative humidity up to 90% and varying temperature up to 30°C, but without corrosive pollutants.		
C	Building components exposed to relative humidity over 90%, and accompanied by a risk of condensation.	Shower rooms, food production (e.g. dairies, breweries...), laundries	Grid system with corrosion protection e.g. DONN® DX24 KB
D	More severe than above.	Swimming pools, chemical plants	

Often when determining the exposure of steel construction components, a classification according to EN ISO 12944 "Corrosion protection of steel structures by protective paint systems" is also made. In the following table, a comparison with EN 13964 can be made:

EN ISO 12944 - Corrosivity categories

EN 13964	EN ISO 12944
B	C1: insignificant
C	C2: low C3: moderate
D	C4: high C5: very high I

Grid Coating

In addition to the assignment of the individual exposure classes, the required coating type and thickness is also defined in EN 13964 to ensure the required corrosion protection over a defined period.

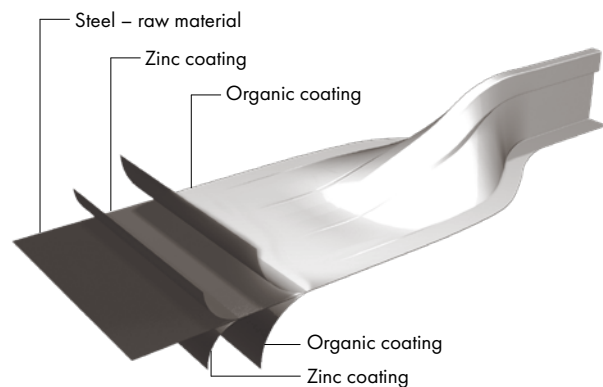
Cut sections

Damage to the protective coating by cutting to length, apertures, installation or improper handling and other external influences always require additional measures.

Note

Please also take into account that good ventilation in the ceiling void significantly increases the service life of the supporting grid structure.

Coating of T-profiles



Installation guidelines for wet rooms and swimming pools

The metal components of the ceiling construction are exposed to increased corrosion levels due to the use of chlorine, ozone or disinfectants. According to EN 13964, swimming pools are classified as exposure class D or according to EN ISO 12944 corrosivity category C4.

When installing Knauf Ceiling Solutions ceiling tiles in wet rooms or swimming pools, the following material and ceiling construction requirements should be followed:

Humidity resistance of ceiling tiles

AMF THERMATEX® tiles are up to 90% or 95% RH humidity resistant (100% RH with THERMATEX® Aquatec). Should the product frequently come into contact with water or spray or over a long period of time, permanent damage cannot be ruled out.

Installation of the ceiling system

For safe installation of the ceiling system, closer hanger centres than those given in EN 13964 (limiting the deflection) are required. It is essential to use a grid system with enhanced corrosion protection. As these enhanced components (including hangers, fixings * 1 and other metallic grid structure components), have no continual resistance * 2 due to the continual aggressive environment (humidity, chlorine and ozone vapour) in swimming pools, it is necessary to add an additional zinc coating (e.g. using zinc spray) to cut edges and open metal and to seal fixings with silicon.

Grid structure maintenance

We recommend agreeing a maintenance contract in addition to the initial contract with the installation company which stipulates a ceiling inspection every year. Any signs of deformation, rust or rust-like marks on the surface and the spread of such marks should be causes for concern. All of the results of the inspection must be recorded in writing and informed to the client so that any required counteractive measures can be undertaken immediately.

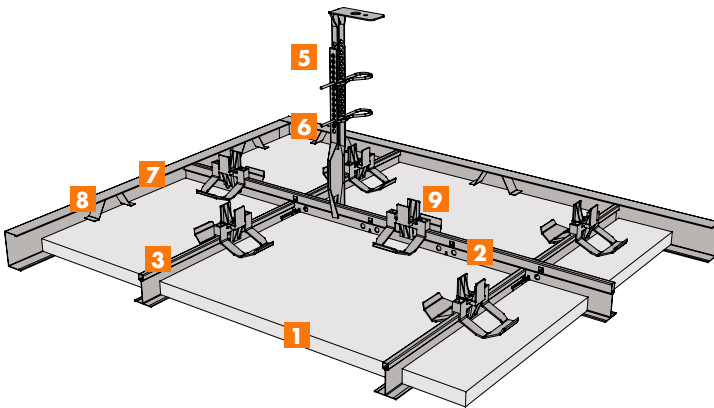
* 1 Sufficient corrosion resistant fixings without other disadvantages are currently not available on the market (according to research report 126 BAM).

* 2 Results of the investigation of the Federal Institute for Materials Research in Berlin, on behalf of the IFB Berlin into the swimming pool accident with a suspended ceiling in Switzerland.

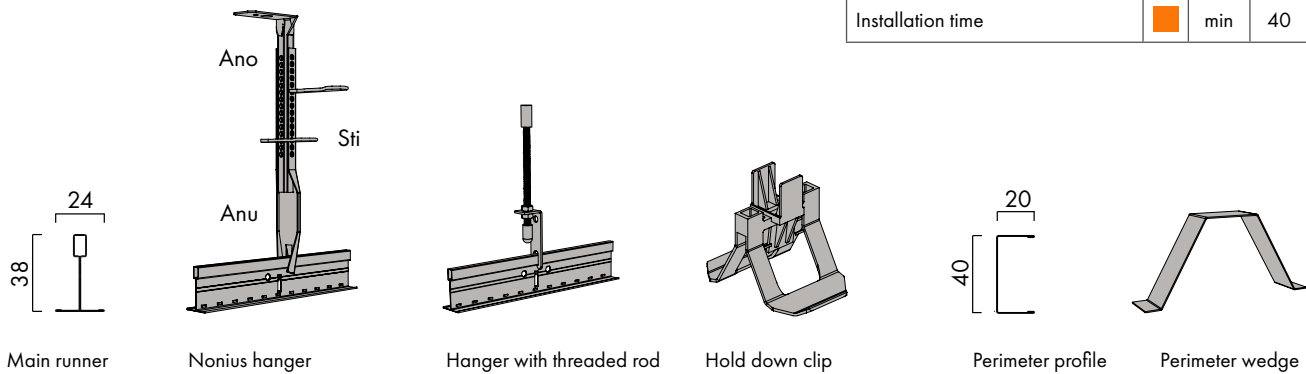
Pressure-resistant grid structure: System C

System overview

In addition to securing the tiles against pressure (hold-down clips) and suitable hangers (Nonius or threaded rod), the perimeter connections must also be installed with C-profiles and perimeter wedges. The use of hold-down clips affects the accessibility of the individual tiles. The installation guidelines for system C are to be observed.



Product description	Unit	Module mm	
		600 x 600	625 x 625
Mineral tiles	1 pcs.	2.78	2.56
Main runner T24/38 - 3600 /3750	2 lin. m.	0.84	0.80
Cross profile 1200/1250	3 lin. m.	1.67	1.60
Cross profile 600/625	3 pcs.	0.84	0.80
Hanger (Nonius / threaded rod)	4 pcs.	0.67	0.67
Security pin	5 pcs.	1.33	1.33
Perimeter profile	7 lin. m.	0.60	0.60
Perimeter wedges	8 pcs.	1.00	1.00
Hold down clips	9 pcs.	5.56	5.12
Main runner centres	m	1.20	1.25
Hanger centres, maximum	m	1.25	1.20
Installation time	min	40	40



Note

Modular ceilings (system C: lay-in installation) always have a high number of joints due to their construction which can be more or less distinctive depending on the profile version (butt-cut / overlapping) and tile type. Improvements can be achieved by using hold down clips, but a complete seal can only be achieved using clean room silicon or acrylic.

