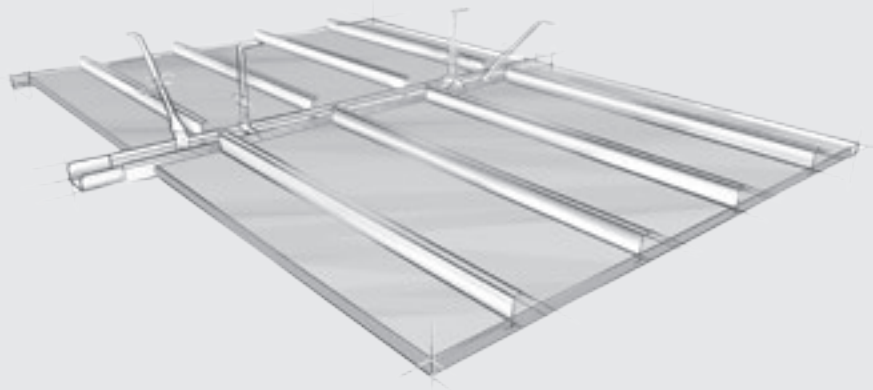


System I - Parallel Systems

System I 1.1: THERMATEX® GN (non) demountable

System I 1.2: THERMATEX® AW demountable

System I 4.1: MONDENA® C-Bandraster system



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

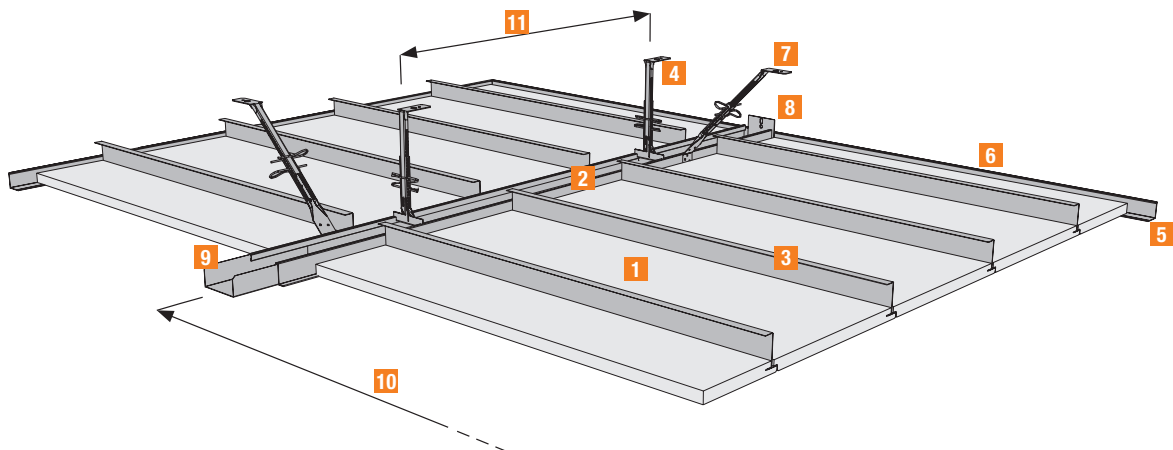
Product	Thick-ness [mm]	Weight [kg/m²]	Edge configuration	Module [mm]
Product programme THERMATEX®	THERMATEX® Plain	15 19	SK/SK* VT/SK (15 mm)* AW/SK GN/SK	300/1200*; 400/1200-1250*; 600/1200*; 312.5/1250*; 625/1250*; 300/1800-2500; 400/1800-2500; 312.5/1800-2500 * special sizes on request
	THERMATEX® Fine Stratos	15 19		
	THERMATEX® Star	15 19		
	THERMATEX® Fine Stratos micro perforated	15 19		
	THERMATEX® Mercure	15 19	SK/SK* VT/SK (15 mm)* AW/SK GN/SK	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
	THERMATEX® Fine Fresko	15		
	THERMATEX® Fresko	19	SK/SK* VT/SK (15 mm)* AW/SK GN/SK	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® Alpha HD	19		
	THERMATEX® Acoustic	19	AW/SK GN/SK	300/1200-1800
	THERMATEX® dB Acoustic (24 mm)	24		
	THERMATEX® Varioline Acoustic / Metal / Wood / Motif	19	AW/SK	300/1200-1800
	THERMATEX® Kombimetal	21	AW/SK GN/SK	300/1600; 300/1800; 300/2000; 300/2500

Edge Configurations

AW	
GN	
SK	
VT 24	
VT 15	

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		Unit	Tile width mm											
			300				312.5				400			
							Tile length mm							
			1200	1800	2000	2500	1250	1800	2000	2500	1200	1800	2000	2500
AMF 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.

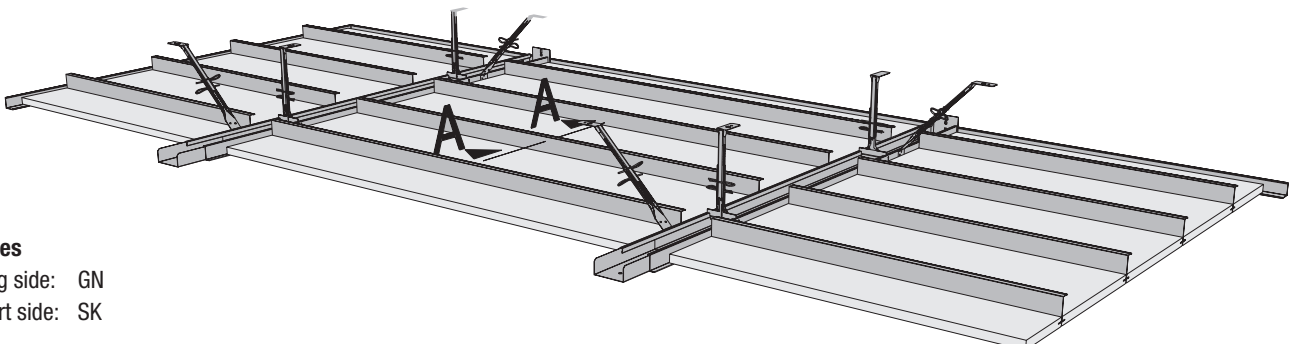
System I 1.1 - THERMATEx® GN (non) demountable

It is strongly recommended where maintenance access is required that a demountable system is used. System I 1.1 uses a concealed (GN) 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



Figure 1.2 - System overview

**Edges**

Long side: GN

Short side: SK

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 GN 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

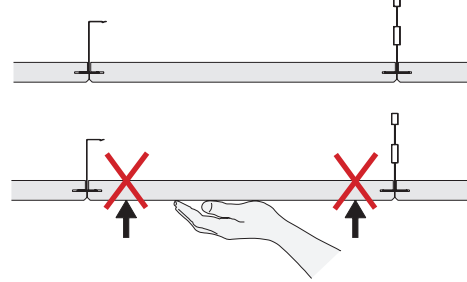
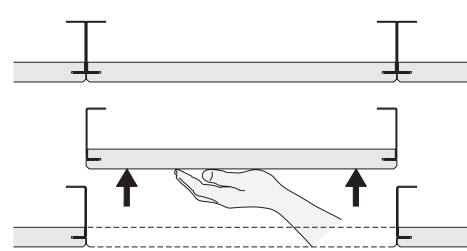


Figure 1.4 - section A-A, demountable (alternative)



System I 1.2 - THERMATEx® AW demountable

System I 1.2 uses a shi lap (AW) 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

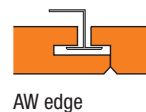
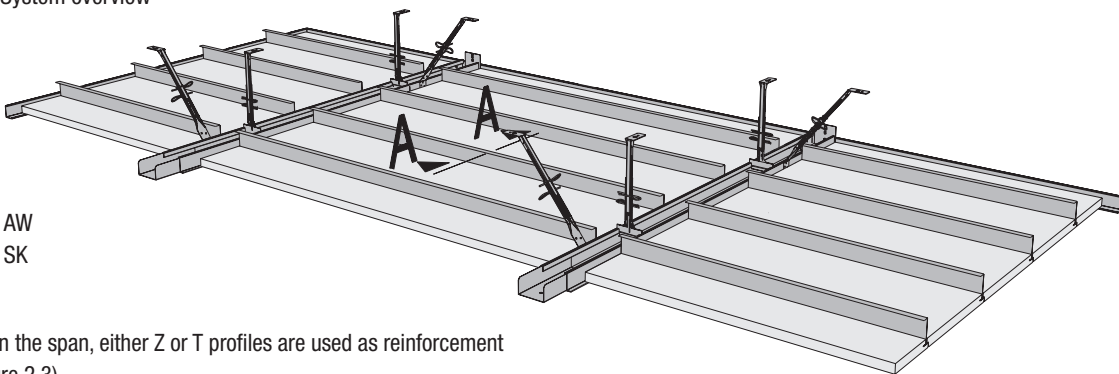


Figure 2.2 - System overview



Edges

Long side: AW

Short side: SK

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.

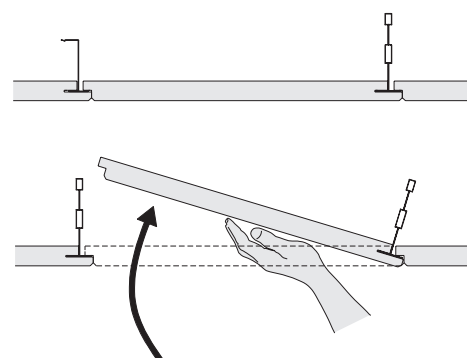
Details

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.

