



Installation guide

OWAtecta - metal ceilings

OWA

Table of contents

1.0 General

1.1	Introduction	4
-----	--------------	---

2.0 Planning

2.1	Structural preconditions	6
2.2	Specifications for suspended ceilings and ceiling linings	6
2.3	Reaction to fire	7
2.4	Sound insulation	7
2.5	Planning prior to installation	8
2.6	Building, expansion and movement joints	9
2.7	Pressure and wind loading of suspended ceilings	9

3.0 OWAtecta tiles - general information

3.1	Edge details	12
3.2	Quality	13
3.3	Colour	13
3.4	Transport and storage	13
3.5	Safety	13
3.6	Cleaning and maintenance	13
3.7	Environment and disposal	13
3.8	Working with OWAtecta tiles	14

4.0 Construction of suspended ceilings and ceiling linings

4.1	Load of the suspended ceiling - additional load	16
4.2	OWAconstruct ceiling hangers	16
4.3	Corrosion protection of tiles, profiles and hangers	16
4.4	C-wide span beam profiles	17
4.5	Tools for OWAconstruct grid parts	18
4.6	Colour, visible profiles	18
4.7	Profiles - renovation and painting	18
4.8	Packaging, handling	18
4.9	External influences, environmental conditions, masking	18

5.0 OWAconstruct/OWAtecta standard ceiling systems

5.1	Fixings	20
5.2	OWAconstruct hangers	21
5.3	Wall perimeters of OWA standard ceiling systems	23
5.4	Sloping roof	26
5.5	Integration of recessed or surface-mounted lights, spotlights, ventilation fittings etc.	26

6.0 OWAconstruct/OWAtecta systems with special functions and features

6.1	Suspended ceilings in humid spaces according to EN 13964; table 7 exposure class C	30
6.2	Suspended ceilings for clean rooms according to EN ISO 14644-1	30
6.3	Positive/negative pressure ceilings according to EN 1026 and EN 12207	31
6.4	Unproblematic sterilisability according to the DGHM method	31
6.5	Sturdy and versatile in use, confirmed according to ISO 2812-1 and ISO 4628-1, -6	32

7.0 Working with OWAconstruct/OWAtecta ceiling systems

7.1	S 22 – concealed, hingeable	34
7.2	S 32 – concealed hingeable	37
7.3	S 33 – exposed, demountable, 24 mm	
	S 45 – exposed, demountable, 15 mm	40
7.4	S 45b Trapeze – exposed, demountable, 15 mm OWAline	43
7.5	S 36 – Success	45
7.6	S 36 – Progress	47
7.7	S 36 – lay-on	48
7.8	S 39 – hook-on system with Z profiles, concealed, demountable	49
7.9	S 48 – demountable	51
7.10	S 60 – magnetic pin board wall absorber	54

1.0 General

1.1 Introduction

The OWAtecta installation instructions are a guideline for planning and installation of OWAtecta ceiling systems. They correspond to the current state of technology (see rear cover for publication date).

The requirements of EN 13964 were taken into account in their composition. As manufacturer and supplier OWA supplies complete and proven ceiling systems. A multitude of functions and tasks can be met with these ceiling systems. Professional implementation is essential to guarantee this.

1

As part of our terms of sale and delivery, a warranty can only be assumed for structural and system components listed in OWA-brochures, test certificates, invoices and tables or expert opinions. In the event of the use of extraneous components, the test certificates, expert opinions and technical factory information cease to be valid.

2.0 Planning

OWA ceiling systems are produced using the dry construction method for interior finishing. The basic principles of dry construction must be applied in the installation of the suspended ceilings. In the event of the additional use of wooden materials, the guidelines on woodworking and wood processing must be taken into account.

2.1 Structural preconditions

Room condition and building site conditions:

The OWA tecta ceiling systems can only be installed once the plastering, screed (including asphalt screed), wet- and installation works have been completed. The room must be in a dry condition. Room-delimiting elements (windows, doors, etc) must exist and be functional.

Reference values for site environment

Relative **ambient humidity < 70 % RH** (reference temperature 25 °C), conditions suitable for tradesmen's work, room temperature > 7 °C.

Relative humidity

Relative humidity depends on temperature. Lowering the temperature in an enclosed space will increase the relative humidity of the area. It is important to ensure that the area is well-ventilated to let the humid air out. This is particularly important for new buildings.

The following table illustrates the effect of reducing room temperature from 20 °C to 15 °C. The change in temperature ($\Delta T = 5^\circ$) in an enclosed space has an effect on relative humidity. This can be illustrated based on absolute humidity (g/m^3).

Example:

Room temperature 20 °C, absolute humidity at 12.10 g/m^3 corresponds to relative air humidity of 70 %. Lowering the temperature to 15 °C with an associated comparable absolute humidity of 12.23 g/m^3 will result in a relative air humidity of 95 %.

Temp. in °C	Relative air humidity in %								
	50	60	70	80	85	90	95	100	
10	4.70	5.60	6.50	7.50	8.00	8.50	9.95	9.40	
11	5.00	6.00	6.95	8.00	8.53	9.05	9.55	10.05	
12	5.30	6.40	7.40	8.50	9.05	9.60	10.15	10.70	
13	5.65	6.85	7.95	9.10	9.68	10.25	10.83	11.40	
14	6.00	7.30	8.50	9.70	10.30	10.90	11.50	12.10	
15	6.40	7.75	9.00	10.30	10.50	11.60	12.23	12.85	
16	6.80	8.20	9.50	10.90	11.60	12.30	12.95	13.60	
17	7.25	8.70	10.10	11.60	12.33	13.05	13.78	14.50	
18	7.70	9.20	10.70	12.30	13.05	13.80	14.60	15.40	
19	8.15	9.80	11.40	13.05	13.88	14.70	15.53	16.35	
20	8.60	10.40	12.10	13.80	14.70	15.60	16.45	17.30	
21	9.15	11.05	12.85	14.65	15.60	16.55	17.45	18.35	
22	9.70	11.70	13.60	15.50	16.50	17.50	18.45	19.40	
23	10.30	12.40	14.45	16.45	17.50	18.55	19.58	20.60	
24	10.90	13.10	15.30	17.40	18.50	19.60	20.70	21.80	
25	11.55	13.85	16.20	18.50	19.65	20.80	21.95	23.10	
26	12.20	14.60	17.10	19.60	20.80	22.00	23.20	24.40	
27	12.90	15.45	18.10	20.70	21.98	23.25	24.55	25.85	
28	13.60	16.30	19.10	21.80	23.15	24.50	25.90	27.30	
29	14.40	17.25	20.20	23.05	24.50	25.95	27.40	28.85	
30	15.20	18.20	21.30	24.30	25.85	27.40	28.90	30.40	
Absolute humidity in g/m^3 of air									

2.2 Specifications for suspended ceilings and ceiling linings

This standard introduced by European construction supervisory bodies is legally binding. From 1 January 2005 a co-existence phase for the standards EN 13964 (suspended ceiling requirements and test procedures) and DIN 18168 Part 1 existed (note: standard for light ceiling linings and suspended ceilings). During this period, both standards were applicable. DIN 18168 was withdrawn by the Deutsche Institut für Normung e.V. After the coexistence period (i.e. since 1st July 2007) has lapsed, only EN 13964 continues to apply.

2.3 Reaction to fire

OWAtecta tiles as building material

According to EN 13501-1 and DIN 4102 Part 1, building materials are divided into the following classes according to their fire behaviour:

Building standards designation	Additional requirements		European class according to EN 13501-1	Fire behaviour according to DIN 4102
	No smoke development	No dropping while burning		
Non-combustible	3	3	A1	A1
	3	3	A2-s1,d0	A2
Low flammability	3	3	B-s1,d0	B1
	3	3	C-s1,d0	B1
		3	A2-s2,d0	B1
		3	A2-s3,d0	B1
		3	B, C-s2,d0	B1
		3	B, C-s3,d0	B1
	3		A2-s1,d1	B1
	3		A2-s1,d2	B1
	3		B, C-s1,d1	B1
	3		B, C-s1,d2	B1
			A2-s3,d2	B1
			B-s3,d2	B1
			A2-s3,d2	B1
Normal flammability	3	3	C-s1,d0	B2
		3	C-s2,d0	B2
		3	C-s3,d0	B2
			E	B2
	3		D-s1,d2	B2
			D-s2,d2	B2
Easily flammable			D-s3,d2	B2
			E-d2	B2
			F	B3

The additional designations mean:

s1, s2, s3 [m²/sec²] describe the smoke behaviour

s1 = very limited smoke development

s3 = heavy smoke development

d0, d1, d2 = dropping while burning

d0 = no dropping while burning within 600 seconds

These convergence tables have been published in Annexes 0.12/0.2.2 of the Building Regulation List A Part 1.

OWAtecta tiles and structural elements typically comply with fire behaviour **A1 or A2-s2,d0 according to EN 13501-1**. The respective fire resistance classes of non-woven backings must be taken into consideration.

2.4 Sound insulation

OWAtecta ceiling systems can perform a wide range of functions as regards sound insulation.

Optimising room acoustics

In many spaces, the correct reverberation time T[s] is required for good comprehension of speech or appreciation of music. By contrast, in noise-intensive production facilities or workshops, it is desirable to reduce the level of noise as far as possible.

Reverberation time T_{required} [s]
Noise level reduction ΔL [dB]

In these examples of use, further details can be obtained from the following standards, guidelines and regulations issued by trade associations:

- DIN 18041 "Acoustic quality in small to medium-sized rooms" Edition 2016
- VDI 2569 "Sound protection and acoustical design in offices" Edition January 1990
- noise and Vibration Work Safety Regulation (LärmVibrations-ArbSchV) of March 2007

The above-mentioned information makes no claim to being complete.