Special applications with THERMATEX® tiles

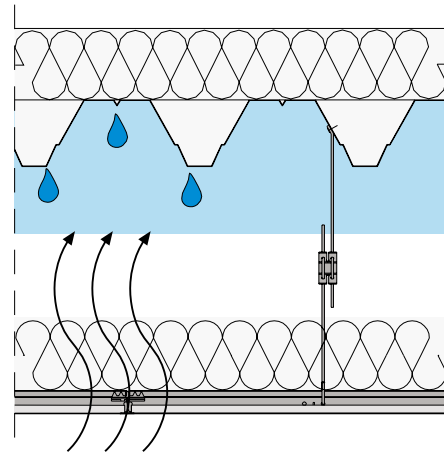
Insulation

Insulation overlays on the suspended ceiling are not recommended for retrospective renovation of buildings and halls.

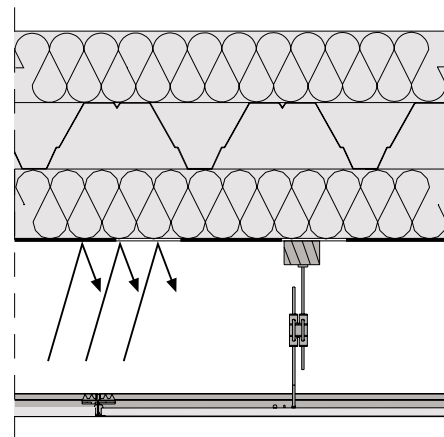
- The overlay covers the access into the ceiling void and often leads to damage to the tiles when demounting
- The grid structure must be designed for the additional load.
- Direct loading of the ceiling tiles is not permitted.
- The grid system together with the ceiling tiles as lay-in installation does not form an airtight layer.
- With regard water vapour diffusion, installation of a vapour barrier is necessary, however, from a technical / practical point of view is not feasible.

An example to illustrate the problem

A suspended ceiling is installed under an existing hall roof (e.g. trapezoidal sheet) with hard foam insulation. After inserting insulation directly on the suspended ceiling, the temperature in the ceiling void and underside of the roof (trapezoidal sheet) decreases. As cold air can hold much less moisture as warm air, it results in condensation in the ceiling void / trapezoidal roof. The remedy would be to install a vapour barrier. However, due to the high number of hangers and therefore the continual penetration of the film, this is technically and practically not feasible.



The construction and insulation should be selected so that water vapour can not penetrate the construction or only a small amount which would not cause condensation when the air is cooled. For this, an auxiliary structure should be installed for insulation in cavities under which a vapour barrier can be installed (see manufacturer's installation guidelines) To fix the ceiling grid structure, wooden battens 4/6 cm are required.



HERADESIGN® Application, Handling and Accessories

Durability of HERADESIGN® acoustic tiles

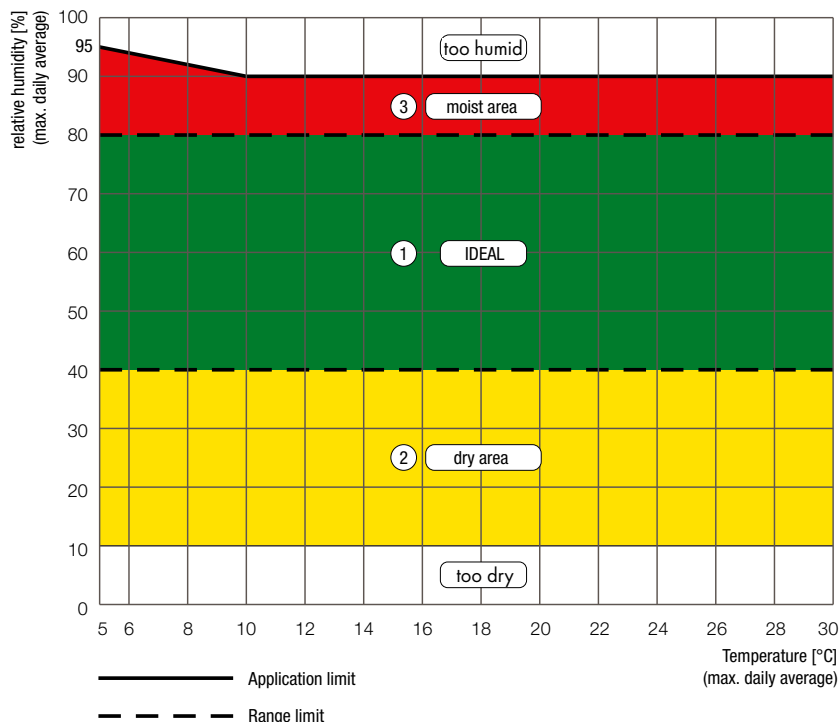
Medium, Attack	Comments
1) Water and water vapour	Not resistant to direct, long-term effects of water (rain, condensation moisture from ground, capillary action). This results in the tiles swelling as well as reduced mechanical stability and efflorescence of magnesium sulphate. Likewise, permanent exposure to water vapour (rel. humidity > 90%) leads to swelling and a reduction of mechanical stability.
2) Organic solvents * (e.g. acetone, alcohol, ether, petrol, benzene, halogenated hydrocarbons, oils, etc.)	Contact with organic solvents in liquid form (local exposures - spots) causes them to be partly absorbed by the tile and released as vapour. No adverse effects to the mechanical stability of the tiles have been observed (except for flammability after exposure to flammable solvents, as well as dirtying of the visible surface). Solvent vapours in concentrations that are allowed by hygienic regulations for the workplace have no effect on the building biological properties of the magnesite bonded HERADESIGN® acoustic tiles according to findings so far.
3) Acids and alkalis	a) Acids: magnesite bonded HERADESIGN® acoustic tiles are not resistant to the direct effects of acids. Depending on the concentration and strength of the acid, direct contact to an acid will cause localised dissolving of the bonding agent in the tile. Generally, harmless salts are formed (partly with a severe reaction). In some cases acid vapours occur, which are within the workplace hygienic regulations (e.g. common in chemical laboratories or similar facilities), and which do not damage the products. b) Alkalis: the effect of alkalis on the tiles causes the bonding agent to soften and is comparable to the effects of water.
4) Colours	The surface of magnesite bonded HERADESIGN® acoustic tiles can be treated with commercial colours based on polyvinyl acetate or acrylates, silicates, distempers, etc. The type of existing paint must be taken into consideration.

*) Questions about applications regarding contact with specific solvents/solvent mixtures or exposure to high concentrations of solvents must be discussed individually with Knauf Ceiling Solutions technical customer service.

Application areas of HERADESIGN® acoustic tiles

In internal areas

HERADESIGN® superfine, HERADESIGN® fine, HERADESIGN® macro, HERADESIGN® micro, HERADESIGN® plano
HERADESIGN® superfine A2, HERADESIGN® fine A2,



- ① Ideal, all constructions and products
- ② Dry range, all products. The installation humidity of the tiles must be lower than 20 % of the weight
- ③ Humid range, exposure class B according to EN 13964. Only specific constructions and products. Colouring with outdoor silicate paint or paint with additives – constructional consultation required

Transport and storage

Transport

HERADESIGN® acoustic tiles are delivered on pallets with a protective cardboard cover. They may only be transported in closed trucks or containers and must be protected against moisture during the entire journey. Only stack a maximum of two pallets. Pallets and boxes must be secured against tipping, slipping and physical damage.

Receiving material

HERADESIGN® acoustic tiles are produced, checked and transported to the construction site with great care.

When receiving material, always check the delivery note:

- Number of package units (pallets, cartons, m²)
- Compare the contents of the package units with the delivery note and the labels on the packaging
- Accessories:
Plugs, screws, re-touch paint, profiles or other items
- Are the goods or parts damaged?

If there are any transport damages, insufficient quantities, or other discrepancies with the delivery note and bill of lading, have this certified by the driver. Also, immediately inform the dealer that shipped the goods. Damaged tiles must not be used.

Storing tiles

The installer is responsible for the correct storage of the goods on-site and for the transport of the goods to the installation point.

Processing

A masterpiece of workmanship

HERADESIGN® acoustic tiles are high-quality visual tiles that are carefully packed and checked and delivered to the construction site. The second important factor for a beautiful ceiling, however, is exact processing and suitable work conditions. This is because only careful work and high product quality ensure a satisfactory result.