Figure 2.3 - section A-A, demountable



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 (SK). Only in special cases will this edge be produced in a recessed (VT) 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
Thermatex Symetra	19 mm	5.3 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

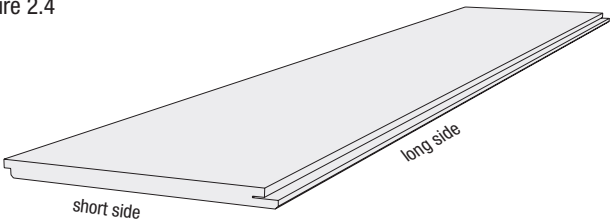
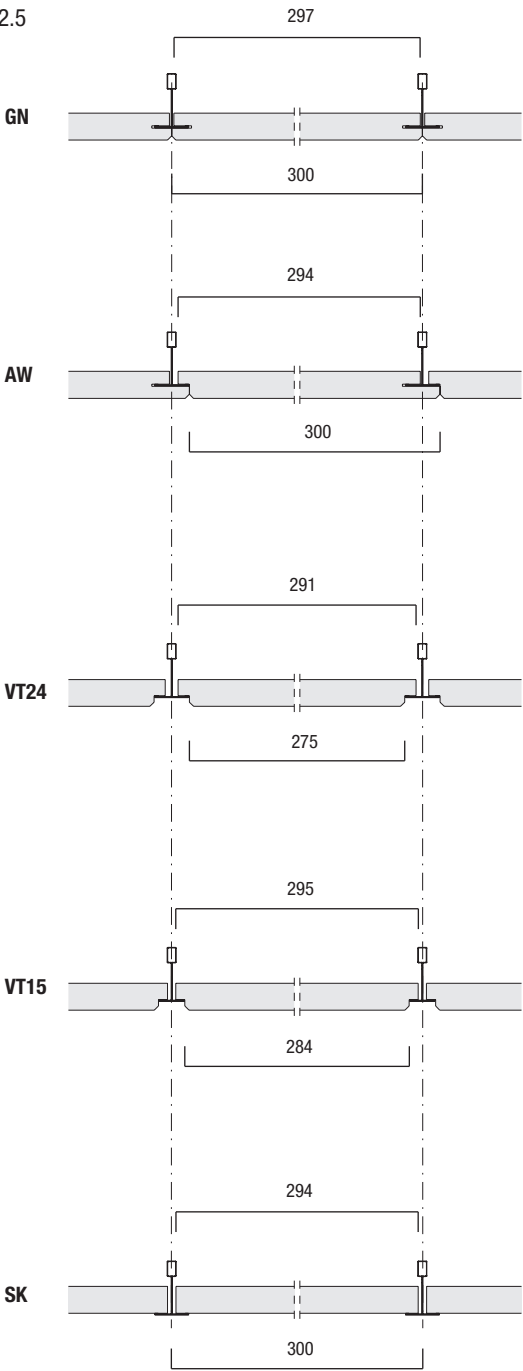


Figure 2.5



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 AMF 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 VT 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

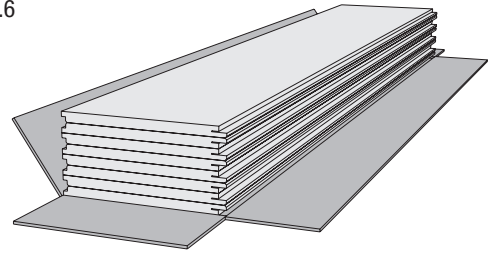


Figure 2.7

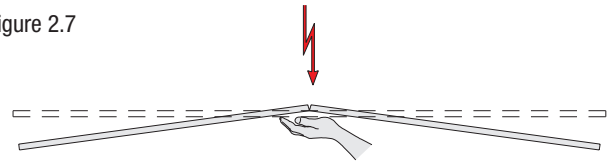


Figure 2.8



Figure 2.9

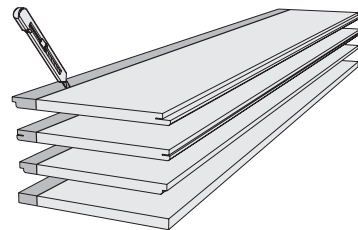
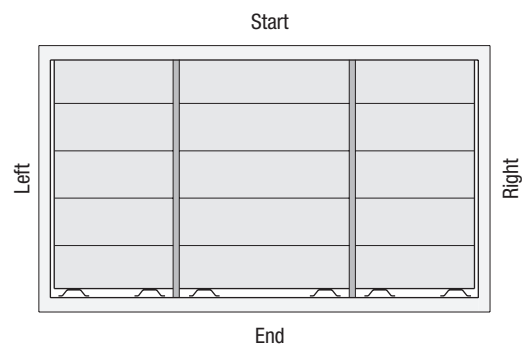


Figure 2.10



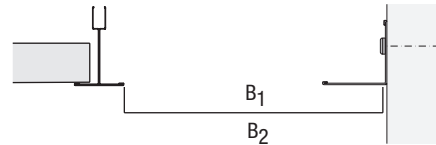
Cut tiles

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...).

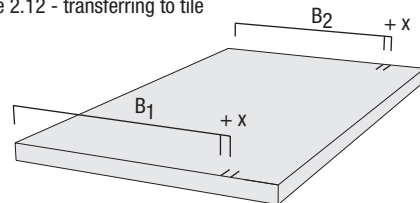
Figure 2.11 - dimensions



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)

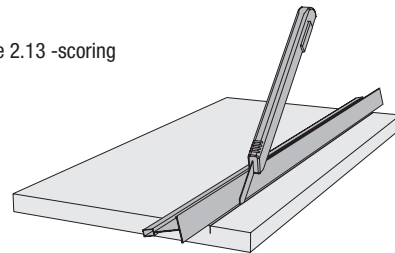
Figure 2.12 - transferring to tile



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.

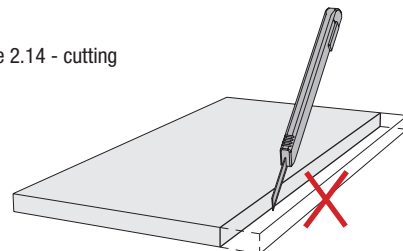
Figure 2.13 - scoring



Step 4 (Figure 2.14):

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

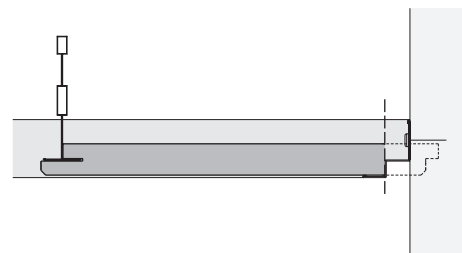
Figure 2.14 - cutting



AW edge configuration

Unlike the SK, VT and GN edge configurations, AW 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 AW 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 31x31 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

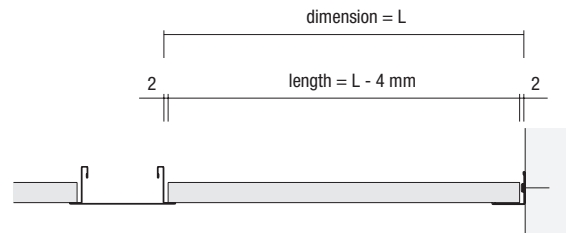
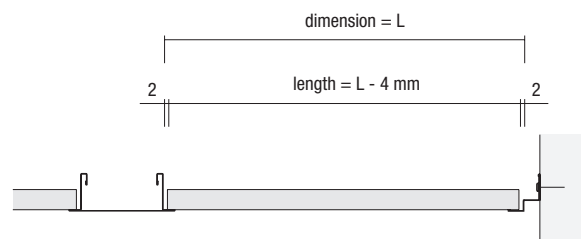


Figure 2.17 - cutting



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

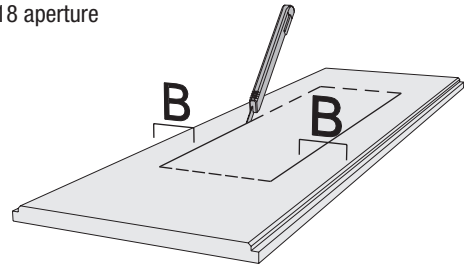


Figure 2.19

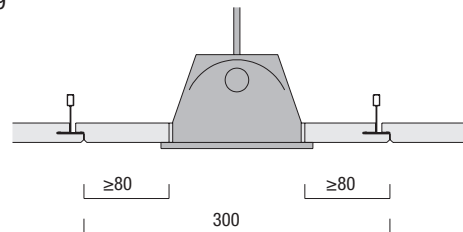


Figure 2.20

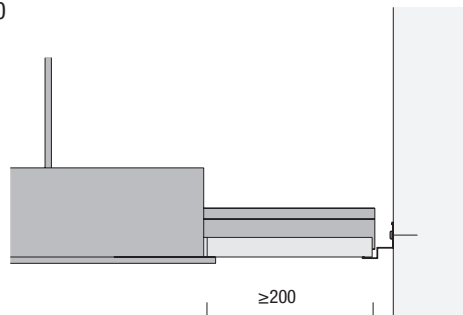


Figure 2.21 - reinforcement

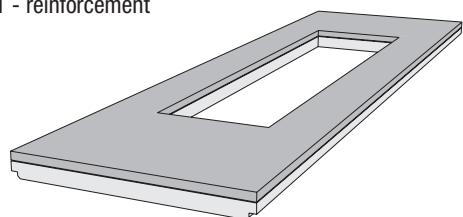
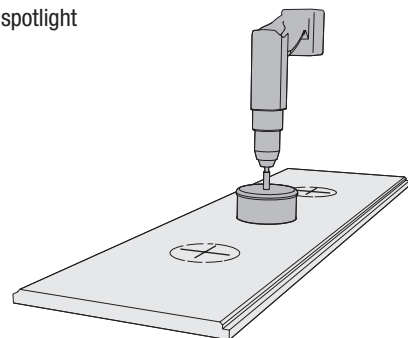


Figure 2.22 - spotlight



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 2.23 - RW L19/24 - 3000

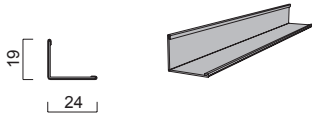


Figure 2.24 - RW L24/24 - 3000

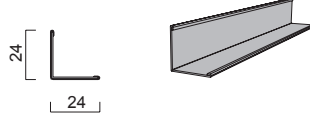


Figure 2.25 - RW L31/31 - 3050

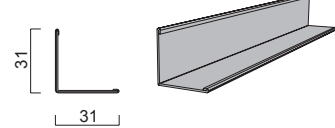


Figure 2.26 - RW L40/30 - 4000

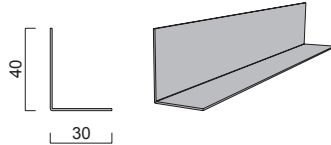


Figure 2.27 - SRW 25/15/8/15 - 3000

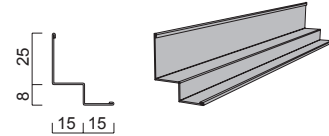


Figure 2.28 - SRW 25/15/10/15 - 3000

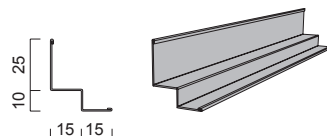


Figure 2.29 - SRW 20/20/20/20 - 3050

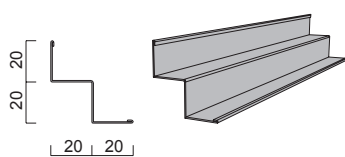


Figure 2.30 - SRW 42/20/23/24 - 3750

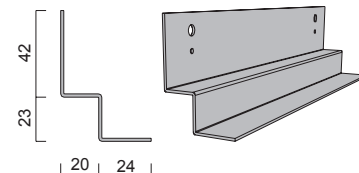
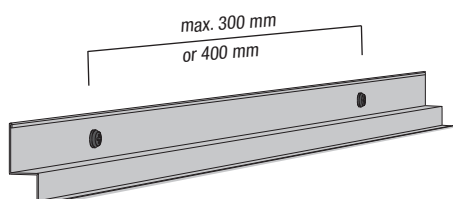


Table 4.1 shows which profiles can be used depending on the tile type, weight and format. The perimeter trims should be fixed using approved plugs and screws. For solid walls, the fixings should be at maximum 400 mm centres ($d \leq 0.7$ mm: max. 300 mm). Connections to lightweight partition walls can be made around the 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 2.31



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 2.1

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=0.7mm		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