Optimising building acoustics

OWAtecta ceiling systems can be used for a variety of purposes in building acoustics. Suspended ceiling systems are used, in particular to:

- increase airborne sound insulation R_w [dB] of solid and timber joist ceilings
- improve the lateral room to room airborne sound insulation $D_{n,c,w}$ [dB] between two rooms with a common ceiling void
- reduce sounds emanating from the ceiling void.

As the structural conditions vary from site to site, we recommend discussing the project-specific information in a meeting to find a suitable solution.

For more information, please refer to the following standard:

- DIN 4109 "Sound insulation in buildings" Edition 2018

Further information is also available in leaflet no. 9558 e.



2.5 Planning prior to installation

Our metal ceilings are suitable for the application areas given in EN 13964. An inspection of the building site to check local conditions, site measurement of the installation rooms at the building and production of an installation plan are important preliminary work steps. The installation appearance, arrangement of lighting and similar matters must be determined with the architect.

Structural physics basics

Requirements regarding building physics, fire protection or other matters, which could arise i.a. from relevant standards, the Ordinance on Thermal Insulation or other laws or regulations, have not been considered. They must be given additional attention during the planning. The manufacturer of the suspended ceiling does not accept any responsibility in this regard.

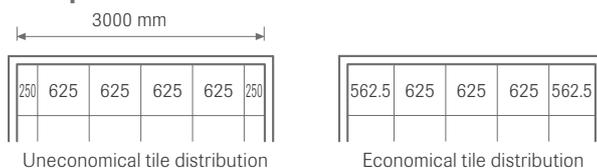
Perimeter tiles

The size of perimeter tiles will depend on the size of the room and may be dictated by design-related or architectural aspects and as a result the wall perimeters may not be distributed economically with respect to the grid. This can arise due to recessed light fixtures or similar.

If the following points do not apply, we recommend installing the perimeter tiles in the following manner: Generally, perimeter tiles should be as close to a full module size as possible, and **preferably larger than half a tile**. In the installation example shown below, we take a room that is 3.0 metres wide and use 625 x 625 mm modules.

The layout recommended by OWA uses three full tiles and two cut tiles on the left and right. This is preferable to the other example which uses four full tiles and two cut perimeter tiles on the left and right. The number of tiles is the same but the ceiling would require an additional run of suspension profiles both lengthwise and crosswise, which is both uneconomical and less aesthetically pleasing (see example).

Example:



Effect of light or lighting on the suspended ceilings

For architectural or optical reasons direct incident light on the suspended ceilings is to be avoided. This refers both to lighting as well as to complete glazing of facades, which reaches up to the underside of the suspended ceiling.

Unfavourable incident light can emphasise and exaggerate any minor difference in levels or pattern even when this lies within the tolerance range.

The installer can contribute significantly to the appearance of the ceiling by observing all of the recommendations of the manufacturer.

Use of metal tiles as cooling or heating ceiling

Claims due to activation of metal tiles through the use of copper or plastic meanders are excluded.

EN 13964

The permissible measurements and deviations are described for the installer in the installation guidelines of EN 13964 (see excerpt below).

Flatness

The tolerance ranges of thin-walled cover layers are laid down in table 4 of EN 13964.

Squareness

The grid (main and cross runners) must be installed precisely at right angles. The permissible deviation depends on the dimensions of the cover layers used and their attachment. A practical method to check the right angularity of the modules is regular checking of the diagonals during installation and/or the correct fitting of the cover layers. Linear components and tees must be installed at right angles. The permissible deviation depends on the linear panel type but in practice, even slight deviations from a right angle lead to visible deformation of linear components.

Alignment of linear components

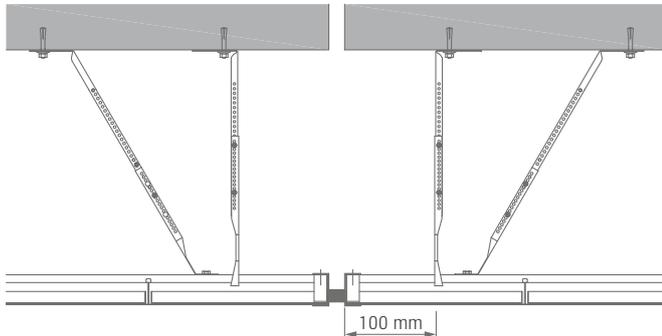
Linear components, together with any elements and tees must be precisely aligned to the module. Special attention must be paid to the alignment of the modules over the connection between the beams.

Cutting membrane components to size

As a general requirement, membrane components are divided from the middle of the ceiling area (be it from the middle of the component or the middle of a joint between components) in such a way that the perimeter panels have a minimum width of half the width (or length) of the standard panel. Otherwise, the division should be determined with the building planner, taking into account the location of columns, lighting fixtures, etc. Cut to size membrane components, when pushed against the body of the T profile, should be supported by the edge profile on the opposite side by at least 10 mm.

2.6 Building, expansion and movement joints

In general, building, expansion and movement joints must be adopted in the case of ceiling linings and suspended ceilings.



Example: Expansion joint and movement joint for the OWAconstruct System S 33.

2.7 Pressure and wind loading of suspended ceilings

Suspended ceilings must be secured by structural measures against loading by specific or indefinable pressure and wind loading. In the case of closed rooms or buildings with open facades etc, it is possible to ensure by corresponding measures that neither the cover layers can fall, nor the hangers come loose. These measures are not necessary for the standard design or in normal use.

3.0 OWAtecta tiles - general information

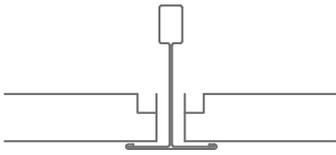
3.1 Edge details



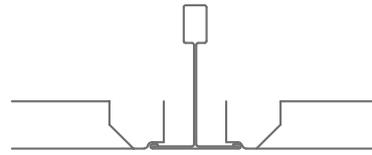
Edge 01
for system S 22, S 32



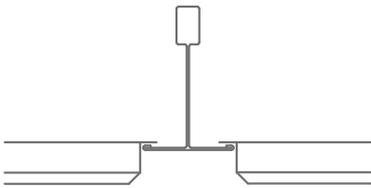
Edge 02
for system S 32 L, S 36, Success



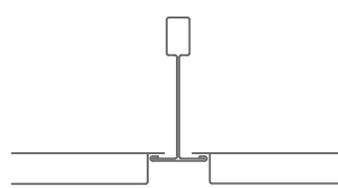
Edge 03
for system S 33, S 45



Edge 04
for system S 33



Edge 07
for system S 33



Edge 16
for system S 45, S 45b Trapeze



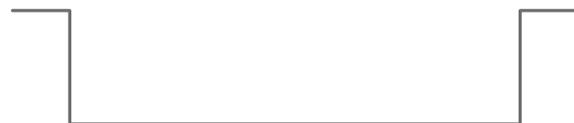
Edge 10
longitudinal edge panel tiles



Edge 11
for system S 39



Edge 11s
for system S 36 Progress



Edge 13
for system S 48

3.2 Quality

Dimensions, material characteristics and colour must comply with the EN 13964 standard and the standards of TAIM e. V., the Association of Industrial Metal Ceiling Manufacturers.

3.3 Colour

Permissible OWA colour tolerances

The ΔE difference in one production batch may not exceed 1.0. Where the materials used are from more than one production batch the tolerance may be greater than $\Delta E = 1.0$. With regard to other aspects, the EN 13964 and TAIM standards must be complied with.

3.4 Transport and storage

OWAtecta products must always be stored in a way that ensures they are not exposed to moisture, dust or mechanical influences.

In addition, the following points must be observed:

- In the event of delivery on pallets, the tiles must be stored on the pallets until their installation.
- Unpalleted cartons must be stored with the designated side upwards.
- No foreign material may be stored on the pallets and they may not be stepped on or used as a seat.
- When storing metal modules, care must be taken that the panels are not damaged by the supporting surface.
- The installation company is responsible for the storage.
- Tile packages may not be stacked higher than 2 m.
- The transporting of tiles on a building site must be reduced to a minimum.
- Whenever possible, central storage places must be arranged on each floor.
- During maintenance work it is important to ensure that demounted ceiling tiles are placed on one of their long sides and carefully leant against a wall, but never stored with the front tile side downwards.

3.5 Safety

Thin-walled materials must be handled with care to avoid personal injury and product damage. It is the sole responsibility of the installer to ensure adequate safety. The installer must make every effort to minimise the risk of material damage, and in particular the risk of injury to life, body or health.

3.6 Cleaning and maintenance

Depending on the type and extent of the use of the room, cleaning the ceiling panels too frequently purely for aesthetic reasons is not recommended, as this is not necessary for functional reasons. The standard finish for OWAtecta ceiling panels is an electrostatic polyester powder coating. The cleaning intervals on the one hand depend on the functions and surroundings of the ceiling and on the other hand the conditions of use with regard to heating, ventilation and climate. The cleaning instructions below must be followed for both variants.

- For the cleaning of visible surfaces, we recommend the use of mild, lukewarm, soapy water (standard household washing-up liquid) or diluted alcohol based window cleaning agent using a clean soft-fibre cloth. Finally, the ceiling tiles can be cleaned with chamois leather. Any oily and greasy residues can be removed with spirit. However, this should be very carefully applied to avoid impairing the sheen of the coating. Scouring agents are not permissible.
- Painting over the ceiling is possible. Painting is not recommended for perforated panels, as the acoustic performance may be impaired. In the case of non-perforated ceiling tiles, painting over with standard commercial paints is possible.