Material and air humidity

Due to the organic component of wood, in the HERADESIGN® tiles, slight deviations in the size cannot be excluded. Likewise, the tiles also contract and expand if there is strongly fluctuating air humidity.

- Final shrinkage in a standard climate of 23°C / 50% RH. is max. ± 1‰ for length changes and max. 3‰ for width changes. Therefore, special attention must be given to the temperature and air humidity during installation (if necessary heat, ventilate, back-ventilate the ceiling or dehumidify the air under constant monitoring) in order to ensure constant installation conditions. Adjust the installation conditions to the future conditions of use. Production tolerance for the nominal dimensions is ± 1 mm; for lengths over 1250 mm ± 2 mm.

How to do this correctly:

- Tiles must be stored flat and stable in a dry, clean, swept-out room to protect them from moisture, soiling and dust.
- The existing packaging provides no protection against rain.
- Only stack a maximum of two pallets of HERADESIGN® acoustic tiles (max. height. 250 cm) on top of each other.
- Only store the tiles in rooms where the following conditions are ensured depending on the climate conditions of the designated installation site.

For subsequent installation in heated or air-conditioned rooms: max. relative air humidity of 75% and the temperature must not drop below +7°C or rise above +30°C. For unheated rooms such as underground car parks, etc. the following applies: max. relative air humidity of 85% and minimum temperature of +5°C.



Colour and texture

As a consequence of the natural raw materials of magnesite and wood, differences to the colour and structure may occur. Especially for white coloured acoustic panels, there may be changes to the degree of brightness due to the wood wool structure as well as due to the influence of light sources and the viewpoint of the observer. Only the same type of tiles may be installed in a ceiling. Therefore, constantly check the tiles before installation as well as the overall impression of the ceiling from the floor. The installation direction must be observed for square panels. This is identified by an arrow on the reverse side of tiles. Always install with the arrow in the same direction. Coloured tiles (except RAL 9010) can only be ordered on commission. No liability can be assumed for colour deviations in the event of partial deliveries or deviations from the colour chart.

The tiles are not completely coloured, only the top layer is coated with paint. Deeper areas may not be 100% covered due to texture/fissures.

Paint quality

Silicate paint based on potassium silicate and organic bonding agents is used for colouring HERADESIGN® acoustic tiles in white, pastel and solid colours. The building biology properties of the tiles are retained as a result. HERADESIGN® superfine, HERADESIGN® fine, HERADESIGN®

fine A2 and HERADESIGN® superfine A2 can also be coloured multiple times without losing the outstanding sound absorption properties.

Installation and system conditions:

- The installation of HERADESIGN® tiles is part of interior decorating and must only be carried out under controlled humidity and temperature conditions. All dust-causing construction measures must be completed before starting the installation.
- It must no longer be possible for moisture or rain water to penetrate through walls, ceilings and openings.
- Only install tiles in rooms where the following conditions are ensured: For heated or air-conditioned rooms, the maximum relative humidity must not exceed 75 % and the temperature not below + 7 °C or above 30 °C. For unheated rooms such as underground car parks etc. the following applies: max. relative humidity 85 % and minimum temperature + 5 °C.
- The climatic installation conditions must be similar to the future use conditions. If storage and delivery conditions differ from the installation conditions HERADESIGN® acoustic tiles should be acclimatised for at least 7 days in a room with the same conditions.
- Suitable installation conditions are:
 - Dry and clean rooms
 - At least two weeks after wet trades are complete
 - Installed and glazed windows and doors for controlling temperature and ventilation.
 - Max. installation humidity of the HERADESIGN® acoustic tiles, less than 20% weight.
- Before starting installation, check the underlying surface for loadbearing capacity.
- The suspension system should be installed in accordance with EN 13964 "Suspended ceilings – requirements and test methods".
- Evenness: the greatest deviation from the evenness of the substructure may only be a maximum of 2 mm per metre of length; however, it must not exceed 5 mm over a length of 5.0 m. DIN-EN 13964, section A.5.
- Ensure the installation direction of square tiles. The installation directions are marked on the reverse side with a printed arrow.
- After installing HERADESIGN® acoustic tiles, other tradesmen may only perform finishing work on the ceiling.
- Expansion joints: For large ceiling areas that are installed with screw mounting in a covered outside area or in rooms with highly fluctuating high air humidity (rel. air hum. > 80%), we recommend placing an expansion joint at least every 15 m. The expansion joint must be formed between the substructure and the HERADESIGN® acoustic tile. When connecting these ceilings to fixed limiting structural elements, care must also be given to sufficient expansion possibilities. Here, the free edge distance should be at least 10 mm.
- Direct fixing can prove problematic. Changes in the underlying surface (e.g. deflection and expansion of steel or trusses) can lead to changes in the joint appearance. The absorption properties are also extremely restricted.
- Vibrating elements: suspended ceilings with insertion or screw mounting in which angularly flexible hangers are fastened to structures that tend to have vibrations such as trapezoidal sheet metal roofs, steel or wooden beams/trusses, must be secured by hangers placed on an angle (at least 10% of them) to counter horizontal displacement. For screw installation, at least three screws must be used per tile width and support.
- Resistance to wind loads:
 - If it is to be expected that suspended ceilings in a covered external area or in the inside of a building will be subject to wind loads (e.g. by open windows, doors), then the appropriate measures must be taken to ensure that the top layer and the substructure can withstand suction and/or wind pressure loads.
- Maximum tile span: 625 mm.
- Film as trickle protection for mineral wool overlays is recommended. A PE film upto 30 µm thick does not affect the sound absorption of the absorber and is recommended as trickle protection for mineral wool overlays.

Post-processing:

- For cutting HERADESIGN® wood wool tiles on site we recommend using a fast running circular saw with a carbide tipped saw blade (diameter approx. 400 mm) and dust extraction. Bevels can be reformed using a saw blade set on an angle, by sanding with coarse sand paper or by using a belt sander. Cut the tiles so that the visual surfaces are not dirtied by saw dust!
- If possible the work should be carried out outdoors. Always work with clean hands and clean tools.
- The cutting must not be done using the stack of panels as a base.
- Carefully cover minor damages and screw heads, edges and tile surfaces with paint after installation. Only apply a small amount of paint to avoid colour differences.
- Installations with cross joints (four tile corners in one point) are very time-consuming.
- Increased care needs to be taken installing tiles with square edges and no bevel.

Please note:

- The occupational health and safety guidelines must be observed.
- Observe the manufacturers safety instructions for use of the tools and always wear personal protective equipment such as safety goggles, helmet, etc.

Subsequent painting of HERADESIGN® acoustic tiles

For subsequent painting of HERADESIGN® acoustic tiles, there is a distinction between painting or re-painting the tiles and improvement of surface damage as well as unevenness and refreshing paint. For factory painted HERADESIGN® wood wool tiles, dispersion paint is used. Only paints can be used that are suitable for the ambient conditions and compatible with the existing paint.

For the following applications, the following quantities are recommended:

1) Internal applications upto 80% rel. air humidity:

For all internal applications, dispersion paint tested for harmful substances is recommended.

2) Internal applications for rooms with 80 to 90% rel. air humidity such as indoor swimming pools etc.:

Paint with external paint or internal paint with an additional film preservative

3) Covered external applications:

Generally, a silicon or acrylic based facade paint is used.

Recommended quantities:

- **White paint on a white surface (restoration)**
Quantity: approx. 0.20 l/m², one coat
- **Restoring other colours with the same colour (except white):**
Quantity: approx. 0.20 – 0.25 l/m², one coat
- **Painting or changing colours of wood wool tiles:**
Bold or contrasting colours may require increased quantities
Quantity: approx. 0.25 – 0.30 l/m² per coat, min. two coats
- **Small area repair of metallic colours:**
Recommended product: Sto Color Metallic

Protective measures for bordering surfaces, floors, etc.