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

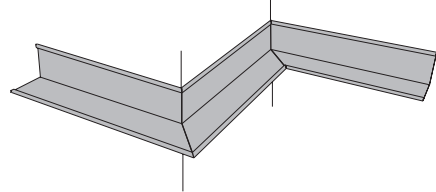


Figure 2.33 - RWL - butt cut

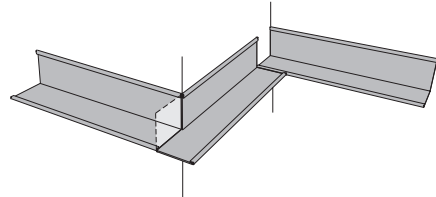


Figure 2.34 - SRW - mitred

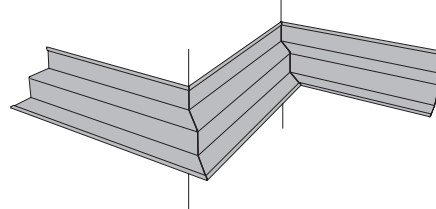


Figure 2.35 - SRW - butt cut

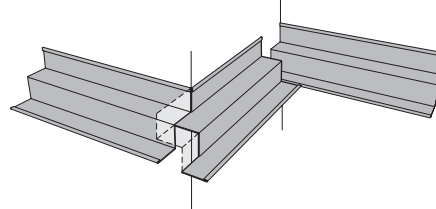


Figure 2.36 - SRW - butt cut

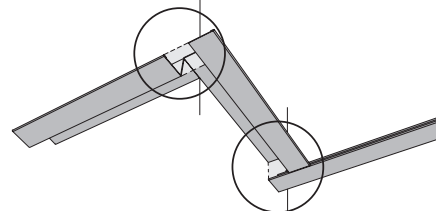
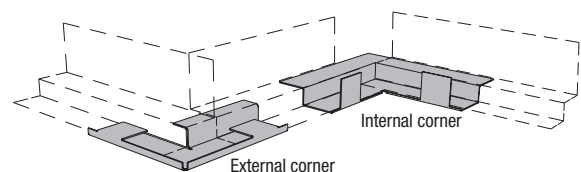


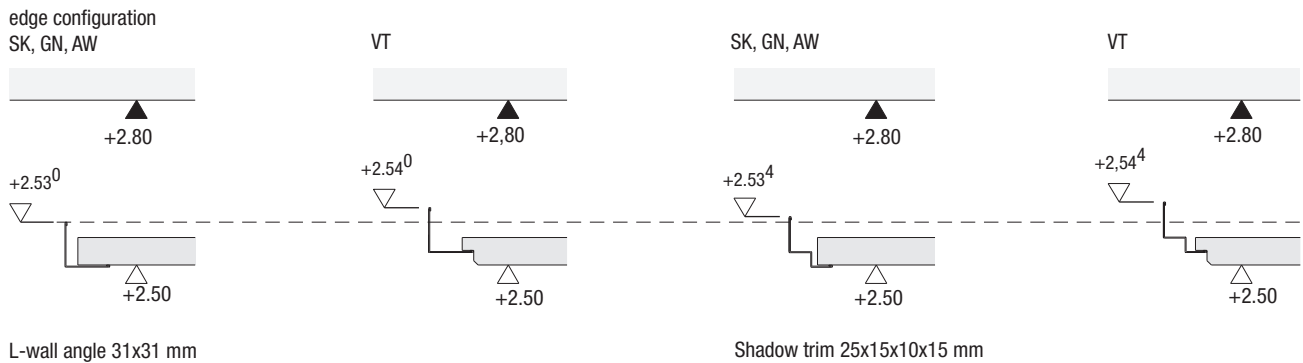
Figure 2.37 - preformed mouldings



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 $d=0.5\text{--}0.7\text{ mm}$.

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 $\geq 1.0\text{ mm}$, 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

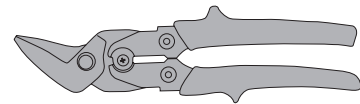


Figure 2.40

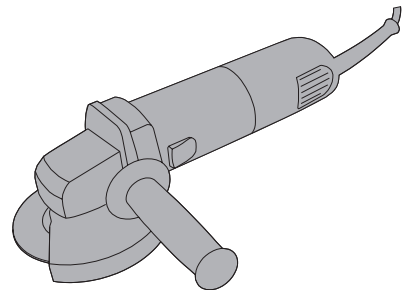
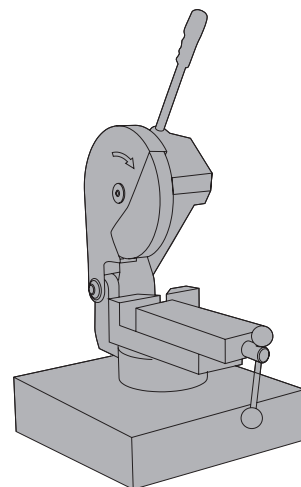


Figure 2.41



Main profiles

Bandraster profile

A Bandraster profile is used as the main profile for systems I1.1 and I 1.2. 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

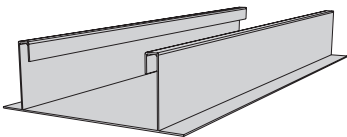


Figure 2.43 - BR 50-3600

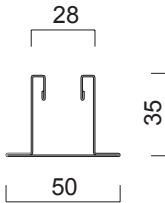


Figure 2.44 - BR 75-3600

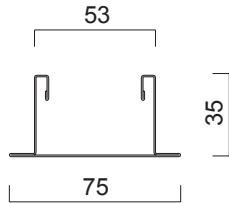


Figure 2.45 - BR 100-3600

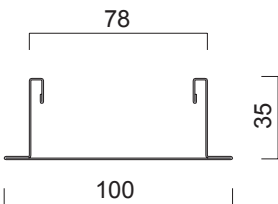


Figure 2.46 - BR 125-3600

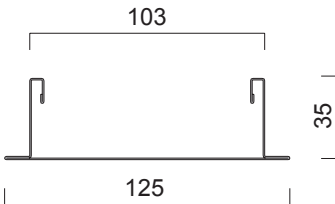
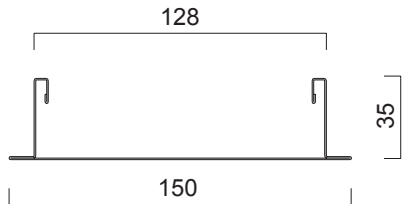


Figure 2.47 - BR 150-3600

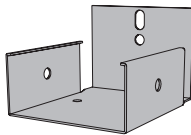


Perimeter fixing of Bandraster

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

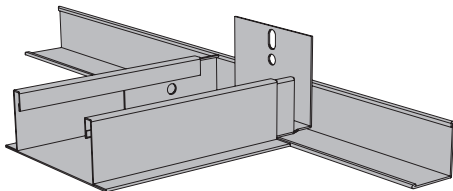
Figure 2.48 - PRB 50-150



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

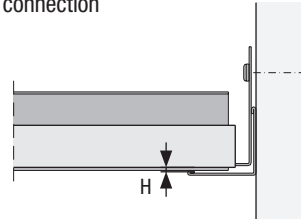


Figure 2.51 - wall connection

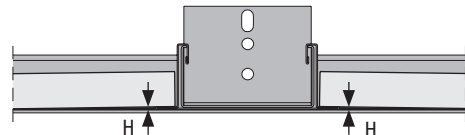


Figure 2.52 - variant 1

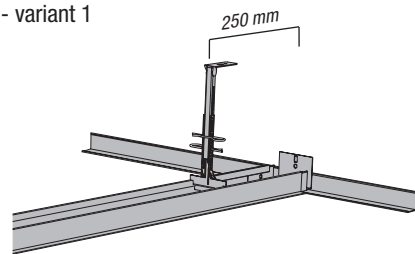


Figure 2.53 - angled cut

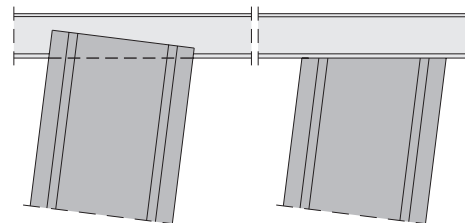


Figure 2.54 - PHV connector

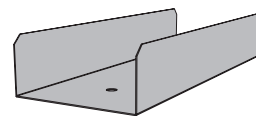
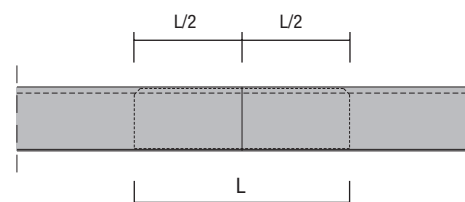


Figure 2.55 - PHV installation



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 F 1.1 (GN edge configuration) and Z profiles can not be used for system F 1.3 with SK and VT edge configurations, as their unfinished surface would be visible.

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

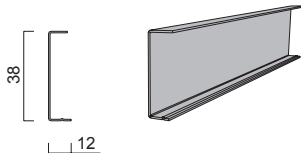


Figure 2.57 - P U10/50/17 - 2500
GN edge

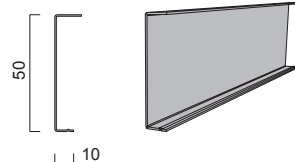


Figure 2.58 - P U10/74/17 - 2500
GN edge

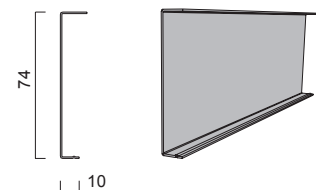


Figure 2.59 - T24/38 - 1800
GN, AW, SK, VT edges

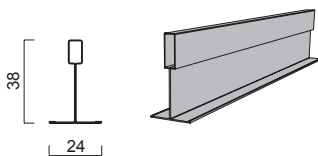


Figure 2.60 - DXE 24ZG - 2500
GN, AW, SK, VT edges

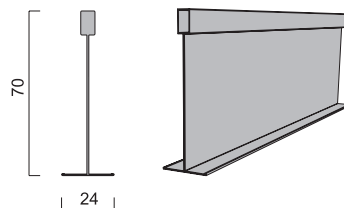
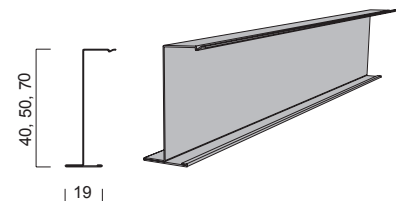


Figure 2.61 - P Z19/40, 50, 70 - 2500
GN, AW edges



T24/38 profiles

T24/38 main runner profiles are often used. As a general rule, main profiles from AMF 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

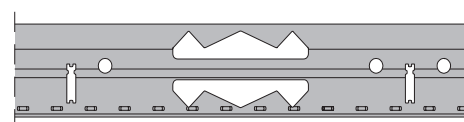
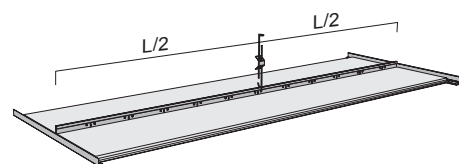


Figure 2.63 - central hanger



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/m²]				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 Z19/70		70	0.55	2470	2440	2360	2260	2200	2150
P Z19/50		50	0.45	2160	2070	2000	1910	1850	1810
P Z19/40		40	0.40	1870	1790	1720	1650	1600	1560
P U10/50		50	0.35	2350	2250	2160	2060	2000	1960
P U12/38		38	0.45	2200	2110	2040	1940	1890	1850