For further information please see brochure no. 9398 e.

3.7 Environment and disposal

Thanks to the choice of materials and easy disassembly of the construction, OWAtecta products can be directly sent for recycling, separated by raw materials. Metal ceilings are free of asbestos and formaldehyde.

German Packaging Ordinance / return of original packaging

To comply with the duties of the Packaging Ordinance, we have concluded a disposal agreement with INTERSEROH AG Cologne. As a result, we are able to take back original packaging, including: cardboard packaging, polyethylene sheeting (shrink- and stretch wrapping), disposable wood pallets.

Our contract number is: no. 27681

For the practical application of the Packaging Ordinance, please contact your nearest INTERSEROH partner. We would be happy to answer any inquiries.

3.8 Working with OWAtecta tiles

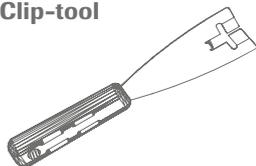
When installing OWAtecta tiles it is important to choose the correct tools. The easiest way to make straight or slightly curved cuts is with an electric sheet metal shear or snips (e.g. from Draco). Cut-outs can be created with a nibbler (e.g. from Trumpf). It is recommended to always wear clean gloves to avoid soiling the tiles.

Clip-in systems may require special tools to release the tiles, e.g. clip tool no. 99005. Please adhere to the guidelines within these installation instructions and the respective system sheets.

Installation tools for OWAtecta tiles

Clip-tool

Order no. 99005



Tool for opening metal ceiling S 22

3

OWA-Gloves (white)

Order no. 99/20



OWA cleaning sponge

Order no. 99/06



Suitable for cleaning lightly soiled visible tile surfaces

For additional tools, see point 4.5 "Tools for OWAconstruct grid parts" and the OWAtecta or OWAlifetime collection price list.

Construction of suspended ceilings and ceiling linings

4

4.0 Construction of suspended ceilings and ceiling linings

Detailed system sheets are available for all OWAconstruct construction parts or metal grids, containing technical data, spans, loads, etc. Detailed information on OWAconstruct components and accessories is provided in the OWAtecta price list. **Before planning or installing an OWA ceiling, the user should check that the document complies with the latest technology standards (see rear cover of this brochure for date of issue).**

OWAconstruct profiles fall into deflection class 1 according to EN 13964 (maximum deflection = $L/500 \leq 4$ mm).

Only reinforcement splines with the entire profile cross section may be used. Onsite changes in the profile cross sections (notching, drilling etc.) are not permissible.

4.1 Load of the suspended ceiling - additional load

OWAconstruct systems are designed to support ceiling tiles, including the grid offering the levels of safety customary in the building industry. Additional loads, such as recessed and surface-mounted lighting, air outlets, insulation overlays, curtain rails, partition walls etc. must be taken into account on a case-by-case basis. Suspensions should not be used to support additional loads (such as electrical cables, etc.).

According to EN 13964 the grid must be classified according to the maximum deflection as shown in table 6 - classes of deflection

Class	Maximum deflection
1	$L/500 \leq 4$ mm
2	$L/300$
3	No limit

L is the span in mm between the suspension components or the suspension points

Note

The OWAconstruct grid may only be loaded in accordance with the approved tables. If the ceiling has to meet fire resistance requirements (resistance to fire), additional loads must be suspended separately in accordance with test certificates.

4.2 OWAconstruct ceiling hangers

See point 5.2 and the OWAlifetime collection price list.

4.3 Corrosion protection of tiles, profiles and hangers

The humidity level of a room mainly affects the tile material. A suspended ceiling does not only consist of tiles that cover the surface, but also the associated structural components. These are mainly manufactured from cold rolled steel and should have the correct level of corrosion resistance for the intended environment.

Extract from EN 13964:

The environmental conditions are defined in table 8 in EN 13964.

Table 8 classes of exposure

Class	Condition
A	Building components generally exposed to varying relative humidity up to 70 % and varying temperature up to 25 °C but without corrosive pollutants.
B	Building components frequently exposed to varying relative humidity up to 90% and varying temperature up to 30 °C but without corrosive pollutants.
C	Building components exposed to an atmosphere with a level of humidity higher than 90% and accompanied by a risk of condensation.
D	More severe than the above.

The construction components must be protected against corrosion according to table 9 depending on the exposure class set out in table 8 of EN 13964.

Classes of corrosion protection of metal substructure components and membrane components are defined in table 8 of EN 13964.

Class A corrosion protection according to EN 13964 (table 8)

Standard OWAtecta metal ceiling tiles made of sheet metal have a ZE 25/25 electro-galvanised surface. This falls into class A corrosion protection according to table 8 of EN 13964.

Class A and B corrosion protection according to EN 13964 (table 8)

OWAconstruct standard ceiling construction components have a double-sided zinc layer of between 7 and 10 µm and fall therefore, into class A or class B of the table.

It is important to ensure that existing corrosion protection is not damaged during installation, implementation and subsequent use. Where the corrosion protection of the surface layer or structural components has been damaged by cutting or external influences, this damage must be rectified on site by the specialist company through additional measures.

Contact corrosion

Corrosion due to contact between dissimilar materials must be avoided. To do so, the specifier must establish relevant protective measures (according to EN ISO 12944-3 point 5.10).

Use in damp rooms

Profiles system (no. 45KB, no. 46KB, no. 47KB, no. 50KB): class C or D as per EN 13964 or class C4-L as per DIN 55634

Nonius hanger (hanger upper element, hanger lower element, safety pin): class C5-L as per EN ISO 12944

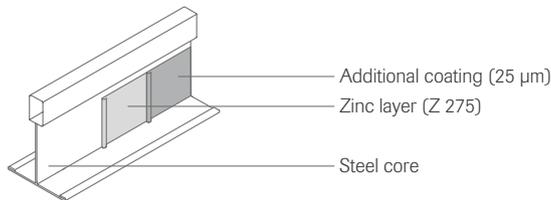
Surface layer:

class C as per EN 13964

The overall system thus complies with the requirements of class C as per EN 13964.

For further details please refer to the information sheet "Use in indoor swimming pools" and the OWAlifetime collection price list.

When installing suspended ceilings in rooms where class C corrosion protection is required all cut surfaces and edges must be treated with the 2-component touch-up paint no. 99/18KB, Zincor or conventional industrial alu-zinc sprays, in order to prevent corrosion.



See point 6.1 for design of suspended ceilings in humid rooms

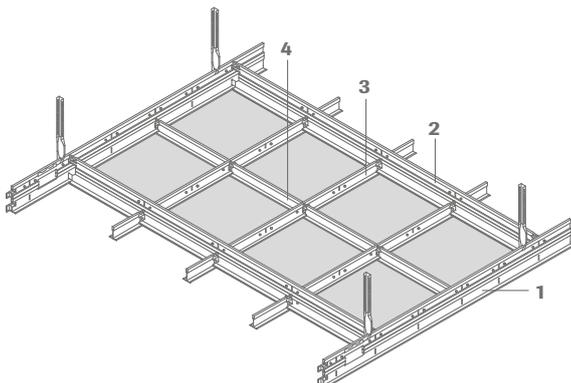
4.4 Wide-span profiles

Often for either construction or commercial reasons the use of special profiles is required, to bridge larger span widths. For this purpose, the following OWAconstruct wide-span profiles can be used.

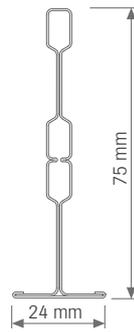
OWAconstruct wide-span suspension system S 8550 is an exposed grid suspension system for span widths up to 2800 mm

OWAconstruct wide-span suspension System S 8550 is an exposed grid.

For further information, see OWA-brochure no. 9608.



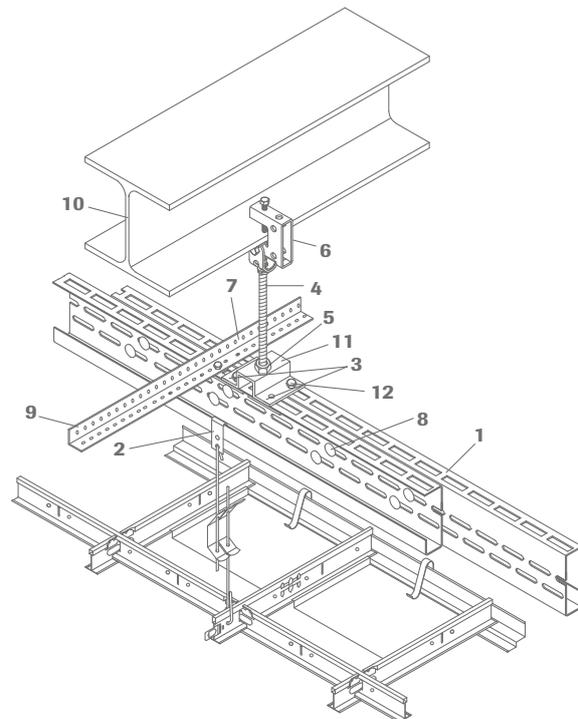
Cross section:



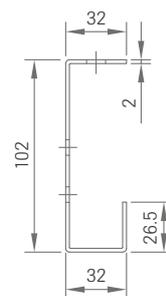
- 1 No. 8550G wide-span profile
- 2 No. 8558G wide-span cross tee
- 3 No. 47G/38 cross tee
- 4 No. 46G/38 cross tee

OWAconstruct wide-span suspension system type 6500 for OWAacoustic ceiling systems

To bridge larger spans width up to 7700 mm to carry OWAacoustic ceiling systems. For further information and details see product data sheet OWAconstruct wide-span suspension system Type 6500 (OWA-brochure no. 9607 e)



Cross section:



- 1 C wide-span section no. 6500
- 2 Suspension clip
- 3 Washer (2 pieces per suspension)
- 4 Threaded rod M10 (by others)
- 5 Nut M10 and washer M10 (by others)
- 6 Flange hanger
- 7 Self-tapping screw
- 8 Installation set
- 9 Section
- 10 Steel beam
- 11 Adaptor for suspension of double section
- 12 Screw M8 x 30 mm, nut M8 and washer (by others)

4.5 Tools for OWAconstruct grid parts

OWAconstruct sub-construction parts can be processed with standard tin snips.