Bordering surfaces, windows, floors, etc. must be covered. Water can be used to clean surfaces that have been dirtied with paint, while they are still wet. Dried paint can only be removed with a paint stripper and that may cause damage to the underlying surface.

Safety:

Follow the information regarding protective measures in the safety data sheets from the paint manufacturer. If necessary, protect your head, eyes, respiratory system and skin by wearing protective masks, goggles, gloves and work clothing.

Types of application:

a) Painting or changing colours of wood wool tiles:

In order to achieve sufficiently deep penetration of the paint in the wood wool texture, the paint must be applied with an airless sprayer. The paint should be applied in at least two different directions and at varying angles to the tile surface so that the colour penetrates all pores and openings. When applying two coats, the first coat must be dry before the second coat is applied.

b) Refreshing paint and improving paint deviations:

For refreshing paint, improving paint deviations and painting the fibres, a short-pile roller can be used for small areas or for the same or very similar colours. Well suited are for example:

- Glaze or varnish rollers with max. pile depth 13 mm (e.g.: Microfibre rollers 13 mm, glaze rollers 10 mm, etc.)
- Flock rollers

c) Improving damaged or uneven surfaces:

To even out gloss differences in the same colour tones, foam rollers (paint rollers) are suitable.

d) Painting screw heads and improving slight damage to the surface e.g. single fibre breaks):

The screws and individual fibres can be covered with a fine brush.

Avoid double painting the tile surface.

e) Painting bevels:

The paint can be applied with a short-pile paint roller (as described in **point b**), a brush or HERADESIGN® paint spray (only in white and natural). Avoid double painting the tile surface.

Note:

Always apply only the recommended quantities. Too much paint causes excessive moisture to be added and can cause the tiles to warp and swell as well as causing a reduction of the sound absorption of the tiles. Up to 3 proper paint applications (quantity and application) of HERADESIGN® superfine and HERADESIGN® fine, leads to no significant decrease in sound absorption.

The application of the paint and the coverage must be checked constantly from the floor. The manufacturers' regulations and instruction manuals must be observed when working with the paint and operating the equipment.

For application variants **b**) and **c**) a paint roller grid should be used to ensure the paint is evenly distributed on the roller. To avoid clogging the wood wool texture, only light pressure should be applied to the tile. The application should be done cross-wise. It is recommended to test the colour first (hidden tile or sample tile). Deep penetration of the paint in the texture, as necessary when changing the colour of the tile, is only possible with an airless spray application.

Bending HERADESIGN® acoustic tiles

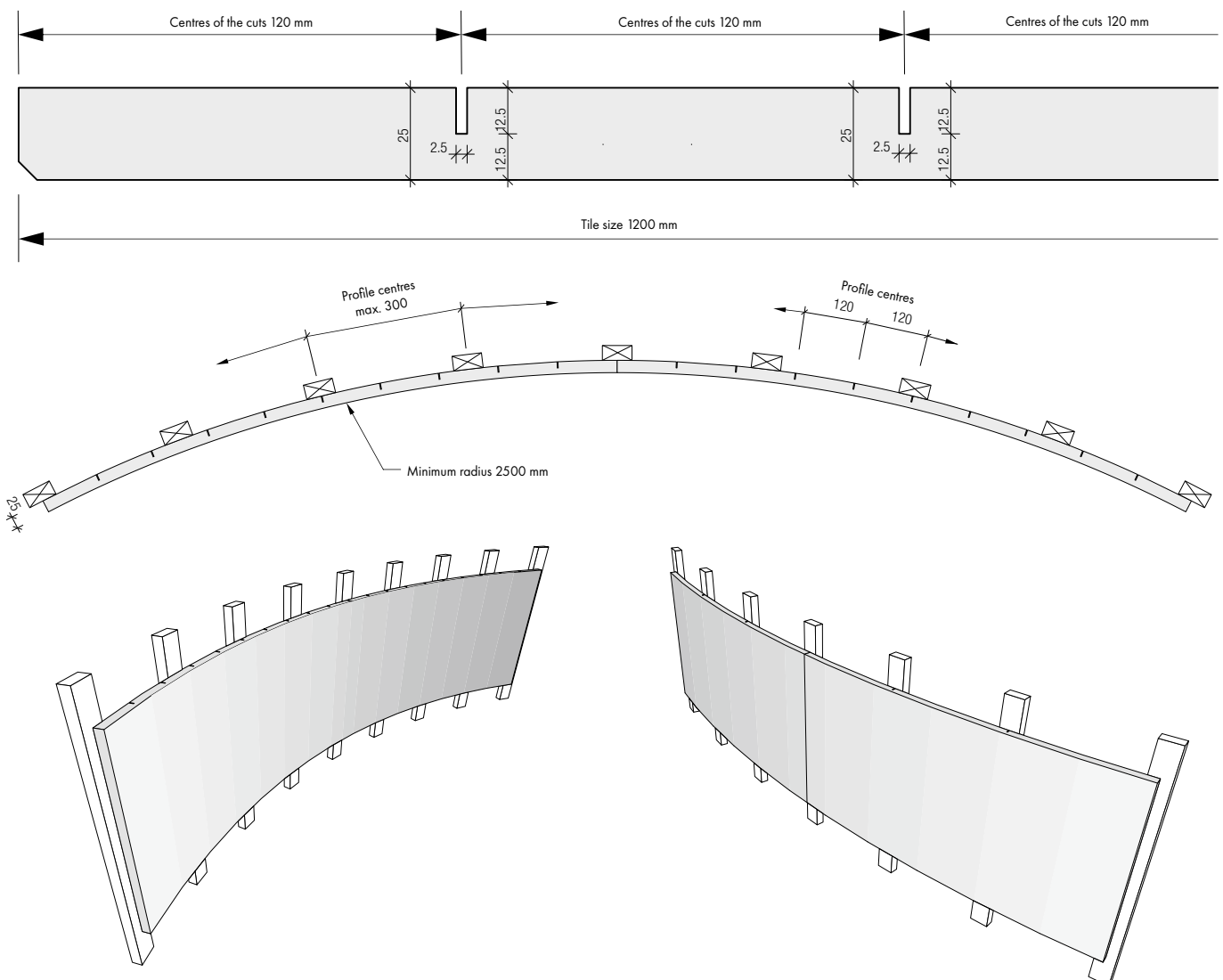
Curved constructions with HERADESIGN® acoustic tiles

HERADESIGN® acoustic tiles can be well adjusted to curved substructures on site. For this, the tiles are cut into on the back by means of a saw (e.g. circular saw) and curved over a template or grid structure.

They are fixed to the wooden substructure by means of HERADESIGN® screws. Per support and tile width (600 mm or 625 mm) at least three HERADESIGN® screws, head diameter approx. 9 mm, must be used. HERADESIGN® micro and HERADESIGN® plano acoustic tiles cannot be bent. Tiles must not be moistened for bending!

HERADESIGN® fine, HERADESIGN® superfine						
Tile thickness [mm]	Radius [m]	Centres of the cuts [mm]	Cut depth [mm]	Cut width [mm]	Support centres [mm]	
25	> 20	-	-	-	600	
	> 10	-	-	-	600	
	> 5	400	10	3	400	
	> 2,5	120	12.5	3	300	
35	> 20	-	-	-	600	
	> 10	400	10	3	600	
	> 5	300	15	3	400	

HERADESIGN® acoustic tile 25 mm, bending radius 2500 mm



Fixing additional loads to HERADESIGN® acoustic tiles

Additional loads e.g. light fixtures, curtain rails and similar, can be fixed to wood wool tiles using cavity plugs, spring toggle raw plugs or self-tapping metal plugs, as long as no fire protection requirements are present.

Heavy loads must be fixed directly to the load-bearing elements (soffit) or a secondary construction installed.

The additional loads have to be considered when designing the grid structure.