Table 2.3

Tile width [mm]				400 mm					
Weight [kg/m²]				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 Z19/70		70	0.55	2430	2320	2240	2140	2080	2020
P Z19/50		50	0.45	2060	1970	1900	1810	1760	1720
P Z19/40		40	0.40	1780	1700	1640	1560	1520	1480
P U10/50		50	0.35	2240	2130	2050	1950	1900	1850
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 ($l/500 \leq 4 \text{ mm}$) 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 Bandrastrer face; including the construction height of the Bandrastrer 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: $L_0 = A_H - 110 \text{ mm}$

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 Bandrastrer 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

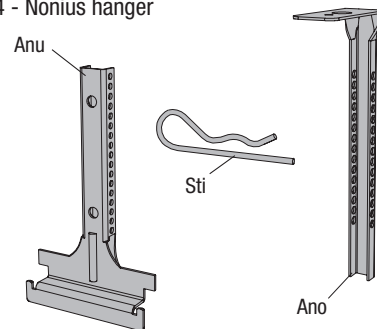


Figure 2.65 - hanger height

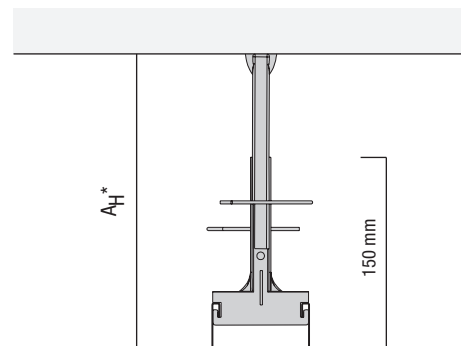


Figure 2.66 - hole spacing

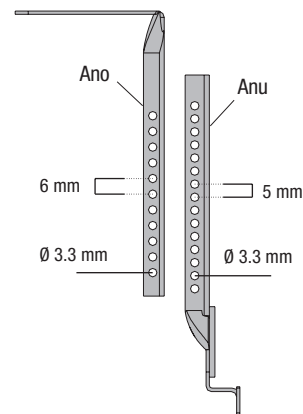
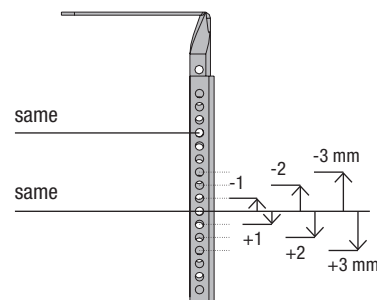


Figure 2.67

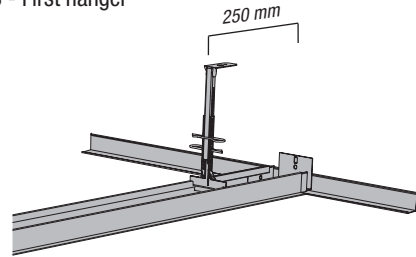


Hanger centres

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 (Figure 7.6) for every Bandrastrer profile, can be increased to 1250 mm for all standard tiles, regardless of the tile size.

Figure 2.69 - Hanger centres

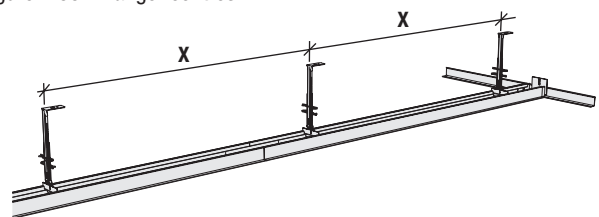


Table 2.5 - Hanger centres

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 Bandraster 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:

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

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

Figure 2.70 - cross-brace

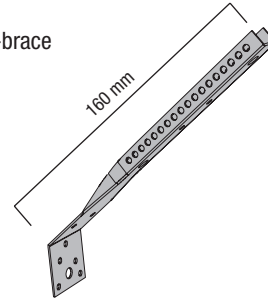


Figure 2.71 - angle

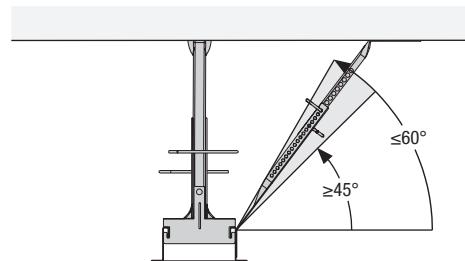


Figure 2.72 - angle 45°

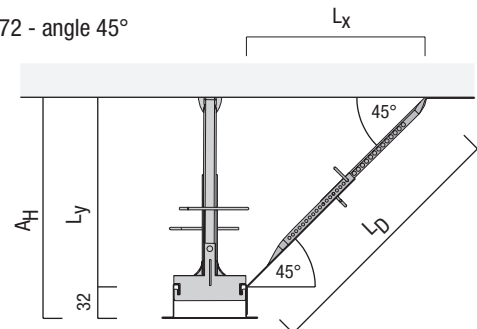


Figure 2.73 - angle 60°

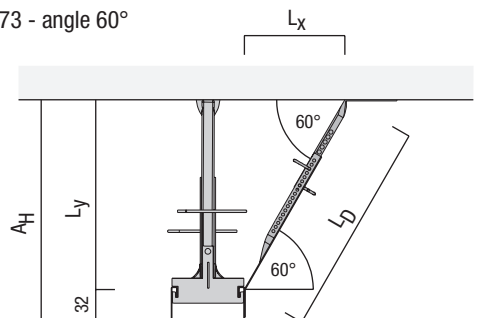
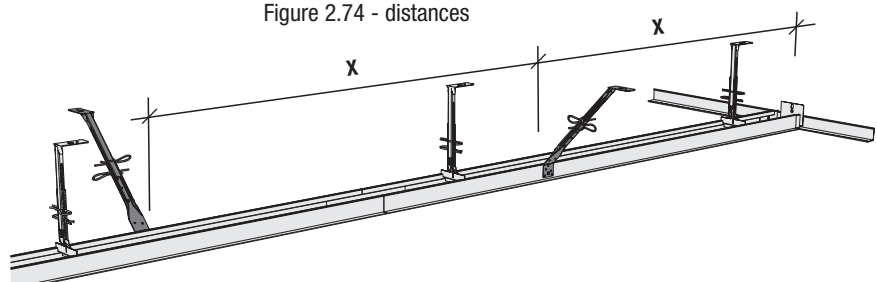


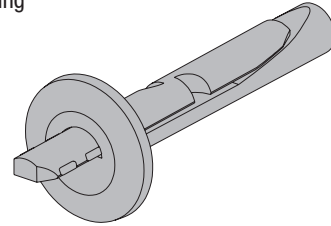
Figure 2.74 - distances



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.

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

Figure 2.76 - Bandraster - Bandraster

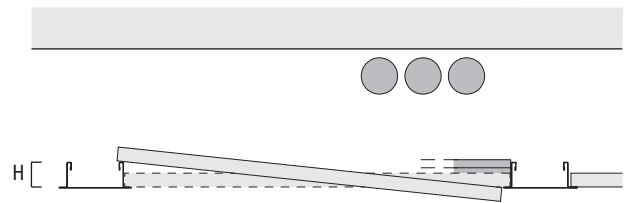
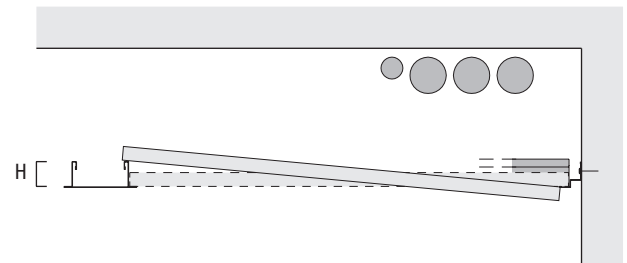


Figure 2.77 - Bandraster - perimeter trim



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

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

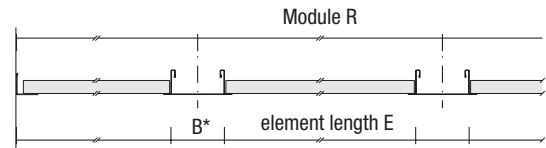


Figure 2.79 - correct layout

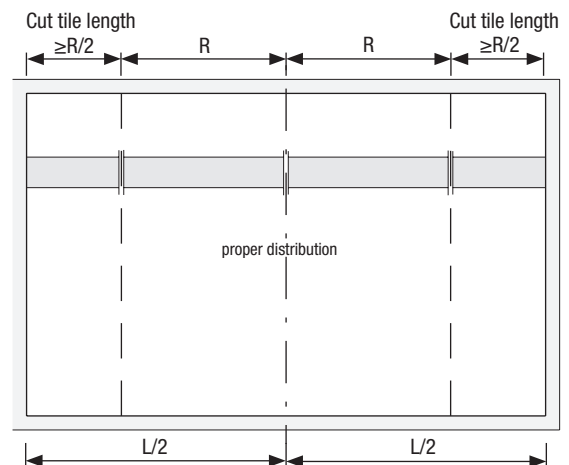
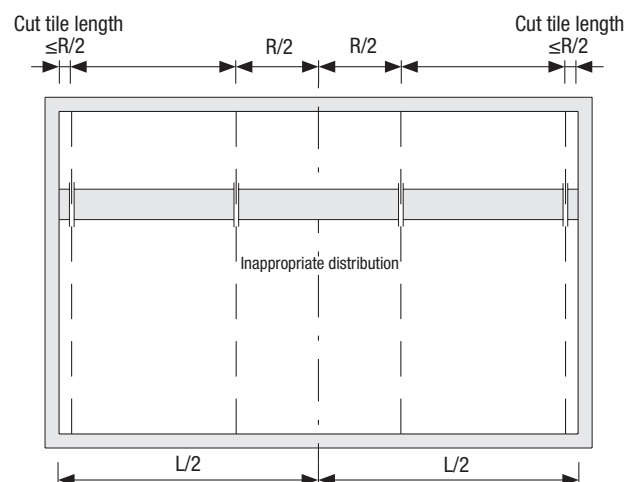