4.6 Colour, visible profiles

The colours supplied as standard are in-house colours. These colours are used for all visible standard construction parts. As these are in-house colours they do not correspond with RAL or NCS colours.

Special colours can be supplied upon request. See OWAlifetime collection price list.

4.7 Profiles - renovation and painting

Visible white metal profiles can be cleaned with conventional household cleaners. Cosmetic damage to visible surfaces can be retouched with OWA profile paint no. 99/18. OWA profile paint unsuitable for extensive coating. If the damage is more extensive, it is recommended to replace the profile module.

Note on cleaning: There is no guarantee that the appearance of surfaces soiled or affected by aggressive media (lyes, acids, fats, etc.) can be improved by cleaning.

OWA profile paint

Order no. 99/18



4.8 Packaging, handling

To avoid transport damage, such as corrugated, bent or twisted T profiles in thin materials (e.g. main runners), particular attention should be paid to the following:

The use of forklifts or other means of transport:

- individual or multiple packaging units may **only** be transported on pallets that are at least **2 m long**
- avoid transporting the packaging units on uneven surfaces where the goods can be knocked around
- adjust your driving speed to the road conditions

Carrying packaging units:

- packaging units must be carried by two workers
- the packaging unit may not be pushed, knocked around or side-loaded
- avoid any warping of the packaging unit during transport

Transport of individual profiles

- no side loading
- no pushing or knocking
- when removing from the carton take the profile out from the centre outward and hold and stabilise it right and left as much as possible, using both hands - do not pull the main runners individually from the front out of the carton

4.9 External influences, environmental conditions, masking

In general, when processing OWAconstruct construction parts (e.g. T profiles, edge trims, etc.) the applicable structural preconditions (point 2.1) or the environmental conditions described (point 4.3) must be taken into consideration during installation. In particular, edge trims may not be installed on moist substrates under any circumstances.

If the visible side of the grid is to be protected by masking or covering against external factors (e.g. painting), care must be taken to ensure that the surface of the construction part is not affected. The compatibility of the adhesive tape used must be verified by the installer through prior testing. To maintain the quality of the visible surface it generally makes sense to dispense with direct pasting.

5.0 OWAconstruct/OWAtecta standard ceiling systems

5.1 Fixings

Structural slabs and roofs

Connection and fastening elements (upper mounting brackets)

Only approved fixings may be used to connect the structural slab(roof) and the OWAconstruct suspension system.

In the case of anchoring in a firm foundation according to EN 13964, the relevant ETA (European technical approval) of the particular connection device must be observed.

Steel beam and solid concrete ceilings

The hangers of the suspended ceiling are connected to the massive concrete ceiling using officially approved fixings. The instructions of the dowel manufacturer must be observed. The respective applicable approvals or the official test reports for the fixing elements (pull-out tests, where applicable) must be taken into consideration.

Suitable fastenings are:

Anchoring nail no. 97/21 or any other officially approved metal fasteners.



Anchoring nail no. 97/21

See the OWAlifetime collection price list for suitable fastening material.

Lightweight or block floors

The ceiling hangers are fixed using approved injection or metal dowels, e.g. no. 97/9. For further details, please contact the dowel manufacturer.



Autoclaved lightweight concrete dowel no. 97/9

Trapezoidal roof sheet single layer, non-ventilated roof (warm roof)

If the direct fixing of the ceiling hangers to the trapezoidal sheets cannot be avoided, only the vertical sides of the trapezoidal sheets should be used for fixing. In any case, the hangers should be attached using screws.

Suspension using wire hooks in holes is not permissible.

The primary structure should be installed transverse to the profile direction of the trapezoidal sheets to distribute the load evenly.

Approved self-tapping screws or rivets no. 97/30 with a self-locking screw no. 97/32 are suitable for this purpose.



No. 97/30



No. 97/32

Note:

Trapezoidal sheet roofs typically have large spans. Under adverse conditions, wind pressure or suction effects can transfer roof vibration to the suspended ceiling, via the ceiling suspension.

This can cause the opening of joints in the ceiling and/or produce movement noise in the area.

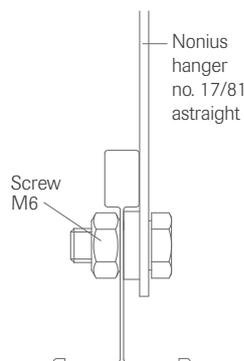
A solution is the use of an ancillary sub construction which is independent of the roof sheets. OWA C-wide span beam profiles are suitable for this purpose.

See point 4.4 and the OWAlifetime collection price list.

Methods for reducing the effect of vibration and structural-borne sound

Where there is a strong source of vibration or noise in vertically adjacent areas particular care should be given to the suspended ceiling hangers.

In industrial units and similar types of buildings, which are subject to intensive vibration, it is recommended that only threaded and secured hangers should be used. Suitable for this purpose are slotted or holed strip hangers, which can be mechanically fixed to the primary structure. **Slide on hangers are not suitable.**



Suspension of OWAtecta standard ceiling systems

The structural slab (roof, etc.) and the suspended ceiling are connected through the suspension.

Its load-bearing capacity must be supported by calculations or a test certificate from an officially accredited materials testing institute. **Hangers should be installed vertically.** Splayed or angled hangers should only be used in exceptional cases. These must comply with basic static load principles. Wire hangers are to be secured in such a way that subsequent uncoupling is not possible.

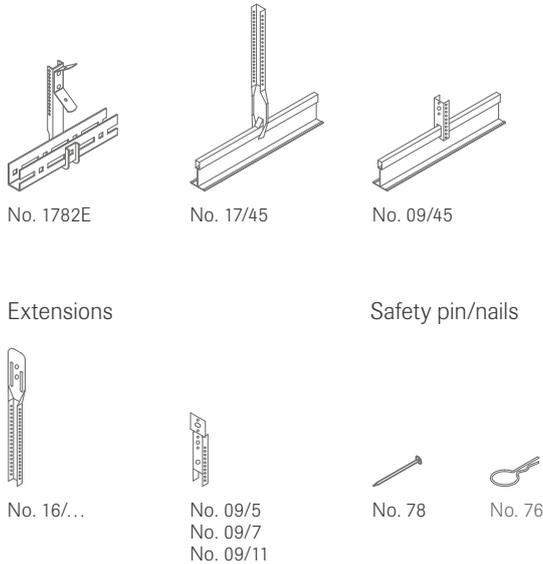
In the case of adjustable hangers, the wire ends must always overlap the spring by at least 15 mm.

The permissible load of the hangers and their fastenings must be checked in accordance with EN 13964. Where the dimensions, type and characteristics of the material make this possible, a calculation of the load bearing capacity and deformation can be made.

5.2 OWAconstruct hangers

For additional hanger systems and information, see the OWAlifetime collection price list.

Nonius hangers – clip-in systems S 22, S 31/32, S 31L/S 32 L

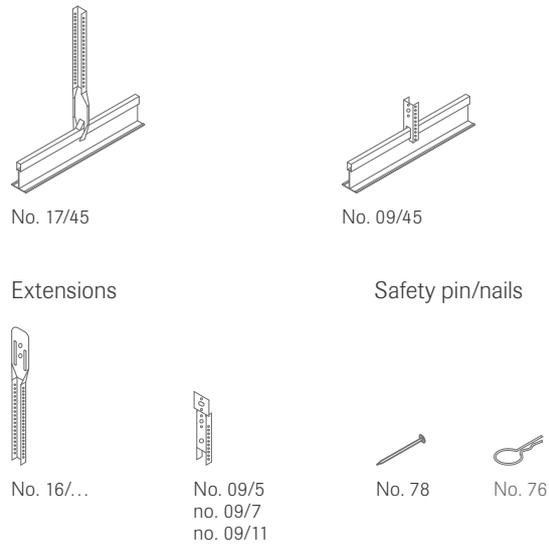


Minimum suspension heights:

- no. 1782E + no. 16/15 = 220 mm
- no. 17/45 + no. 16/15 = 260 mm
- no. 09/45 + no. 09/5 = 135 mm
- load-bearing capacity: 0.4 kN, (0.25 kN for 09/45)

Nonius hangers – exposed systems S 33, S 45, S 45b

Lower parts for main runners no. 45, cliq-24-MR, cliq-15-MR and no. 3500



Minimum suspension heights:

- no. 17/45 + no. 16/15 approx. 210 mm
- no. 09/45 + no. 09/5 approx. 80 mm (more complex installation)
- load-bearing capacity: 0.25 kN (0.40 kN for no. 17/45)

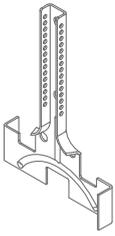
Notes:

Where the nonius hanger is supporting only the weight of the ceiling, only one safety pin no. 78 is required. In the case of pressure/tension loads, two connection components should always be used.

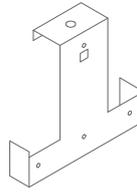


Nonius hangers – bandraster systems

Lower parts for C-bandraster



No. 7010E



No. 7910E

Extensions



No. 16/...