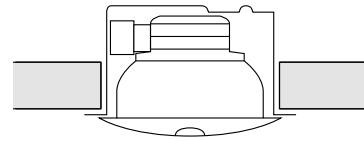
The grid structure centres are determined by the selected acoustic ceiling system, the weight of the grid structure and the additional loads.

Individual point loads in HERADESIGN® acoustic tiles

Maximum additional weight [kg] when fixing directly to HERADESIGN® acoustic tiles, in the middle of the tile				
Tile thickness [mm]	Metal spring toggle raw plug	Metal self-tapping plug	Metal cavity plug	Cavity anchor
	15	1	1	1
25	3	3	3	2
35	6	3	3	2

Integrated spotlights in HERADESIGN® acoustic tiles

Maximum additional weight [kg] from spotlights in HERADESIGN® acoustic tiles		
Tile thickness [mm]	Diameter of aperture DA [mm]	Integrated - spotlights
15	max. 300	1
25	max. 300	3
35	max. 300	6



Apertures should be centred in the tile.
Higher weighted lighting must be anchored in the ceiling or suspension construction.

Maximum permitted temperature of the HERADESIGN® acoustic tiles ≤ 60 °C

Single point loads on the grid structure

Individual loads, directly fixed to the grid structure, may not exceed a total of 10 kg per profile/wooden batten and linear metre.

General installation guidelines



1
Carefully remove the separating paper layer from the tiles and dispose of it immediately. Dust lying on it must not fall onto the tile below.



2
Check tile for damage. Remove any remaining dust with a soft brush.



3
When lifting the acoustic tiles from the pile, only carry them on the edges. When lifting tiles from the pile, never drag them over the edge of the pile, in order to prevent damage to the visual side.



4
Never lean the acoustic tiles on an angle against the wall during installation and subsequent painting. This causes the tiles to warp – warped tiles can no longer be installed.



5
Installing the first row of tiles: always start installing from the centre of the room, which has been pre-marked. Align the tiles exactly in both directions.



6
Insert the screws or acoustic tiles with the help of a batten. Make sure that there is enough space at the end of the tile to prevent the edge from displacing. Make sure the screw head is flush to the surface of the tile. The auxiliary batten is removed after installing the first row of tiles. Screw pattern, see chapter "screw-fix systems" B10 or B20.

Edges and screws



1 Creating the edge bevel

The bevel is formed with coarse sand paper, a belt sander or a saw blade set on an angle.



When necessary, remove adherent dust with a soft brush.



3 Painting the bevel

Apply paint using a brush or short-haired roller.



4 Not like this!

The screw head must be flush with the surface of the tile.



To set the screws exactly, we recommend, HERADESIGN® bit holder "easy". The screw depth should be tested/set on a sample tile before installation.



6 Painting over the screw heads

Use a fine brush to cover unpainted screw heads with the colour of the tiles after installation. It is absolutely necessary to avoid double painting of the tile surface around the screw head. This will cause colour differences!

Cutting and drilling HERADESIGN® acoustic tiles



Table saw
Lay the acoustic tile down face side up. Always work with a safety guard, guide and an extraction system.



Jack saw
Lay the acoustic tile down face side up. Always work with a guide. Support the free end of the tile.



Circular saw
Lay the acoustic tile down face side down. Always work with a guide and an extraction system. Support the free end of the tile.



Not like this!
Never cut acoustic tiles on a pile!



Jigsaw
Lay the acoustic tile face side down. Always make cuts with a guide.



Cutting openings with a "supercutter"
Only cut at a right angle to the tile surface.

Touching-up HERADESIGN® acoustic tiles



Dangling fibres:
Carefully remove individual loose fibres with a knife.



Chipped fibre:
Cover chipped fibre with a fine brush or a spray gun using the supplied paint or an equivalent.



Brushing:
Efflorescence, dust, etc. can be removed with a soft brush. Set loose fibres with StoPrim Plex primer.



Painting or re-painting:
The paint is sprayed on carefully with a spray gun using various spraying angles.

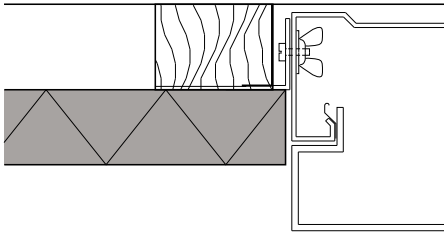


Touching-up small imperfections of HERADESIGN® micro or HERADESIGN® plano acoustic tiles:
Fill the imperfection/chipped edge with acrylate or wood filler, scrape off the excess with a trowel and cover with the same paint as the tile when it's dry.

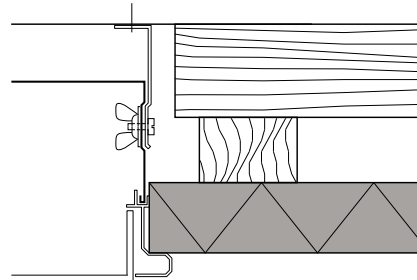


HERADESIGN® micro acoustic tile joints can be filled using Knauf acrylic sealer and can be painted over with silicate paint.

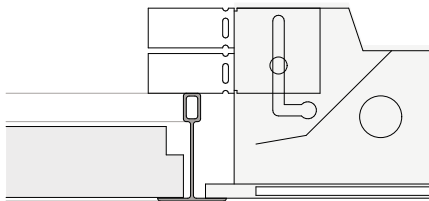
Lighting installation details



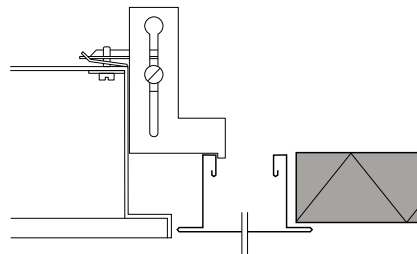
Wooden battens



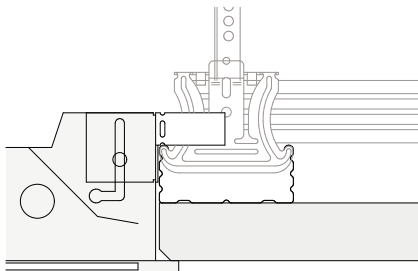
Installation outside the module



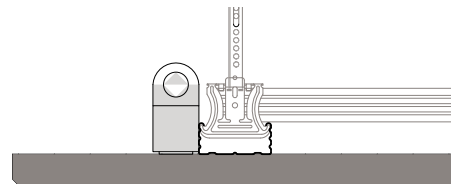
Exposed T-profile



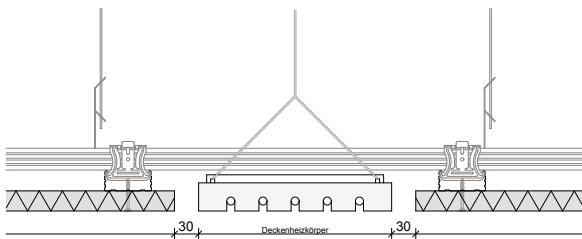
Bandraster construction



Light installation CD-profile

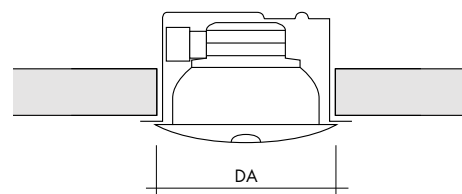


Indirect lighting (perimeter) CD-profile



Ceiling heating element

Maximum permitted temperature of the HERADESIGN® tile: 60°C



Spotlight and downlight

Installation photos – light installation



1 Exchanging the ceiling grid for the installation of modular lighting: Additional cross profiles and hangers required in the area of the exchange.



2 Installation of edge strip



3 Hang the ceiling light. Fix with the supplied side wings to the T-profiles, CD profiles or wooden battens. Adjust the installation height of the light to the existing suspension height.



4 Alternative: Fix the ceiling light using screws into the wood battens or SD profiles at the sides or direct attachment into the ceiling.