Figure 2.80 - Layout not recommended



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

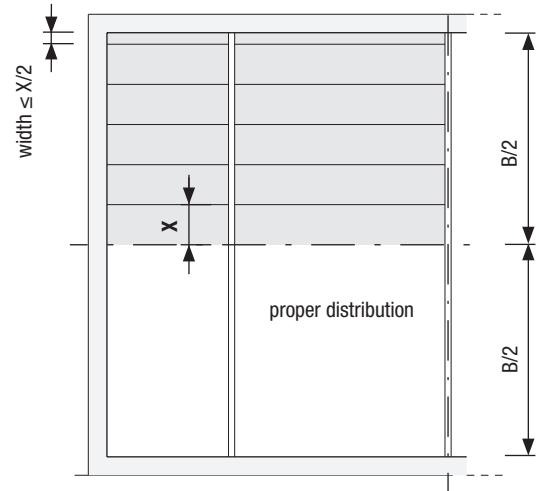


Figure 2.82 - correction

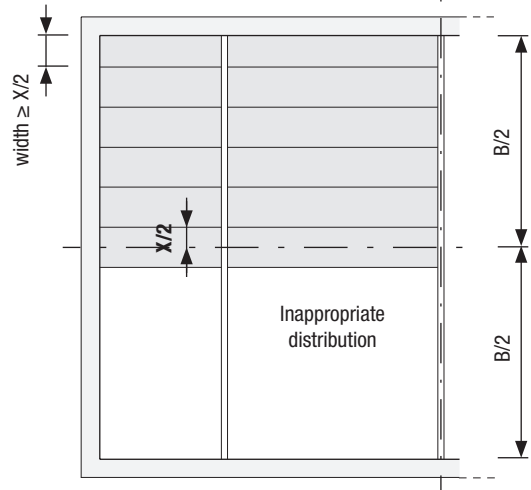
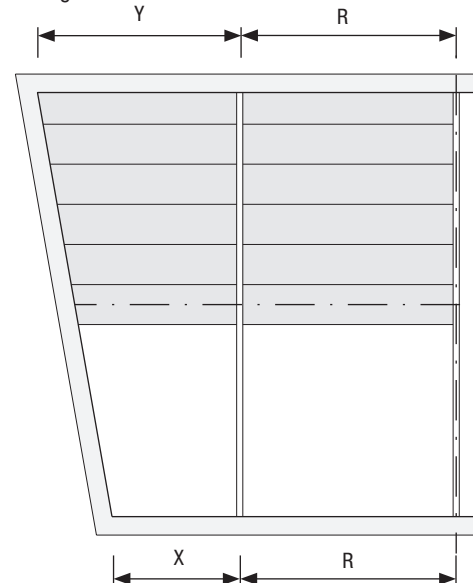


Figure 2.83 - angled wall



Installation guidelines

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

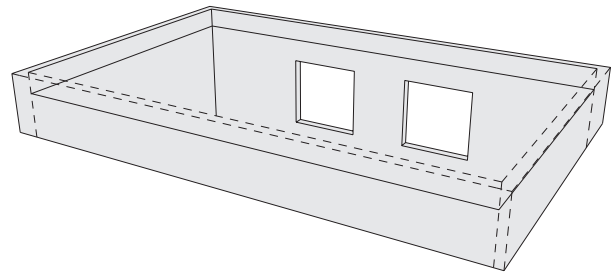
Note

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).

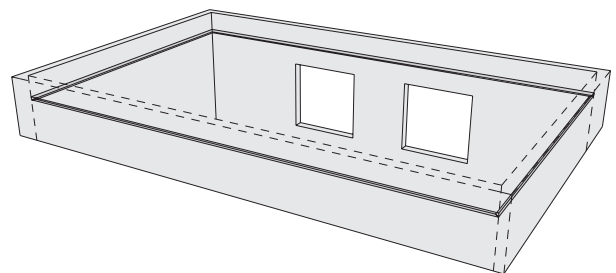
Figure 2.84 - Marking out



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.

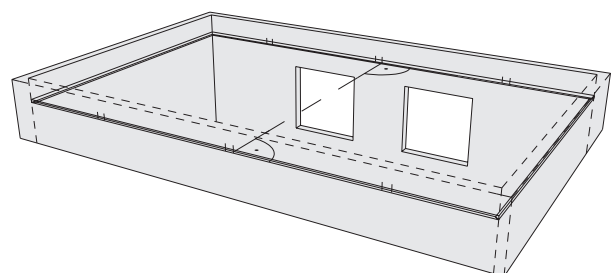
Figure 2.85 - Perimeter trim installation



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.

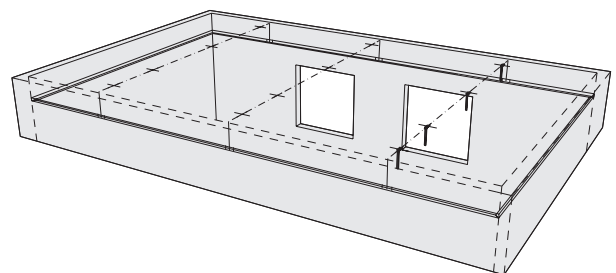
Figure 2.86 - Marking out the Bandraster



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

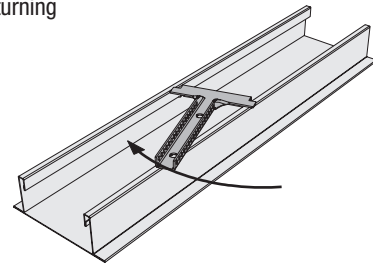
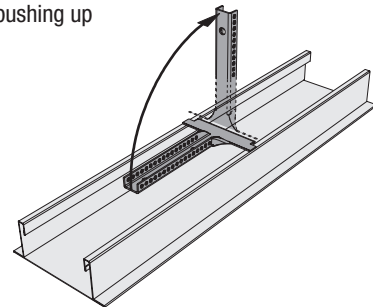


Figure 2.89 - pushing up

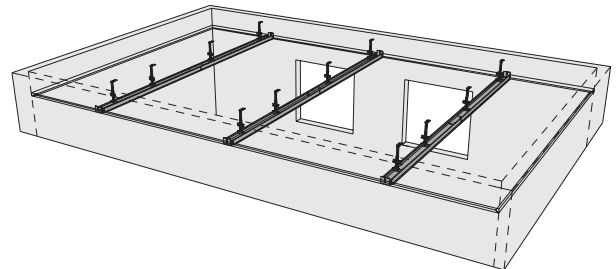


Bandraster installation (Figure 2.90)

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.

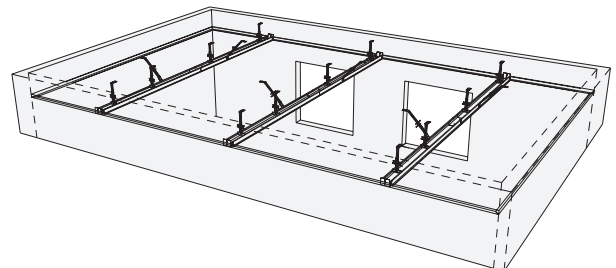
Figure 2.90 - Bandraster installation



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

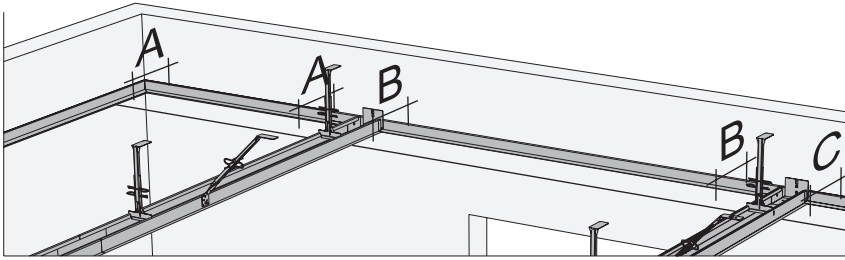
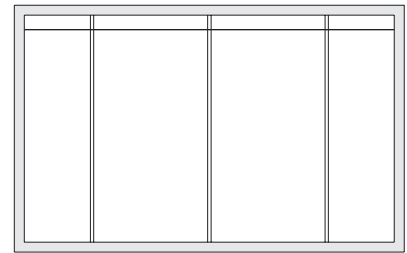
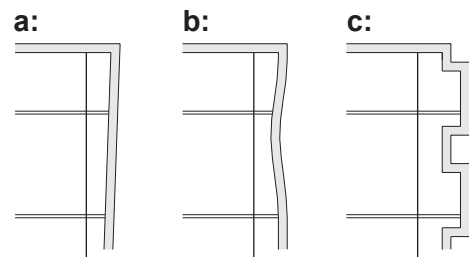


Figure 2.93 - reference string



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.

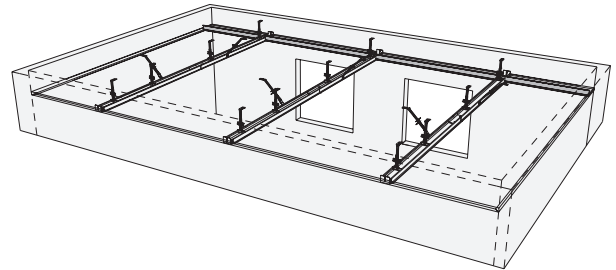
Figure 2.94 - special cases



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.

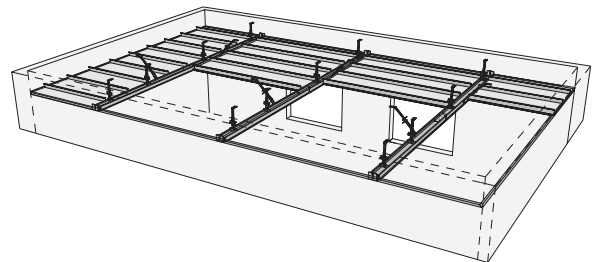
Figure 2.95 - installation of the first row



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

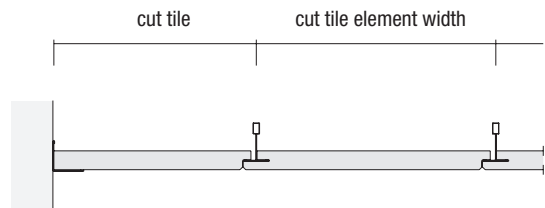
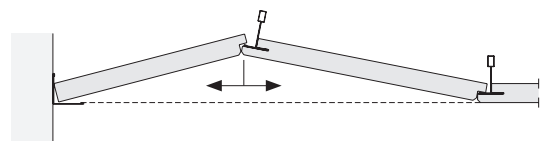


Figure 2.98



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

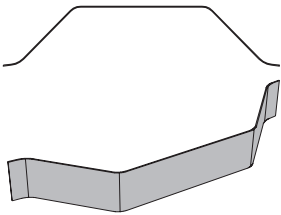


Figure 2.100 - variant with perimeter wedges

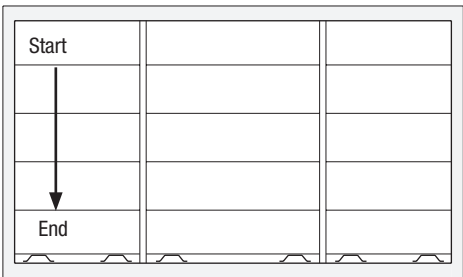


Figure 2.101 - gap size

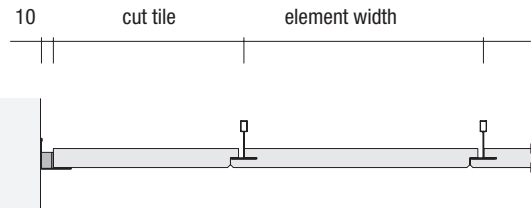
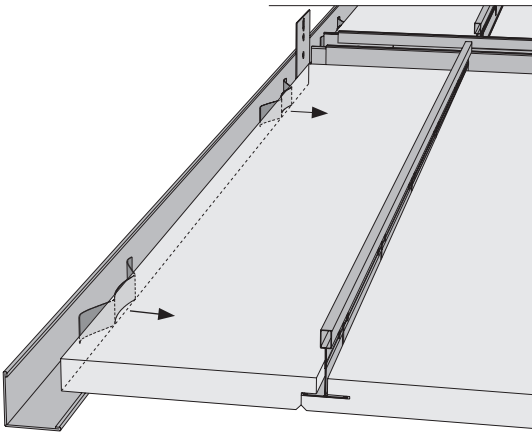


Figure 2.102 - lay out



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 12.3).