Safety pin/nails



No. 78



No. 76

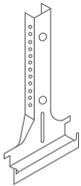
Minimum suspension heights:

no. 7010E + no. 16/15 approx. 160 mm

no. 7910E + UK approx. 230 mm

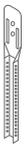
load-bearing capacity: 0.25 kN

Lower sections for bandraster



No. 79/...

Extensions



No. 16/...

Safety pin/nails



No. 78



No. 76

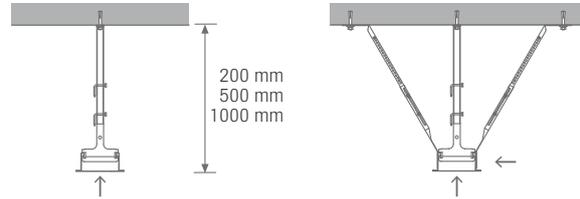
Minimum suspension heights:

no. 79/... + no. 16/15 approx. 170 mm

load-bearing capacity: 0.25 kN

Pressure and horizontal forces for nonius hangers

Pressure and horizontal forces, including at least 2.5-fold safety (EN 13964) with pressure-resistant OWA suspensions (per suspension point) in kN:



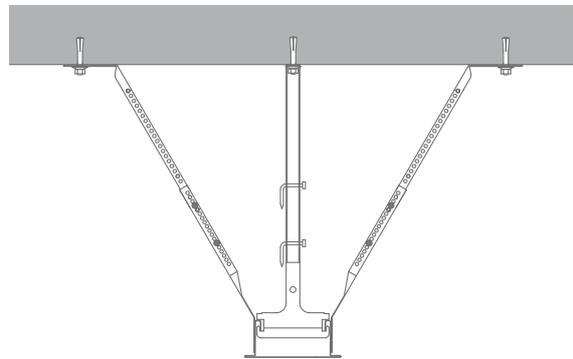
Suspension depth mm	Profile width mm	Maximum force		
		kN 1 ↑	kN 2 ↑	kN 2 ←
200	100	0.22	0.55	0.13
500	100	0.14	0.26	0.095
1000	100	0.06	0.12	0.05

Horizontal bracing

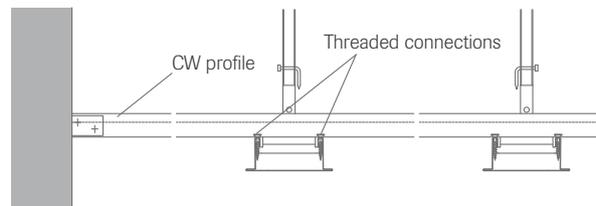
Unconnected bandraster profiles arranged in parallel need to have angled or horizontal bracing to prevent lateral movement of the bandraster profiles.

Possible options for bracing:

1. Angled suspension using nonius hangers no. 17/80

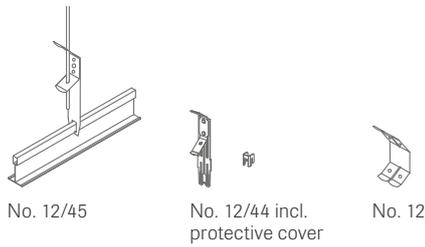


2. Horizontal bracing with conventional CW profiles



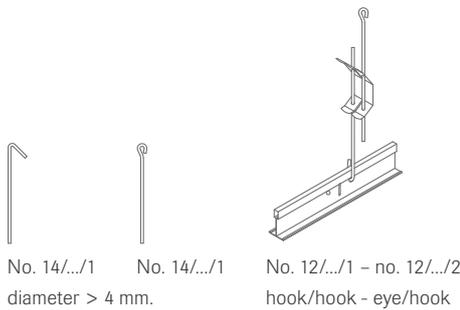
Adjustable hangers – exposed systems S 33, S 45, S 45b

Lower parts for main runners such as no. 45, cliq-24-MR, cliq-15-MR and no. 3500



Extensions

Assembled



Minimum suspension heights:

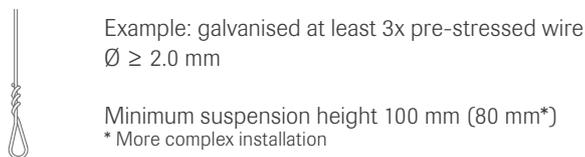
no. 12/45 or no. 12/44 + no. 14/12/... = 155 mm
 no. 12/30/... = 120 mm (80 mm*)
 * More complex and slower installation where ~ 80 mm load-bearing capacity: 0.25 kN

The wire ends must overlap the spring by at least 15 mm.

To prevent displacement and possible tile damage the hook must be securely closed after insertion through the profile.

Wire Suspension

Suspended ceiling systems can also be installed onsite using pre-stressed wire as hangers (see EN 13964).



Example: galvanised at least 3x pre-stressed wire
 $\varnothing \geq 2.0 \text{ mm}$

Minimum suspension height 100 mm (80 mm*)
 * More complex installation

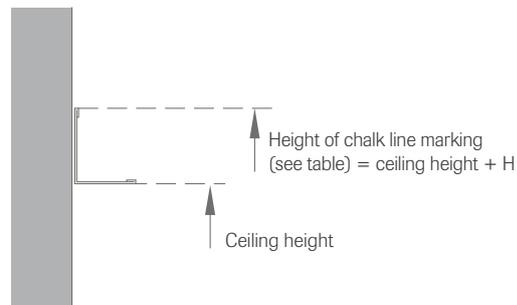
For additional suspension units please refer to the OWAtecta price list.

5.3 Wall perimeters of OWA standard ceiling systems

The installation of wall perimeter trims is normally the first work to be carried out when installing a suspended ceiling. A levelled coloured chalk line is snapped along the wall at the required height. It is recommended that this line is set at the upper level of the trim to prevent marking the visible area of the walls. In this way, it can be avoided having to clean the wall surfaces after the work is completed.

Perimeter trim height table

Wall angle no.	Height H
50G	25 mm
50F	25 mm
50/15G	33 mm
56, 56/20	45 mm
5620F	40 mm
57	40 mm



Perimeter trims should be fixed to the wall at a distance of max. 300 mm depending on load.

Junctions of wall trim

Professional mitre cuts should be used in corners. In a simplified manner, inside and outside corners and butt joints can also be used.

Wall irregularities can be filled using suitable filler material or sprays, etc. If the unevenness of the wall to which the angle profile is attached exceeds the tolerance specifications of DIN 18 202, the sealing of the gaps may constitute an additional service.

The tender document should give clear information on this point.

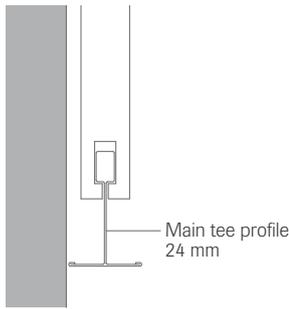
Attachment to flexible or vibrating surfaces

If perimeter trims are attached to timbers/wood-based materials, decorative concrete elements or other flexible or vibrating surfaces, measures must be taken at the point of attachment which will allow the background to “move” without producing deformation of the wall profile, e.g. the use of trims with slotted fixing holes. The thickness of the perimeter trim can also have an impact on this process.



Construction options:

Create a suitable gliding version of a wall perimeter - using no. 45.



Sliding connection

The current “state of technology” is represented by butt-joined angle profiles (according to DIN 18340).

Should mitre joints be required, this should be specified in the tender documents.

Shadow wall angles, however, should be mitred. In a simplified manner, inside and outside corners can also be used for shadow wall angles.

Production of mitred corners using snips

Tools required:

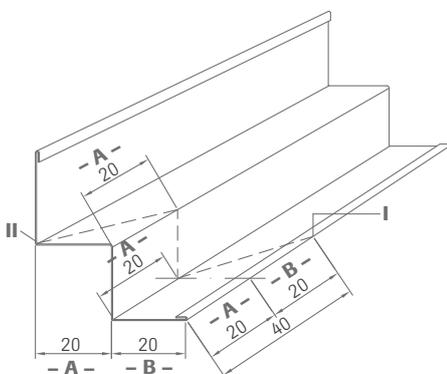
right and left-handed snips

Method:

The desired mitre cut is to be drawn onto the visible side of the profile. The pencil outline is drawn according to the dimensions – **A** – and – **B** – shown in the drawing (see table). Using the right-handed snips, starting from point I make the first 45° cut followed by the first vertical cut.

Using the left-handed snips, make the second 45° cut beginning at point II. The mitred, stepped wall profile is fastened to the wall.

The adjacent profile is laid out, marked, cut and fixed. However a simpler method is to make the mitre cuts using a circular saw with a metal cutting blade.



Example no. 56/20

Table:

mitre cuts - stepped wall trim dimensions

Shadow wall angle	Dimensions		Material thickness mm	Recommended tool
	mm A	mm B		
50/15G	15	15	0.5	Snips/metal circular saw
56	20	20	0.6	Snips/metal circular saw
56/20	12	20	0.6	Metal circular saw/scissors
5620F	20	20	1.2	Metal circular saw

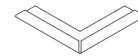
Inside and outside corners

Pre-fabricated inside and outside corners are available for different wall angles:

Wall angles with flange widths of 19 mm

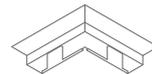


Inside corner no. 54

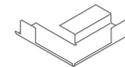


Outside corner no. 54/50

Wall angles no. 50/15G

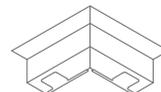


Inside corner no. 55/1

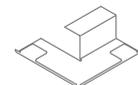


Outside corner no. 55/2

Wall angles no. 56/20



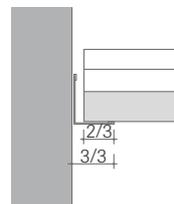
Inside corner no. 55/3



Outside corner no. 55/4

Support

All reinforcement splines and tiles **must overlap** the wall angle by at least two thirds of the support width of the wall angle.