5 Installed modular light. The tile joint is covered by the frame.



6 The joint between the HERADESIGN® acoustic tile and the light is covered by the frame.

Installation photos - spotlights and downlights



Drilling of a round aperture for a spotlight, with tile face side up.



Cutting out an aperture with a jigsaw, tile face side down.



Cover cut edges with paint if these are not concealed by a cover.



Insertion of the spotlight housing.



Spotlights with a diameter up to = 300 mm
tile thickness from 15 mm, max. weight ≤ 1.0 kg
Spotlights with a diameter up to = 300 mm
tile thickness from 25 mm, max. weight ≤ 3.0 kg
Downlights with a diameter up to = 300 mm
tile thickness from 35 mm, max. weight ≤ 6.0 kg

HERADESIGN® Accessories

Installation of ball impact resistant HERADESIGN® maintenance opening

Sizes [mm]	For tile sizes [mm]	For tile thickness [mm]	Packaging unit [pcs./carton]
400 x 400	600 x 600, 625 x 625	25	1
400 x 400	600 x 600, 625 x 625	35	1
400 x 600	1200 x 600, 1250 x 625	25	1
400 x 600	1200 x 600, 1250 x 625	35	1

Maintenance opening installed centrally in a 1 layer HERADESIGN® acoustic tile.
Note: Not suitable for indoor swimming pools or external applications.

Ball impact resistant maintenance opening with lock for installation in wall and ceiling constructions.



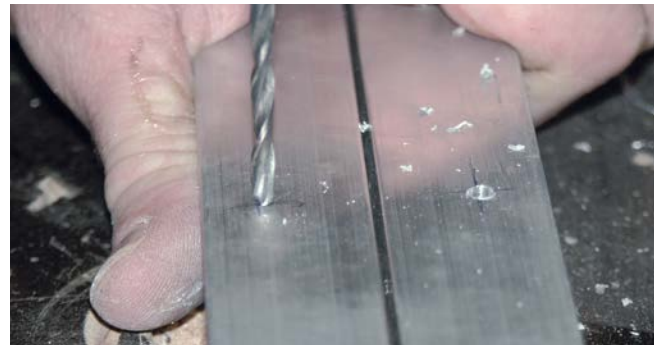
Cutting out of the opening/cover tile from the reverse side of the tile.



Sand the edges.



Paint the edges.



Drill the frame.



Insert the cover tile.



Fix the cover tile with min. 2 x 4 number screws 4.5 x 20 mm per frame 40 x 40 or 2 x 6 number for 60 x 40 cm and Heraklith-BM PU or polymer glue on the inner frame.

Inserting HERADESIGN® acoustic overlays in film bags



Tear off the bags from the roll.



Slide in the acoustic overlay.



Fold over the film edges.



Tape up the film ends.

HERADESIGN® Acoustic overlay – density approx. 50 kg/m³

Mineral wool absorber for increased sound absorption requirements.

Tile thickness [mm]	Weight [approx. kg/m ²]	Tile size [mm]	Packaging unit [m ² /carton]
30	1.5	1200 x 625	12,0
40	2.0	1200 x 625	9,0
50	2.5	1200 x 625	7,5

HERADESIGN® Acoustic overlay – density approx. 90 kg/m³

Mineral wool absorber for increased sound absorption and fire protection requirements, glass fleece laminated on one side.

[mm]	Weight [approx. kg/m ²]	Tile size [mm]	Packaging unit [m ² /carton]
25	2.3	1200 x 625	7,5
50	4.5	1200 x 625	4,5

HERADESIGN® Film bag ¹⁾

PE trickle protection film bags for HERADESIGN® acoustic overlays.

Size mm	For overlay thickness mm	Packaging unit pcs.
1400 x 750	< 80	250

1) Film thickness 30 µm – Important: no influence on sound absorption.

HERADESIGN® Screws

Drywall screw with countersunk head for fixing HERADESIGN® acoustic tiles to wood and metal grid structures 1) 4) 5).

Length / Ø [mm]	Surface/Colour Rusper® coating ³⁾	Wood			Metal CD-profile			Packaging unit [pcs./carton]
		For tile thickness [mm]			For tile thickness [mm]			
		15	25	35	15	25	35	
35 / 4.5	galvanised	x			x			200
35 c ²⁾ / 4.5	white, beige, RAL ⁶⁾	x			x			200
50 / 4.5	galvanised		x			x	x	200
50 c ²⁾ / 4.5	white, beige, RAL ⁶⁾		x			x	x	200
60 / 4.5	galvanised			x				200
60 c ²⁾ / 4.5	white, beige, RAL ⁶⁾			x				200

1) With partial thread and Torx T20 – suitable for walls or profiles up to 0.6 mm

2) Screw painted in white (similar to RAL 9010) or beige (natural tone 13).

3) Usage class 1 and 2 as per EN 1995-1-1:2010-12 electrogalvanised, yellow chromated, A2L as per EN ISI 4042

4) Screws specially hardened (500 HV 0,3)

5) Optimised tip for use with metal profiles

Note: Not suitable for indoor swimming pools and external applications. Ask the screw supplier for screws with suitable corrosion protection for applications in indoor swimming pools and covered external applications, etc.

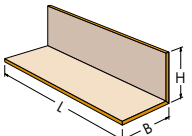
6) Other colours and minimum quantities on request

HERADESIGN® Drilling template

For tile sizes	Packaging unit [pcs./carton]
600 and 625 mm	1
1200 and 1250 mm	1

HERADESIGN® Ceiling angle

Design element for covering and the 3D-design of walls and ceilings.

Tile	Tile thickness [mm]	Weight [kg/m ²]	Dimensions ⁵⁾ - Length x Width x Height	
HERADESIGN® fine	25 / 35	12.4 / 16.3	max. 2500 x 625 x 300 mm max. leg length 625 mm min. leg length 75 mm	
HERADESIGN® superfine	25 / 35	11.3 / 15.0		

5) Edge configurations AK-01 and GK. Lead times, special sizes and other products on request.

HERADESIGN® Paint spray

Improvement and cover spray for HERADESIGN® acoustic tiles.

Colours	Contents [ml]	Packaging unit [pcs.]
white (similar to RAL 9010)	400	1
beige (natural tone 13)	400	1

VENTATEC®

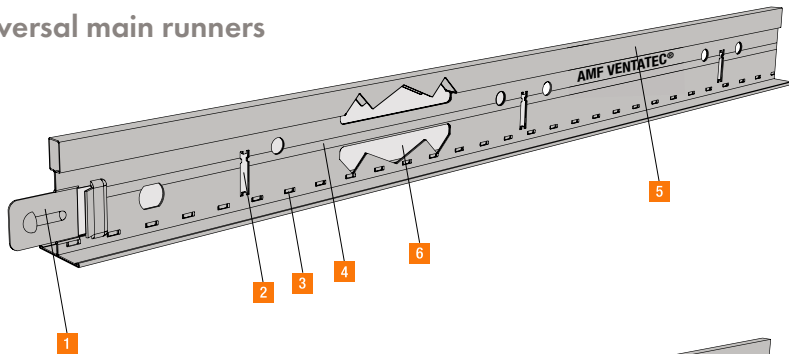
Product Range

Product	Profile dimensions	Version
Product programme VENTATEC® VENTATEC® Performance T24	Main runners 24/38	joggled, butt cut
	Long cross profiles 24/38	
	Short cross profiles 24/38 or 24/25	
VENTATEC® Performance T24 - HIGH	Main runners 24/38	joggled, butt cut
	Long cross profiles 24/38	
	Short cross profiles 24/38 or 24/25	
VENTATEC® Performance T15 - HIGH	Main runners 15/38	butt cut
	Long cross profiles 15/38	
	Short cross profiles 15/38	