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 AW edge configuration, make sure the small offset between the face and reverse sides is considered.

Figure 2.103

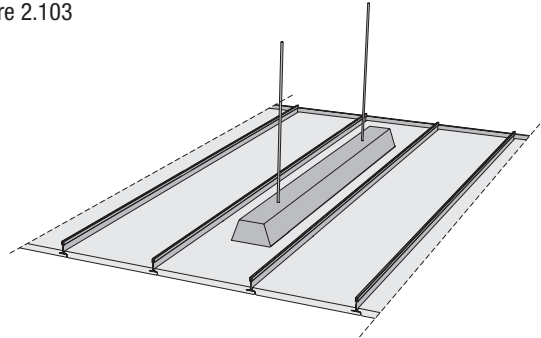


Figure 2.104

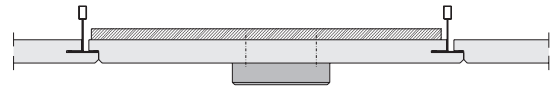
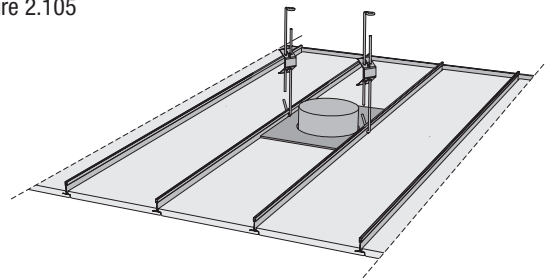


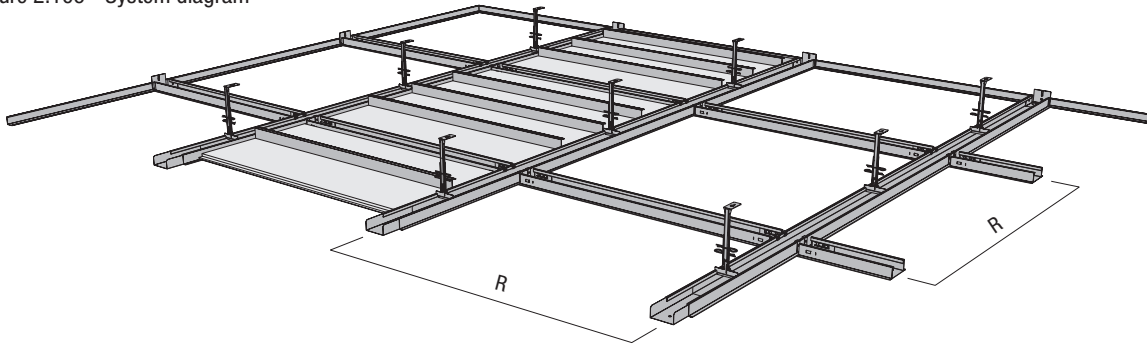
Figure 2.105



Cross Bandraaster

Exposed grid patterns with flexible sizes to match the building geometry can be created using cross Bandraaster. The main profiles are layout identically to system I 1.1 or I 1.2 in terms of centres. Cross Bandraaster profiles are then laid between the main profiles to form the grid pattern and also act as cross bracing for the entire system.

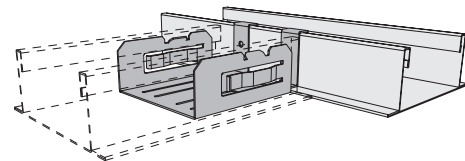
Figure 2.106 - System diagram



Material requirements

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

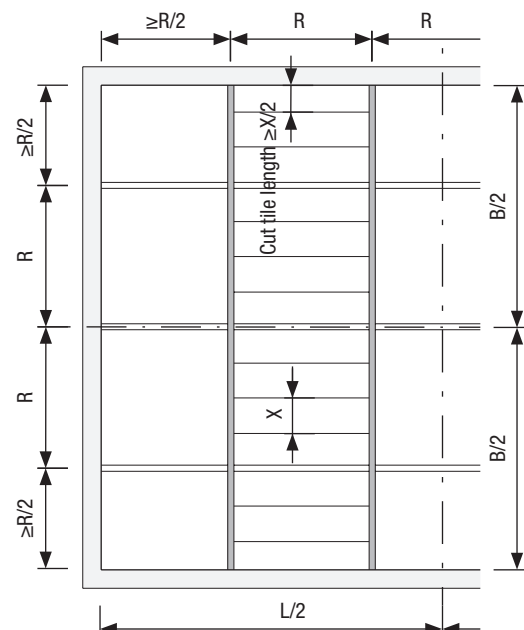
Figure 2.107 - Bandraaster connector



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 Bandraasters must be installed, in both directions.

Perimeter fixings


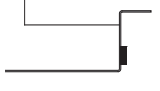
The cross Bandraaster must also be fixed at the perimeter trim.

System I 4.1 - MONDENA® C-Bandraster system

Product Range

Product	Thickness [mm]	Edge Configurations	Module [mm]
Product programme MONDENA®	Plank cassette	0.6	L = 800 - 3000, B = 250 - 625
	Plank cassette	0.6	
		for Bandraster system hook-on version	
		for Bandraster system lay-on version	

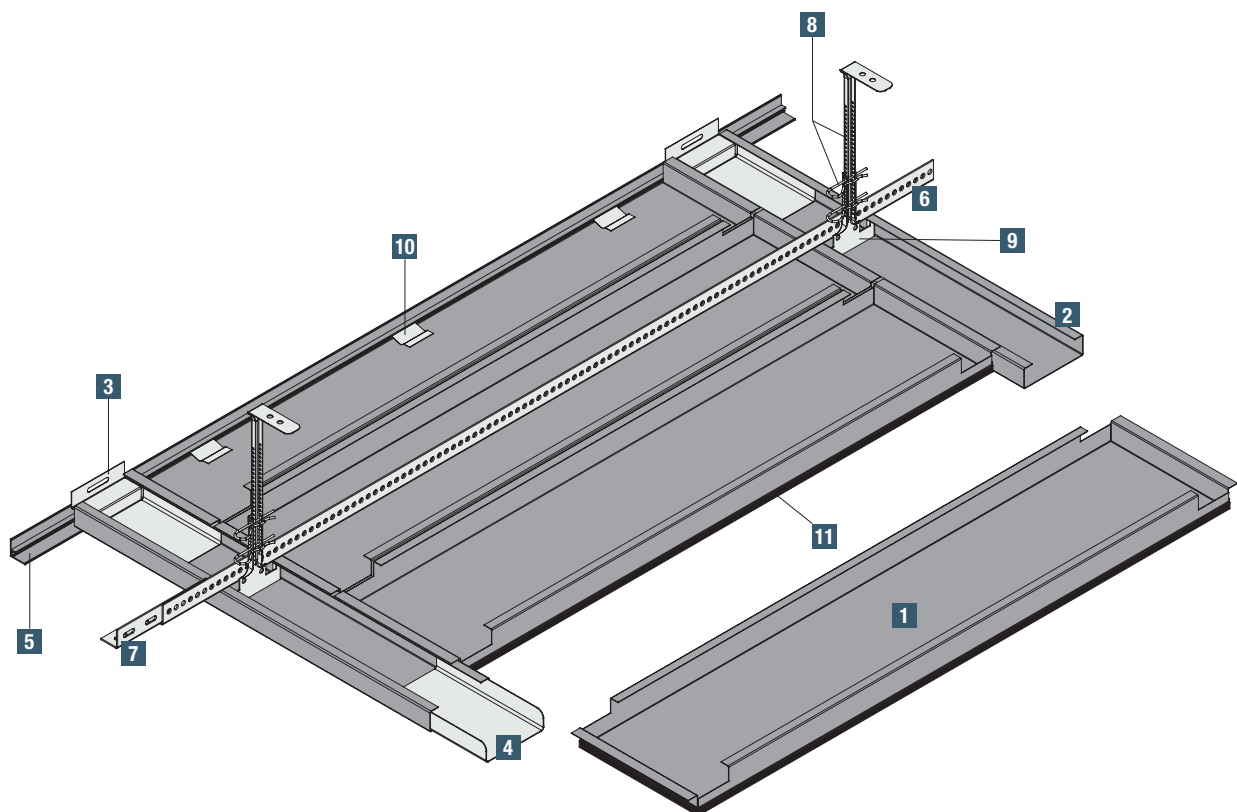
Edge Configurations

Hook-on version	
Lay-on version	

- C-Bandraster profiles enable easy connection with partition walls and lighting systems
- Tiles are easily demounted by hand and offer convenient access to the ceiling void
- Bandraster can continue in line with architectural axes or vertical facade features
- Individual layout of the C-profiles
- Individual ceiling design
- Very adaptable system
- The system is suitable for office complexes, rooms with flexible room division, chilled ceilings as well as being very popular for large, open-plan rooms

System overview

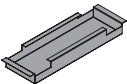



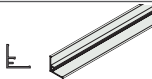
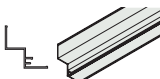






The described systems do not include fire rated applications. The requirements and stipulations of fire rated applications are in accordance with the test certificates.



Material requirements/ key

The quantities and installation times stated are guideline only.

They do not allow for waste or project specific scenarios.

Product			Description	kg / PU	PU (packaging unit)	Module / Requirement per m ² ceiling *
						1200/600 mm
1	Plank cassette for C-Bandraster system Hook-on and lay-on version		Galvanised steel 0.6 mm square edge	--		1.4 pcs.
2	C - Bandraster profile		Galvanised steel 1.0 mm Bandraster width: 100 mm (standard); 125 mm (special); 150 mm (special) Length: 4000 mm	6.64 8.00 8.80	1 pcs.	0.84 lin. m
3	Wall connection		Galvanised steel 1.0 mm Length: 140 mm Bandraster width: 100 mm (standard); 125 mm (special); 150 mm (special)	16.00 18.00 20.00	100 pcs.	As required in lin. m
4	Splice for C-Bandraster profile		Galvanised steel 1.0 mm Length: 200 mm Bandraster width: 100 mm (standard); 125 mm (special); 150 mm (special)	16.00 18.00 20.00	100 pcs.	0.21 pcs.
5	Perimeter trim		Aluminium 1.5 mm RWL 25/25 M with groove for spring clip Length: 4000 mm	8.40	10 pcs.	As required in lin. m
	Shadow trim (optional)		Aluminium 1.5 mm SRW 25/20/25 M with groove for spring clip Length: 4000 mm	13.60	10 pcs.	As required in lin. m
6	Grid angle (optional)		Galvanised steel 2.0 mm L / 30 x 30 mm Length: 4000 mm both legs drilled at regular intervals	40.00	10 pcs.	0.84 lin. m
7	Grid angle connector (optional)		Galvanised steel 2.8mm L / 25 x 25 mm Length: 150 mm drilled at regular intervals to fit grid angle	3.00	10 pcs.	0.21 pcs.
8	Nonius upper part incl. 2 x security pins		Nonius upper part Galvanised steel 1.00 mm, 15 x 9.5 mm Length: 85 - 440 mm	3.00	100	0.70 pcs.
9	Hanger connector (Nonius lower part)		Nonius lower part for Bandraster width: 100 mm (standard) 125 mm (special); 150 mm (special)	4.00 5.00 6.00	100 pcs.	0.70 pcs.
10	Spring clip		Aluminium 0.5 mm 38 x 40 mm	0.22	100 pcs.	3 - 4 pcs.
11	Sealing / joint strip		9 x 3 mm (2x short and 1x long side) factory adhered, colour: black (standard), white	--	25 m/ roll	--

Recommendation

For 1.5 m² ceiling area, the construction should be installed with at least 1 hanger.