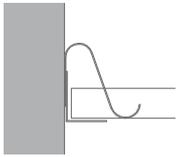
Minimum profile and tile support on the perimeter trim

Note: Wall perimeters in open spaces must be designed in a manner that prevents tiles from lifting due to wind pressure or suction.

Installation of standard wall perimeter trims without fire resistance features

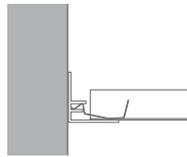
Examples of use:

Fig. 1



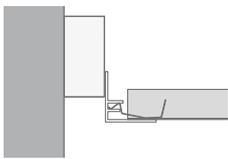
No. 50G

Fig. 2



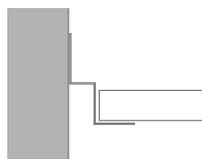
No. 50F

Fig. 3



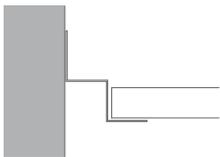
No. 50F

Fig. 4



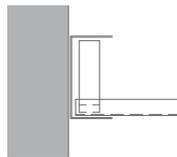
No. 56

Fig. 5



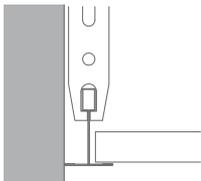
No. 56/20

Fig. 6



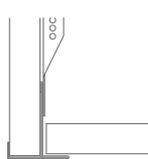
No. 57

Fig. 7



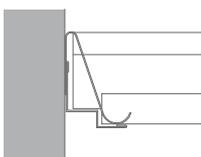
No. 45
fixing to a structural slab
(sliding connection)

Fig. 8



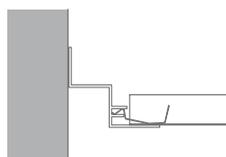
No. 8030/13
no. 8030/15
ceiling offset or seal

Fig. 9



No. 50/15G
Contura ceiling system S 33 and S 45

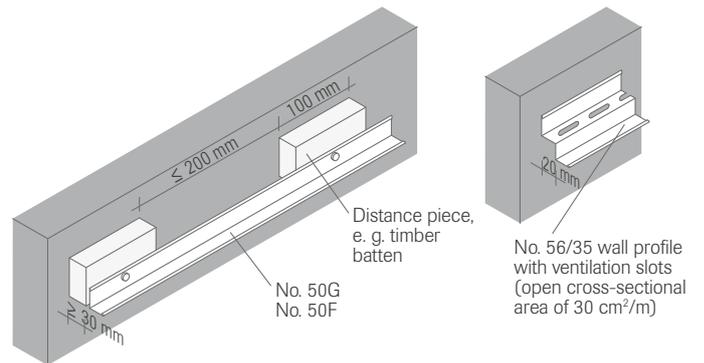
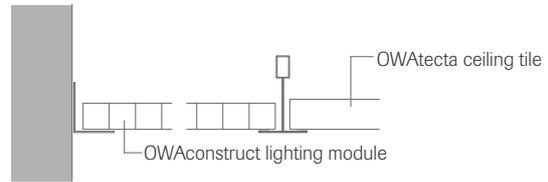
Fig. 10



No. 5620F

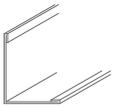
Ventilated wall perimeter trims

Examples showing the use of the perimeter to provide ventilation in humid areas or constructions with a non-ventilated roof (warm roof construction).

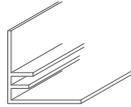


Wall angle

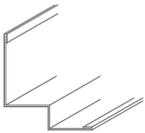
matt white



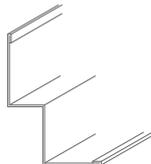
No. 50G
Steel 0.5 mm



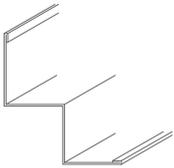
No. 50F
Aluminium 1.2 mm



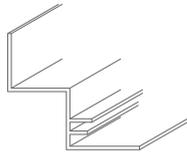
No. 50/15G
Steel 0.5 mm



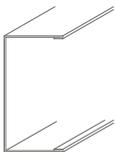
No. 56
Steel 0.6 mm



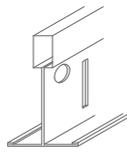
No. 56/20
Steel 0.6 mm



No. 5620F
Aluminium 1.2 mm



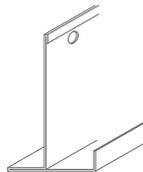
No. 57
Steel 0.5 mm



No. 45



No. 8030/13
for 13 mm tiles
Steel 0.5mm



8030/15
for 15 mm tiles
Steel 0.6 mm



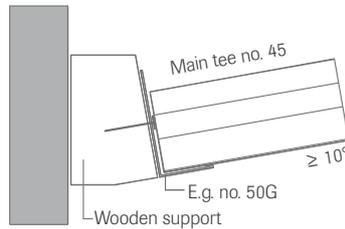
No. 8034

Column ring, two part natural aluminium, other colours available upon request; Ø 200 - 1000 mm in 50 mm steps; height 20 mm, width 20 mm, thickness 1.5 mm
Please note: max. tolerance column diameter ± 3 mm; adjustment is necessary

5.4 Sloping roof

External connection

Stable supports must be produced in order to be able to introduce the supporting load of the suspended ceiling into the wall area, if it is arranged parallel to the sloping roof.



Example for exposed systems

Construction structure

The support structure must be able to absorb the shear forces present. The support profiles follow the sloping roof. It is essential to secure the hangers against shifting out of position, for example by using wire hooks which are firmly secured by hanging in the punch holes of the support profiles in the structure (e.g. section 5.2, also see the notes about hangers).

5.5 Integration of recessed or surface-mounted lights, spotlights, ventilation fittings etc.

In general, it is the task of the electrical or the ventilation contractor to install the fittings either after or during the ceiling installation process. In any case, these works should be carried out in close coordination between the contractors.

When fitting lights etc. it has been shown to be advantageous for the ceiling fitter to be entrusted with the incorporation of the recessed and surface-mounted fittings. These can be made available on site. It is essential that where recessed lights are used that they must be compatible with the suspension system, e. g. OWAconstruct lights. The fitted items should subsequently be connected by the relevant specialist.

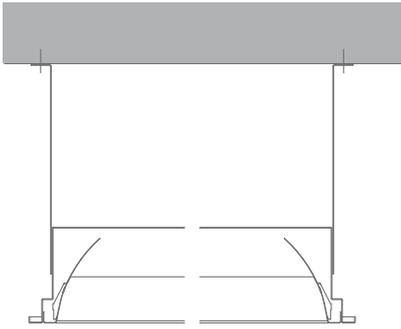
Important information:

No electrical cables may be attached to the hangers of suspended ceilings. No cables may be laid onto the suspended ceiling. Individual cables used for the connection of lamps or spotlights can be fixed to suspension media by agreement with the drywall contractor. The relevant VDE regulations and where applicable, fire protection regulations must be observed. The fitting of built-in components must be ordered by the client.

Load transfer:

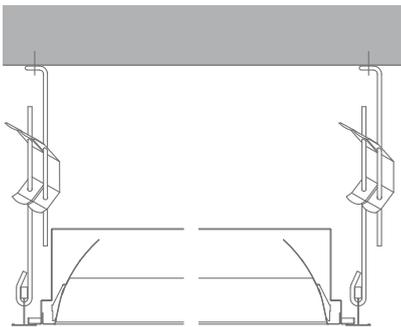
Each additional load which is transferred to a suspended ceiling is to be supported separately. This can be achieved in a number of ways:

a) Suspend the built-in component directly

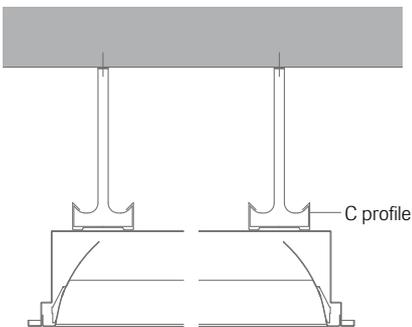


b) The construction of the suspended ceiling is to be provided with additional suspension elements, the minimum being two hangers per built-in component. The additional suspension elements are to be selected under point 5.2. The load capacity must be taken into consideration. Also to be considered is the possibility of overloading of profiles.

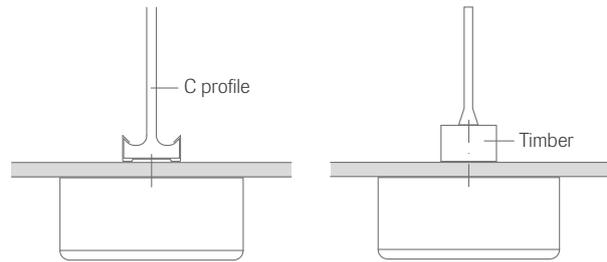
Alternatively, additional loads can be taken up via a reduction of the spacing centres of main tee profiles on the ceiling. Calculations should be made in advance for this method, taking into account the anticipated loads.



c) Another possibility is the introduction of an ancillary construction in the form of suspended C profiles or timber constructions. Fire safety requirements may also need to be observed.

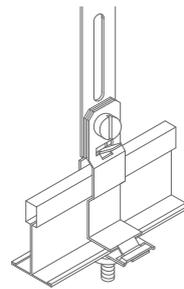


d) In the case of surface-mounted lights, it is advisable to arrange an ancillary construction, similar to that shown under point c).