Version

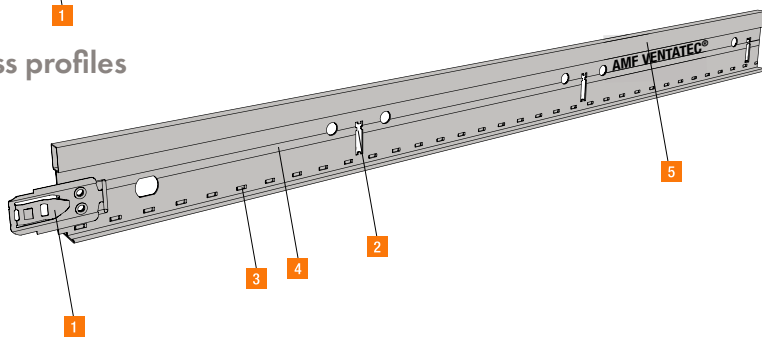
T 24 / 33	
T 24 / 38	
T 15 / 38	

Universal main runners



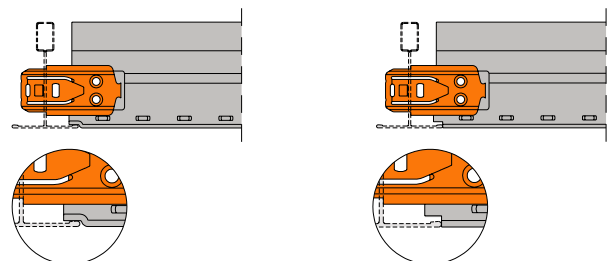
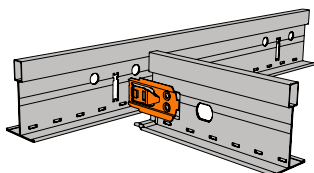
- 1** Connector
Easy and secure push-in connection in the longitudinal direction of the main runner.
- 2** Universal punching
For Click connections, no unnecessary delays due to incorrect handling or installation.
- 3** Stitching and
4 Ribbing
The combination of stitching and ribbing delivers very high stability as well as the required elasticity.
- 5** Marking
Exact identification by means of the marking to ease re-ordering.
- 6** Fire expansion notch
Controlled expansion in the case of fire

Cross profiles



End details Click-connector

- 1** No unnecessary delays arise as incorrect connection of the main runners and cross profiles is not possible (universal punching). The Click-connector connection audibly clicks in place and later facilitates disassembly.

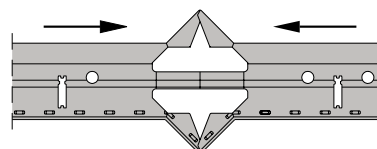


Click - joggled (GK)

Click - butt cut (SG)

Fire expansion notch

- 6** The profiles are provided with a fire expansion notch that enables the metal to expand in the case of fire. The tiles remain lay in the grid due to the targeted deformation of the fire expansion notch.



Grid system

Exposed grid systems always consist of a combination of main runners and cross profiles made from high quality galvanised steel with steel cap, color VENTATEC® white 10. As standard the grid structure fulfils exposure class B.

Ventatec Performance

The Performance grid structure consists of main runners (H=38 mm) and low cross profiles (H=33 mm) and offers optimum cross section values / stability for all common acoustic or lightweight suspended ceilings.

Technical data

	3600 (3750) mm				
Main runner T24/38 - 3600	75	150	22 x 150	75	
Main runner T24/38 - 3750	78.125	156.25	22 x 156.25	78.125	
	kg/Pcs.	kg/lin. m	Pcs./PU	Lin. m./PU	kg/PU
	1.150	0.319	20	72	23.0
	1.200	0.320	20	75	24.0

	1200 (1250) mm				
T-Cross profile CLICK GK T24/33 - 1200	300	300	300	300	
T-Cross profile CLICK GK T24/33 - 1250	312.5	312.5	312.5	312.5	
	kg/Pcs.	kg/lin. m	Pcs./PU	Lin. m./PU	kg/PU
	0.360	0.300	60	72	21.6
	0.375	0.300	60	75	22.5

	600 (625) mm				
T-Cross profile CLICK GK T24/33 - 600		300		300	
T-Cross profile CLICK GK T24/33 - 625		312.5		312.5	
	kg/Pcs.	kg/lin. m	Pcs./PU	Lin. m./PU	kg/PU
	0.180	0.300	60	36	10.8
	0.188	0.301	60	37.5	11.3

Load table - maximum permitted weight for every m² ceiling

Hanger centres	Module [mm]			
	600 x 600	600 x 1200	625 x 625	625 x 1250
	Main runner centres			
	1200 mm	1200 mm	1250 mm	1250 mm
900 mm	10.2 kg	10.2 kg	9.8 kg	9.8 kg
1000 mm	9.7 kg	9.7 kg	9.1 kg	9.1 kg
1200 mm	7.3 kg	7.3 kg	6.9 kg	6.9 kg
1500 mm	4.5 kg	4.5 kg	4.3 kg	4.3 kg
Comments:				

For other ceiling constructions, loads or hanger centres, please contact Knauf Ceiling Solutions.

Ventatec Performance HIGH

The Performance High grid structure consists of high main runners (H=38 mm), high long cross profiles (H=38 mm) and low short cross profiles (H=33 mm) and is suitable for taking increased loads.

Technical data

	75	150	22 x 150	75	kg/Pcs.	kg/lin. m	Pcs./PU	Lin. m./PU	kg/PU
Main runner T24/38 - 3600					1.150	0.319	20	72	23.0
Main runner T24/38 - 3750	78.125	156.25	22 x 156.25	78.125	1.200	0.320	20	75	24.0

	300	300	300	300	kg/Pcs.	kg/lin. m	Pcs./PU	Lin. m./PU	kg/PU
T-Cross profile CLICK GK T24/33 - 1200					0.383	0.319	60	72	23.0
T-Cross profile CLICK GK T24/33 - 1250	312.5	312.5	312.5	312.5	0.400	0.320	60	75	24.0

	300	300	kg/Pcs.	kg/lin. m	Pcs./PU	Lin. m./PU	kg/PU
T-Cross profile CLICK GK T24/33 - 600			0.180	0.300	60	36.0	10.8
T-Cross profile CLICK GK T24/33 - 625	312.5	312.5	0.188	0.301	60	37.5	11.3

Load table - maximum permitted weight for every m² ceiling

Hanger centres	Module [mm]			
	600 x 600	600 x 1200	625 x 625	625 x 1250
	Main runner centres			
	1200 mm	1200 mm	1250 mm	1250 mm
900 mm	13.0 kg	13.0 kg	11.0 kg	11.0 kg
1000 mm	11.8 kg	11.8 kg	10.2 kg	10.2 kg
1200 mm	9.5 kg	9.5 kg	8.4 kg	8.4 kg
1500 mm	5.8 kg	5.8 kg	5.2 kg	5.2 kg
Comments:				







For other ceiling constructions, loads or hanger centres, please contact Knauf Ceiling Solutions.

DONN®

Product Range

Version

Product	Version
Product programme DONN®	
DONN® DX3 - DX24	System with 24mm exposed profiles
DONN® KB - DX24	Corrosion protected system with 24 mm exposed profiles
DONN® DX15	System with 15 mm exposed profiles
DONN® DX35	System with 35 mm exposed profiles for heavy tiles
DONN® VM	Concealed installation
DONN® VM-DX	Concealed installation (demountable ceiling tiles)
DONN® VM-DCS	Concealed installation (demountable ceiling tiles)
DONN® DX Espace	Wide span profile 70 mm high, 24 mm exposed profiles
DONN® DC Korridor	Free span corridor system
DONN® VIC 120	Wide span system up to 6.5 m
DONN® VIC 80/VIC 88	Wide span system up to 5 m
DONN® DP Bandraster	Bandraster system
DONN® Rapid'Fix	Ceiling grid structure for screw fixing plasterboard

T 24/38	
T 24/32 long	
T 24/25 short	
T 15/32	
T 35/38	
T 24/70	

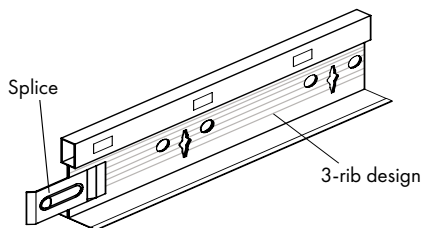
DONN® DX3

The modified DX3® technology with its patented rib design gives DX main runner and long cross tee ceiling grid structures even more rigidity. The profiles are dimensionally more stable and have greater torsional strength. This results in an easier and therefore faster installation and gives a stable and secure ceiling grid structure. The locked end splice detail design of the main runners enables the profiles to be easily pushed together, even from a distance. The double ribbed end detail ensures increased strength of the connection point. The secure engagement and the resulting solid connection are confirmed with a clearly audible “click”, as with the patented and proven DX clip cross tees.