Note

All quantities are calculated based on large-scale, continuous installation without taking wall connections into account. For small rooms the required quantities can increase considerably. Centres according to manufacturer's specifications.

We cannot guarantee the information listed.

* Other module dimensions and requirements per m² ceiling are available.

Please ask our technical department.

Plank cassettes for C-Bandraster system

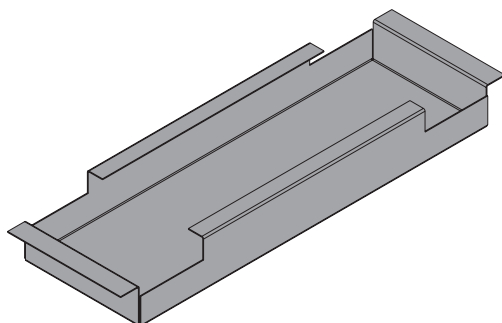
Standard edge lay-on version:

Short sides:

H= 30.6 mm; Z= 15 mm outward edge;

Long sides:

H= approx. 35 - 45 mm according to structural requirements, C= 13 mm



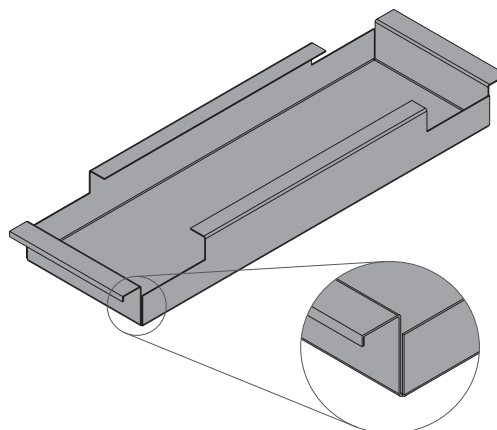
Standard edge hook-on version:

Short sides:

H= 30.6 mm, Z= approx. 14 - 16 mm, downward hook approx. 5-7 mm

Long sides:

H= approx. 35 - 45 mm according to structural requirements, C= 13 mm



System	Plank tiles (plain or perforated) for C- Bandraster system
Material	Galvanised steel 0.6 mm (Aluminium 0.7 mm on request)
Dimensions	Length: 800 - 3000 mm, width: 250 - 625 mm
Special edges – lay-on version	Short sides: H = 30.6 mm, Z = 15 mm outwards, Long sides: H = approx. 35 - 45 mm, C = 13 mm, according to structural requirements
Special edges - hook-on version	Short sides: H = 30.6 mm, Z = approx. 14 - 16 mm, downward hook approx. 5-7 mm Long sides: H = approx. 35 - 45 mm according to structural requirements, C
Edge configuration	Square edge - no bevel, sealing strip 9 x 3 mm (2x short side, 1x long side), factory-adhered
Perforation	Standard perforation patterns Rg 2516, Rd 1625, Rd 3022, Rg 1613 (other perforations on request)
Coating	Powder coated pure white similar to RAL 9010, matt, gloss level 20%, HYGIENE powder coating to protect against bacteria and germs on request
Building material class	A2-s1,d0 according to EN 13501-1
Light reflection as per EN 5036	approx. 90 % pure white similar to RAL 9010, matt, gloss level 20%, unperforated (standard)

Room layout / ceiling symmetry

C-Bandraster profile module

As the C-Bandraster profiles are typically 100 mm wide, the following module results (Fig. 3.1):

B= Bandraster width 100 mm

Module **R**= element length **E** + **B** + 2 x 3 mm sealing strip

Example:

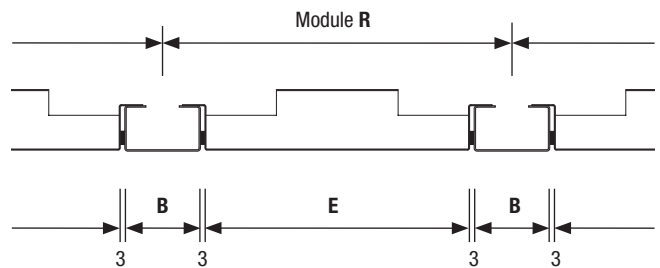
Bandraster width **B**: 100 mm (standard)

Element length **E**: 1800 mm - 6 mm sealing strip = 1794 mm

Module **R**: 1794 + 6 + 100 mm = 1900 mm

R = 1900 mm

Figure 3.1 Module



Layout

The ceiling is installed from the middle of the room ($L/2$) in modules = **R**.

In the example shown (Figure 3.2) the cut length is larger than half an element length and is therefore a correct layout.

Note

If the cut tile is less than half the module ($\leq R/2$), see Figure 3.3, the resulting unfavourable appearance is to be avoided and therefore the layout is not recommended.

Correction

A layout with large cut tiles is aesthetically more pleasing and more efficient. Should the layout result in small cut lengths, as in Figure 3.3, the layout should be moved over by half a module width. This always results in a perimeter cut larger than half the tile length and therefore a correct layout (Figure 3.2).

Figure 3.2 Correct layout

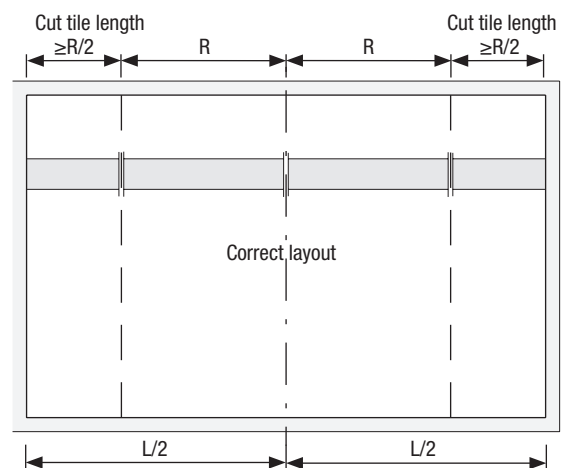
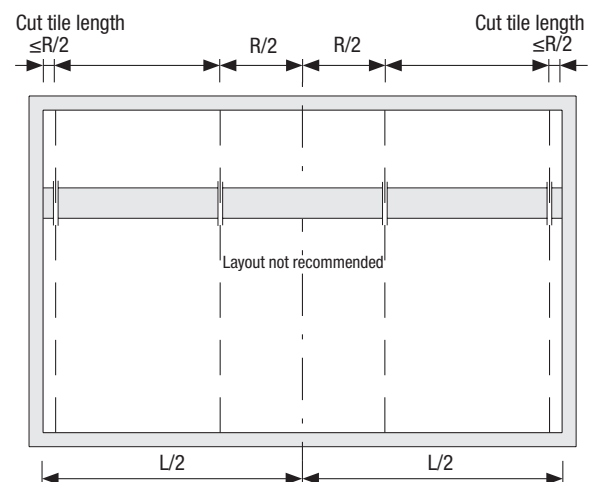


Figure 3.3 Layout not recommended



Layout in width direction

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

Layout

Starting from the middle of the Bandraster, the layout continues in element widths = X .

In the example shown (Figure 3.4) the resulting cut length is very small.

Note

If the resulting cut width is smaller than half the element width ($\leq X/2$), the resulting unfavourable appearance is to be avoided and therefore the layout is not recommended.

Correction

A layout with large cut tiles is aesthetically more pleasing and more efficient. Should the layout starting from the middle of the Bandraster, as described above, result in an unfavourable layout, the layout should be moved over by half an element width.

This always results in a perimeter cut larger than half the tile width (Figure 3.5).

Special cases

Should the cut tile meet with an angled wall, the longest side (Figure 3.6, dimension Y) should also equal the tile length, otherwise the layout should be adjusted.

Figure 3.4 Width direction

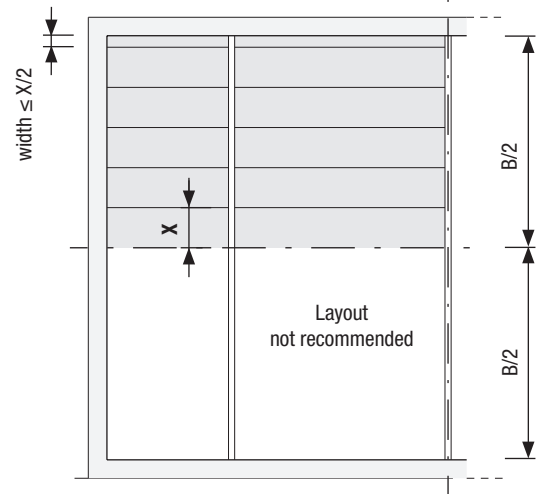


Figure 3.5 Correction

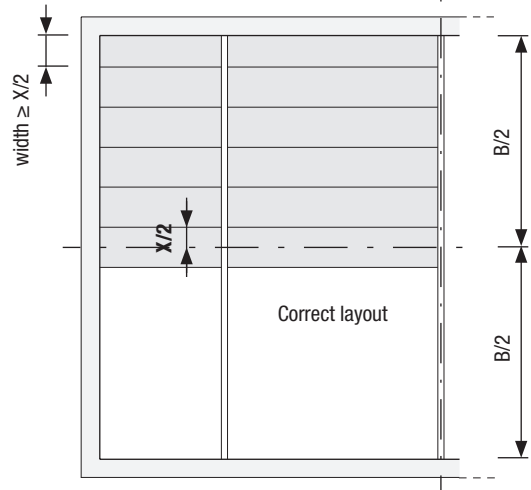
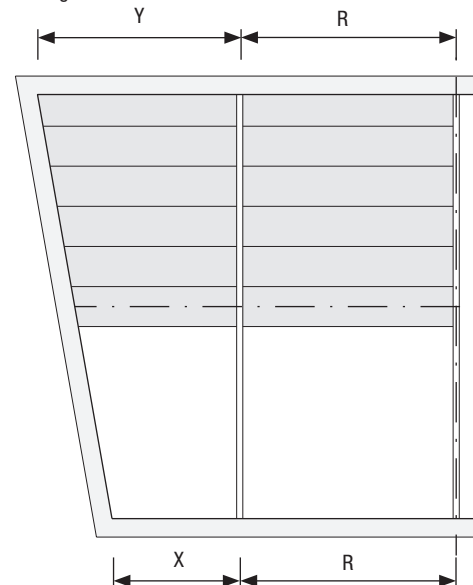


Figure 3.6 Angled wall



Installation guidelines

Please ensure you read all previous chapters in advance, as these contain detailed explanations and information regarding the correct installation of the system.