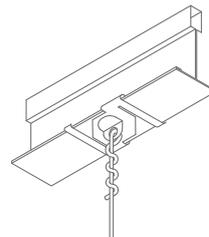


e) For surface-mounted lights with system S 3, the double hanger with M6 x 16 bolt and wing-nut is suitable, Order no. 8095, load: 0.25 kN Each hanger is to be suspended from the structural slab or roof using the appropriate fixing clamps. Surface-mounted lights must be fixed by a M 6 nut.

In this context it is important that the specified loads for the fixing clamps are only applicable when the tee is additionally suspended. Loads can only be supported by cross tees if they are provided with additional suspension.



For surface-mounted lights: with bolt M6 x 16 or M6 x 30 and wing nut order no. 95



Screw clamp with eye order no. 95/20, white
Load: 0.1 kN with appropriate additionally supported bearer construction



Screw clamp no. 95/15 (for profiles of 15 mm width), white, M6 x 16 and no. 95/20 (for profiles of 24 mm width), white, M6 x 16
Load: 0.1 kN with appropriate additionally supported bearer construction



Note: Neither the profile constructions nor the hangers or supports may be overloaded.

In the case of special constructions that differ from manufacturer's guidelines, the specifier must ensure that the proposed construction is capable of carrying the additional loads.

Exceptions to the standard laying can only be released as part of precise specifications (rail type, main runner distances, hanger distances, load type) by the manufacturer. In this case, please contact the OWAconsult service department. Depending on the profile type, the manufacturer will provide load tables and load arrangements.

Spotlights, loudspeakers and other fittings

Loads with a weight $\leq 0,0025$ kN/pce ($\sim 0,250$ kg/pce) can be absorbed directly by OWAtecta metal tiles with no special measures required.

For loads of up to 0.035 kN/piece ($\sim 3,5$ kg/piece), installation frames for recessed spotlights (ref no. 8069) are to be used in conjunction with 15 mm OWAacoustic tiles. The load discharge into the ceiling construction/hanger is to be checked - see also item 5.1.

The mentioned installation options only consider symmetrical load discharges. Asymmetrical and higher load discharges are to be handled by means of additional, statically traceable suspensions from the shell part.

When producing structures on site to absorb the loads flatly in the surface layers, the specialist contractor carrying out this work must provide proof of static structural analysis.

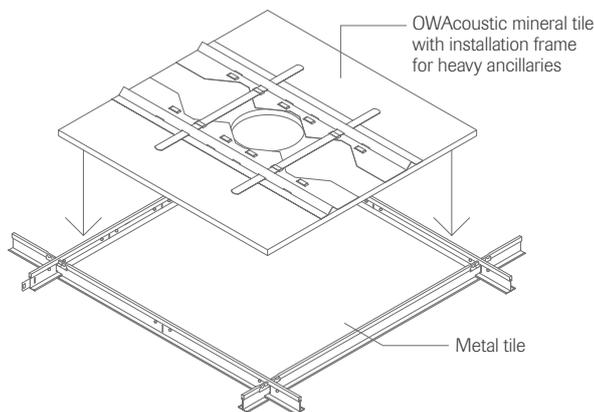
OWAconstruct light fixtures

OWA can supply compatible light fixtures for this system.



OWA-brochure no. 9630 e light fixtures and OWAtecta price list.

5



6.0 OWAconstruct/OWAtecta systems with special functions and features

6.1 Suspended ceilings in humid spaces according to EN 13964; table 7 exposure class C

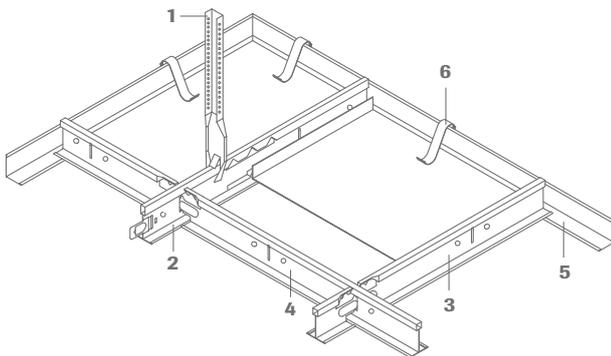
The OWAconstruct system S 33e can be used in humid indoor spaces and for suspended ceilings in partially open areas. It is essential that the basic principles of corrosion protection described in point 4.4 of EN 13964 and the air humidity reference values of OWAtecta tiles, as under point 4.3, are taken into consideration.

System S 33e* – visible system 24 mm – wide, similar construction to system S 33 (also see brochure no. 9334)

* Fulfills the requirements of class C according to EN 13964 (see point 4.3)

For more information on these ceiling systems, see system sheet S 33e.

Example S 33e:



- 1 Nonius hanger no. 17/45KB
- 2 Main tee no. 45KB, L = 3600 mm / 3750 mm
- 3 Cross tee no. 46KB, L = 600 mm / 625 mm
- 4 No. 47KB, L = 1200 mm / 1250 mm
- 5 Wall profile no. 50KB
- 6 Wall clip no. 99009

It is important to ensure that existing corrosion protection is not damaged during installation, implementation and subsequent use. Where the corrosion protection has been damaged by cutting or external influences, this damage must be rectified on site by the specialist company through additional measures.

Any flaws, cut edges or damaged areas should be treated with the two-component touch-up paint no. 99/18KB. This applies, in particular, to the nonius suspension (no. 09/45KB or 17/45KB, no. 16 /...KB, no. 76KB). Similarly, if grid components (no. 45KB, no. 46KB, no. 47KB, no. 50KB) are damaged they should be treated with Zincor or conventional industrial alu-zinc sprays.

Use in indoor swimming pools

Further information is available upon request (information sheet "Use in indoor swimming pools") from the OWAconsult team.

6.2 Suspended ceilings for clean rooms according to EN ISO 14644-1

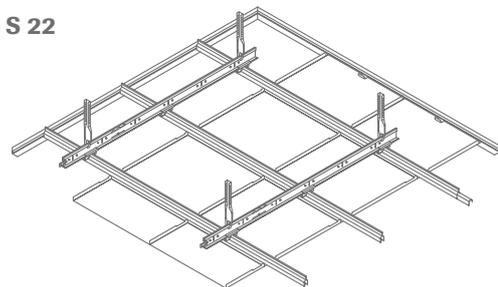
Suspended ceilings for clean rooms may only emit minimal quantities of airborne particles in order to meet the air purity requirements they are subject to. EN ISO 14644-1 defines the maximum permissible limits. OWAtecta metal ceiling systems comply with these limits in eight of nine classes (ISO classes 1 – 9). As a result, they qualify for many clean rooms and clean room areas, such as in the fine mechanical and optical industry or in high tech electronics manufacturing.

The Fraunhofer IPA in Stuttgart carried out extensive tests to classify the OWAtecta metal ceiling systems. The measurements were carried out in a class 1 clean room (according to EN ISO 14644-1) with the associated demanding requirements: In a reference volume of one cubic metre only two 0.2 µm particles were allowed to occur.

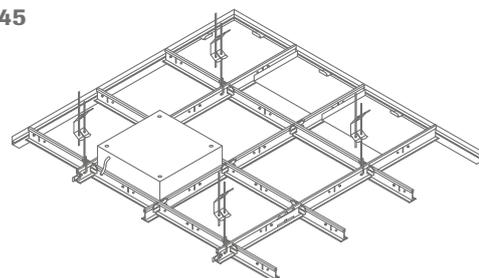
Result: The OWAtecta system S 22 passed the **"class 1 pursuant to EN ISO 14644-1"** qualification. The OWAtecta systems S 33 and S 45 achieved the **"class 2 according to EN ISO 14644-1"** qualification.



System S 22



S 33/S 45



6.3 Positive/negative pressure ceilings according to EN 1026 and EN 12207

Clean room ceilings are not only characterised by their emission behaviour. It is also important how they separate areas with lower and higher purity classes and react to different air flows in clean rooms. The separation is achieved by two different concepts: the displacement and pressure difference concepts. In both cases, the suspended ceiling system must be able to contain the different pressures of the clean room, i.e. the suspended ceiling should have as few leaks as possible. To achieve this, the joints arising between the ceiling tiles are carefully sealed, as is the connection between edge trims and ceiling tiles and between edge trims and walls.

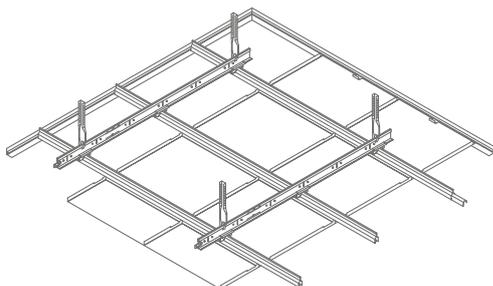
Determination of pressure tightness of suspended ceilings following EN 1026 and EN 12207

To classify the OWAtecta ceiling system S 22, Fraunhofer IPA in Stuttgart carried out pressure tests in accordance with EN 1026 and EN 12207. The ceiling system was mounted in a test box specially designed for this purpose and sealed to ensure it was airtight. The system was then exposed to positive pressure of up to +80 Pa and a negative pressure of up to -50 Pa and the leak rate of the test specimen determined.

Result: As a result, the OWAtecta System S 22 demonstrated its qualification for air permeability “class 4”. Aside from the air tightness tested, the S 22 ceiling system also met the requirements for air purity in clean rooms (see “Ceilings for clean rooms”) and is ideally suited for use in a range of clean rooms and clean room areas.