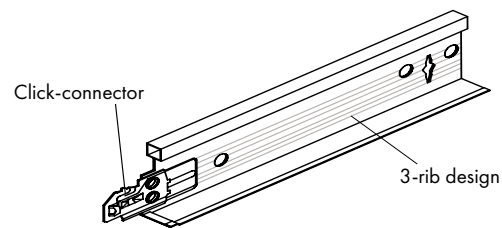
And finally, two handling advantages round off the DX3® product innovation:

- The DX3® design enables the profiles to be cut quicker due to energy saving cutting and therefore installed faster.
- The achieved weight reduction of 20% is clearly noticeable when handling on site. A full carton ways only 20 kg and is lighter to transport.

Main runner



Cross profile



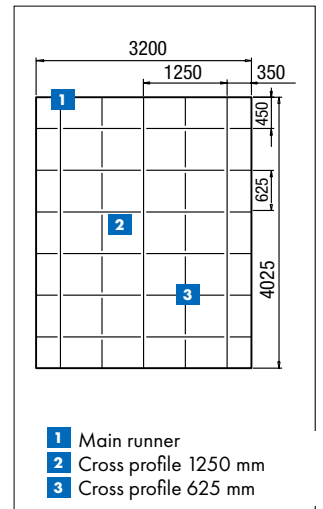
Installation guidelines and advice

The appearance of an acoustic suspended ceiling depends not only on the materials used but also the quality of the installation. Knauf Ceiling Solutions produces construction products which fulfil EN 13961 and are according to the current quality standards. The ceiling must also be installed in accordance with EN 13961 and the level of the ceiling as well as the secure connection of system components must be ensured.

For the successful installation of a suspended ceiling, good installation conditions are required on site. The temperature on site should be between 14 and 25°C with relative humidity less than 75%. Store the materials in a protected area for at least 3 days before installation, especially mineral tiles.

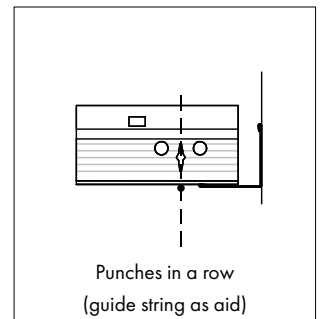
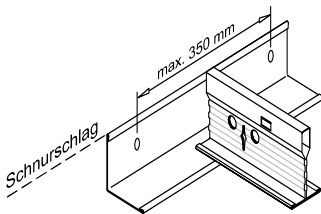
Step 1

The design and layout of the ceiling are the first key factors in the installation process. Observe in which direction elements such as joists run or if the architect has specified installation in a particular direction. Lie the main runners and cross profiles out so that the ceiling tiles at the perimeter are at least half a module size (e.g. 312.5 mm or 300 mm).



Step 2

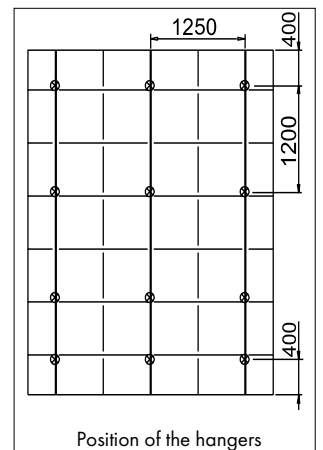
Mark out the required ceiling height. Where possible, allow 70 mm under the lowest ventilation shaft, pipe work or steel beams. Measure and mark all the walls and corners with the required installation height (= add the height of the perimeter trim to the required ceiling height). Use the existing reference markers as a reference point to determine the ceiling height. Run a chalk line along the intended upper edge of the perimeter trim. Measuring the ceiling height from the soffit or the floor is not recommended, as neither the soffit or the floor are exactly level. Install the perimeter trim with the upper edge on the chalk line and fix with appropriate fixings at 350 mm centres or less. Mitre the perimeter trims at the corners and push them close together or butt cut the trims and lay them on each other.



Step 3

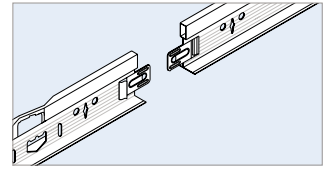
Draw a guide string along the position where the main runners should be. A nail between the wall and the perimeter trim is good for fixing this. Draw another guide string at the point where the first punching in the profiles needs to be located.

Using the following points, check that the guide string for the cross profiles is exactly at 90° to the guide string for the main runners. Install the hangers above the main runners at maximum 1200 mm centres. Fix the hangers using approved plugs, screws and fixings.



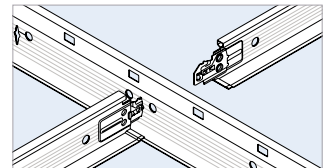
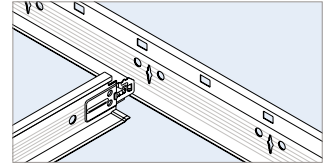
Step 4

Fix the main runners to the hangers. Arrange the main runners in every row that the first punching on the main runners is in a row. The cut end of the main runner is lay on the perimeter trim. A 5 mm gap should remain between profile end and the wall.



Step 5

Install the cross profiles, ensuring they are correctly connected to the main runners. A clearly audible “Click” confirms the correct connection of main runners and cross profiles. Where two cross profiles are pushed into the punching on the main runner from two different sides, the end of the second cross profile should be inserted to the left of the first. Where only one cross profile (without an opposite cross profile) is pushed into the punching on the main runner, a small nail should be inserted in the opening of the cross profile clip, to ensure it can not come out.

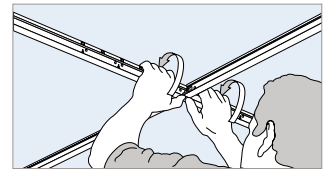


Step 6

Insert the ceiling tiles. Start in a corner of the room and install row by row. Turn and tilt each ceiling tile so that they fit through the module opening and slowly insert all four sides of the tile slowly onto the grid.

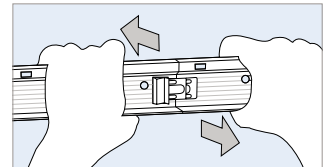
Step 7

Demounting the cross profiles is as easy as installation. Hold the main runner with both thumbs exactly under the cross point (connection point between main runner and cross profile). By pushing up with the thumbs, the main runner turns slightly away from the cross profile to be removed. The cross profile can be released from the connection. No tools are required. The stable clip of the cross profile means they can be reinstalled.



Step 8

To remove the main runners, use a shear motion to release the main runner connection. At a connection point, push two main runners. Push one main runner with the left hand back whilst at the same time pulling the other with the right hand forward. Ensure that the end detail of the main runner doesn't get twisted during this procedure.



Special installation tips

1. Install wire hangers and fixings for light fittings before beginning with the installation of the grid structure.
2. Cut mineral fibre ceiling tiles with the face side up with a Stanley knife. After cutting, the ceiling tile must be at least 15 mm bigger as the module opening (for 24 mm exposed profiles)
3. Cut the profiles using tin snips, first the bulb, then the flange.
4. To correctly cut a tile for ceiling systems with recessed edges, use a Stanley knife. Cut firstly from the surface and then the tile edge, so deep, that all four tile sides lie on the grid structure.