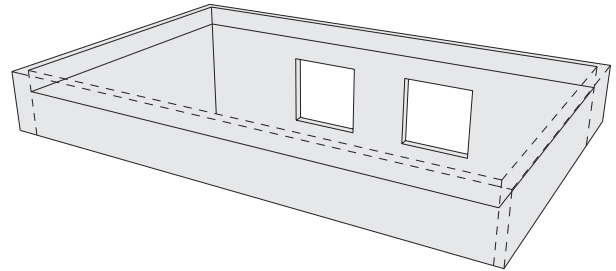
Note

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

Marking out (Figure 3.7)

Before installation, mark the required suspension height on the surrounding components (walls, supports...) all the way around the room (upper edge of perimeter trim).

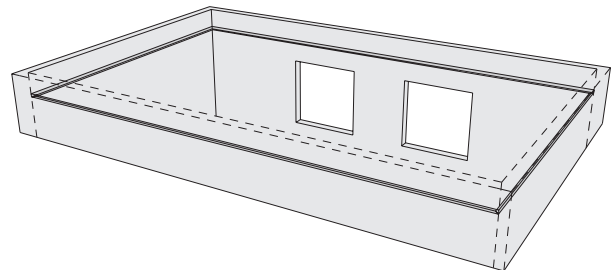
Figure 3.7 - Marking the wall



Perimeter trim installation (Figure 3.8)

The perimeter trim should be fixed with suitable plugs and fixings. Please observe the stipulations in chapter 4, Perimeter trims. The corners of the perimeter trim should be mitred.

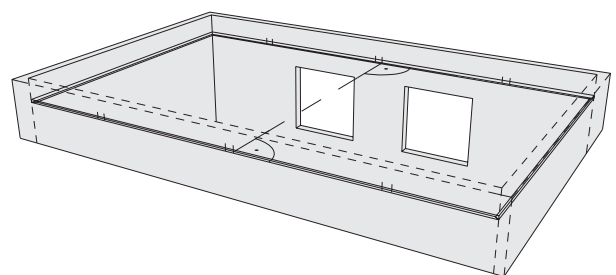
Figure 3.8 - Perimeter trim installation



Room layout (Figure 3.9)

The room is lay out according to the recommendations in the chapter, Room layout. The resulting module is marked out along the perimeter trim. Transfer to the opposite side should always be done at right angles.

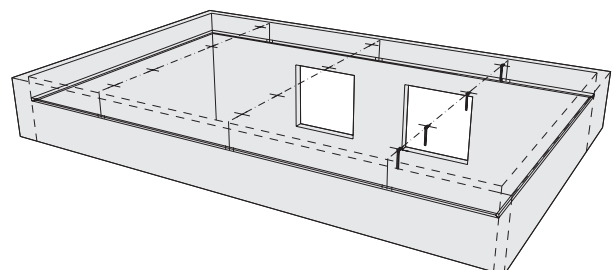
Figure 3.9 - Marking out the Bandrastrer



Marking out hangers (Figure 3.10)

The module is marked out on the soffit and the position of the top fixings established in accordance with the stipulations in chapter, Hangers.

Figure 3.10 - Hangers



Installation of hangers (Figure 3.11)

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 (max. 1200mm centres) by turning, pushing is not necessary. The lower parts are firstly turned with a little pressure (at approx. 90° - Figure 3.11, 3.12) and then hooked onto the Bandraster.

Bandraster installation (Figure 3.13)

To install the Bandraster, the Nonius lower parts (max. 1200 mm centres) are hooked onto the profiles and fixed to the upper parts with 2 security pins and set to the required height.

Individual hangers are installed and the rest of the fixing points added. The Bandraster are lay on the perimeter trims and pushed into the wall connection profile.

Every long joint of the main profile is fitted with a splice connector. Before continuing, the grid should be aligned and levelled.

Installation of cross-bracing (Figure 3.14)

To accommodate horizontal forces during installation and later by maintenance, grid angles should be installed at max. 1200 mm centres as permanent cross-bracing. The grid angles are installed above the Bandraster profiles or approx. 30 mm away and fixed directly to the Nonius lower parts.

Figure 3.11 - turning

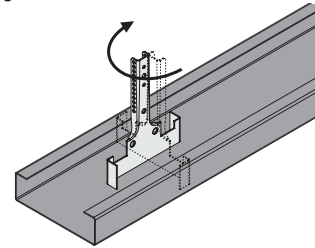


Figure 3.12 - hooking-on

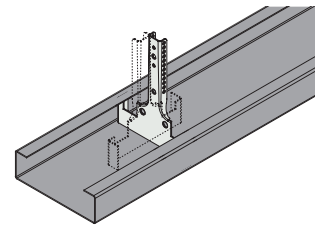


Figure 3.13 - Bandraster installation

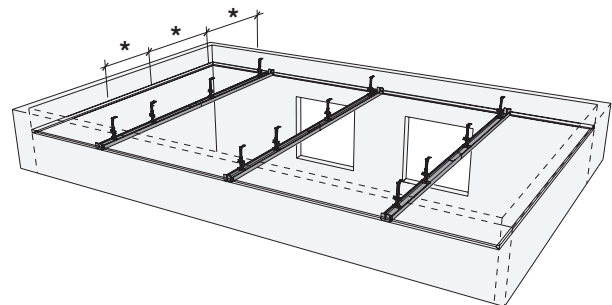
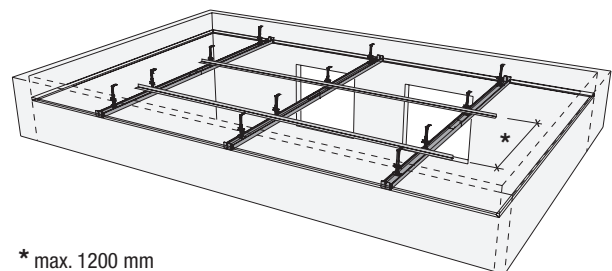


Figure 3.14 Installation of cross-bracing



* max. 1200 mm

Guide string (Figure 3.15)

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 across the entire room's length (Figure 3.15 and 3.16).

Starting from this reference line, the tiles are cut to fit. It is usually sufficient to measure the width adjacent to the Bandraster profile (Figure 3.15, A and B) and then transfer it to the tile to be cut.

This can then be cut accordingly.

Figure 3.15 - Guide string

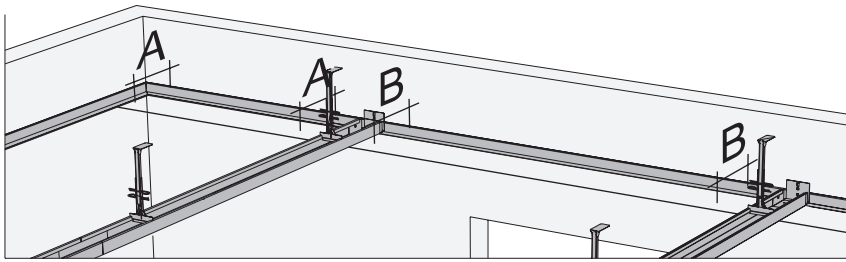
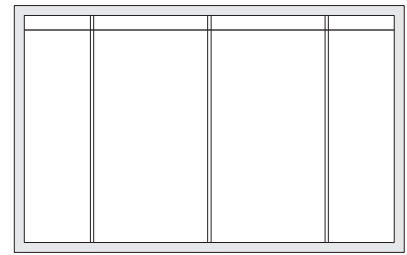


Figure 3.16 - Position of string

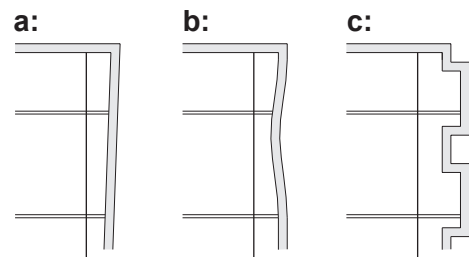


Should the reference wall be at an angle (Figure 3.17a), this method can also help to achieve a parallel joint pattern.

Wall unevenness (Figure 3.17b) can also be better compensated.

In the case of niches and protrusions (Figure 3.17c), a guide string provides the reference line for the installation.

Figure 3.17 - Special cases

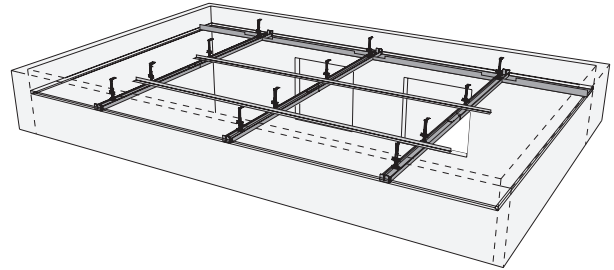


Installation of the first row (Figure 3.18)

After the tiles have been cut, they can be lay into the system. Always ensure that the tiles are installed together with the reinforcement profiles.

As all the other tiles are aligned against the first tiles, it is especially important to install this row carefully, otherwise a uniform joint pattern cannot be achieved.

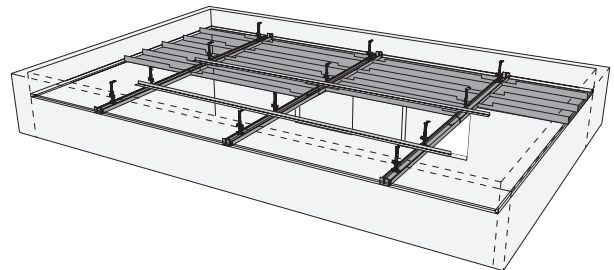
Figure 3.18 - Installation of the first row



Tile installation (Figure 3.19)

The rest of the tiles are installed in full rows, always together with reinforcement profiles.

Figure 3.19 - Tile installation



Last tile

Cut to fit

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

Figure 3.20

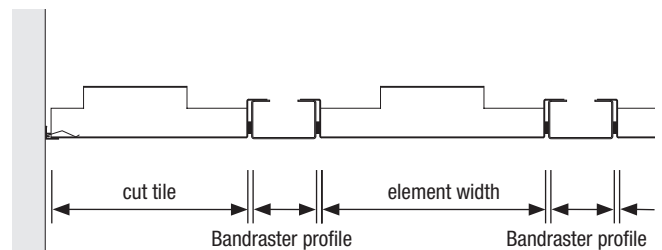
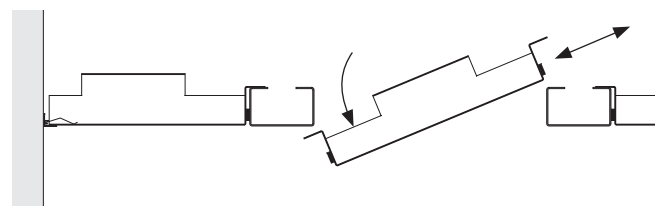


Figure 3.21



Push the tile over the C-Bandraster profile and remove the opposite tile side downwards.