System S 22



6.4 Unproblematic sterilisability according to the DGHM method

It must be possible to carry out easy disinfection of medical and hygiene-sensitive areas at any time. Unperforated metal ceiling tiles from OWA are ideally adapted to this requirement, since they permit unproblematic surface disinfection. OWAtecta (LO) is highly suitable for use in hospitals (OP areas, intensive care wards and patient’s rooms) and other sterile and hygienic areas.

The Institute for Medical Microbiology and Hospital Hygiene of the Philipps-Universität Marburg carried out extensive tests in this regard – practical, analogously and in accordance with the requirements of the German Society for Hygiene and Microbiology (DGHM).

Eight test germ species were used in the loading test for the disinfection procedure:

- staphylococcus aureus
- pseudomonas aeruginosa
- enterococcus faecium
- proteus mirabilis
- enterococcus hirae
- candida albicans
- escherichia coli
- aspergillus niger

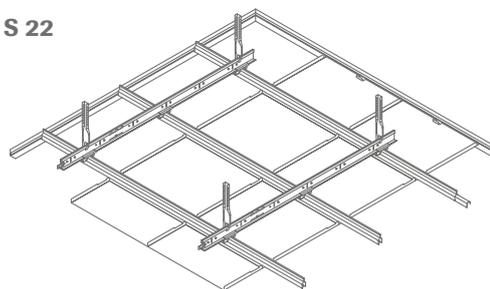
Representative active groups were tested for surface disinfection in hospitals. This ensures that other disinfectants from the VAH (Association for Applied Hygiene) list can also be used.

The values measured produced a reduction of 6 log levels for all germ types tested. This result exceeds the reduction of at least 5 log levels for disinfecting preparation demanded by the specialist associations by Professor R. Mutters.

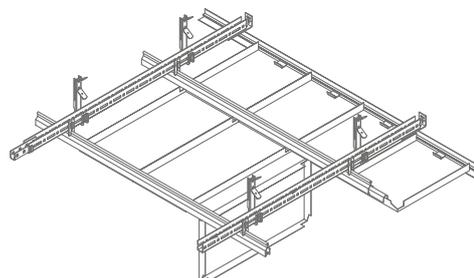


Prof. Dr. R. Mutters
Institute for Medical Microbiology
and Hospital Hygiene
Philipps University Marburg

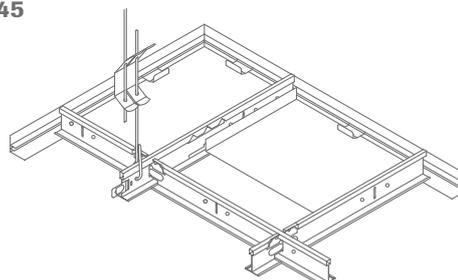
System S 22



S 32 L



S 33/S 45



6.5 Sturdy and versatile in use, confirmed according to ISO 2812-1 and ISO 4628-1, -6

Many interior areas in industrial production require building components or materials which are resistant to chemicals, cleaning, process and disinfection agents. Examples: laboratories, clean rooms, but also hygienically demanding production locations of the chemical-pharmaceutical or food industry. OWA has had the use of OWAtecta systematically tested also in these areas. With success..

The Fraunhofer Institute for Production Technology and Automation carried out the investigations. The Institute tested the chemical resistance of OWAtecta metal tiles to ten representative reagents by exposing material samples to a defined loading with the test chemicals. The determination occurred using the immersion procedure according to ISO 2812-1. The test method chosen was deliberately selected to be more critical than the contamination, cleaning and disinfection processes are in practice, in order to guarantee a definite statement regarding material intactness - irrespective of the quantity and duration of the exposure time.

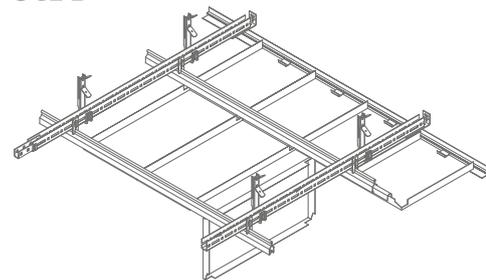
Result: proof of the resistance of OWAtecta metal tiles to the following representative test reagents:

- formalin (37 %)
- white spirit
- ethanol (100 %)
- Ajax concentrated
- hydrogen peroxide (30 %)
- Meister Proper concentrated
- isopropanol (70 %)
- microbac Food (4 %)
- Elma clean 100 (10 %)

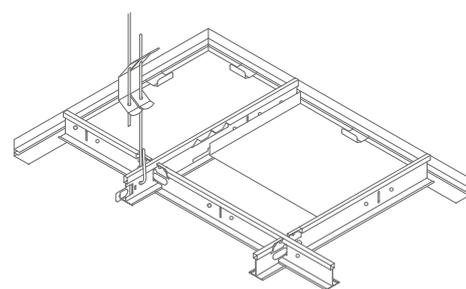
OWAtecta metal tiles are resistant to the following reagents for up to three hours loading, at a loading from six hours the ceiling tile has qualified resistance:

- sodium hydroxide solution (5 %)

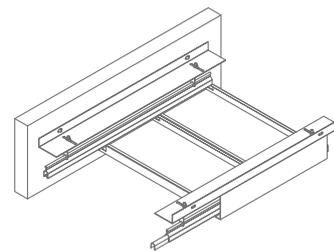
S 32 L



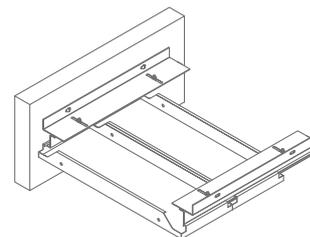
S 33/S 45



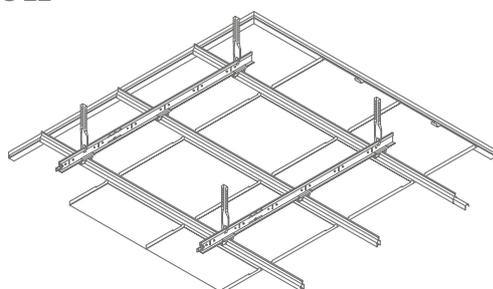
S 36



S 36 Success – clip-in profile



S 36 Progress – Z profile



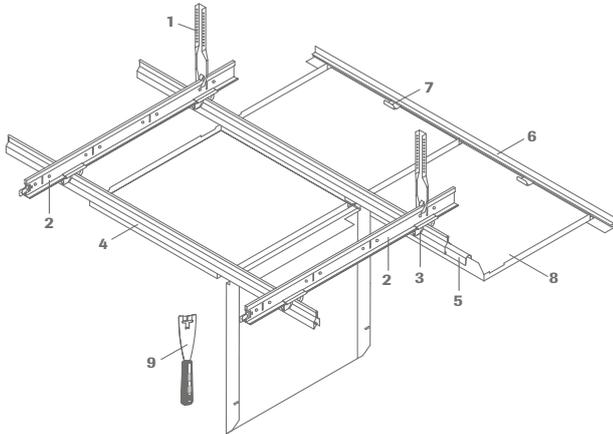
System S 22



7.0 Working with OWAconstruct/ OWAtecta ceiling systems

7.1 S 22 – concealed, swing down

Construction detail

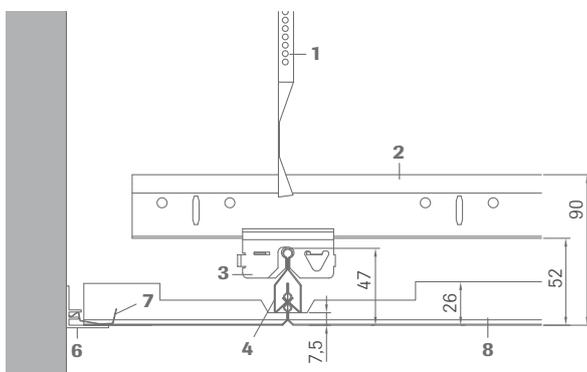


- 1 Nonius lower section no. 17/45
- 2 Main tee no. 45, distance ≤ 1250 mm
- 3 Cross connector no. 93C
- 4 Clip-in profile no. 87B
- 5 Clip-in profile-profile connector no. 88E
- 6 Wall angle no. 50F
- 7 Wall spring clip no. 5220
- 8 Metal tile
- 9 Revision tool clip tool no. 99005

Main tee profile and hanger distances: 1250 mm!

The hangers must always be placed at the crossing points of hanger profiles and clip-in profiles and they should not be mounted more than 100 mm from these.

Cross section



Please note: The grid from our S 31 / S 32 system can also be used for this system.

Edge detail

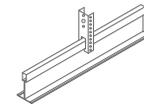
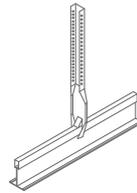


All edges bevelled (edge 01)

Suspension

Nonius hanger no. 17/45

or no. 09/45



with extension no. 16/...

or no. 09/...



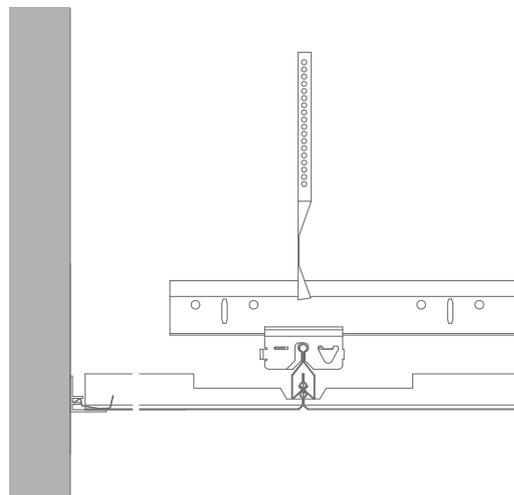
and safety pin no. 76

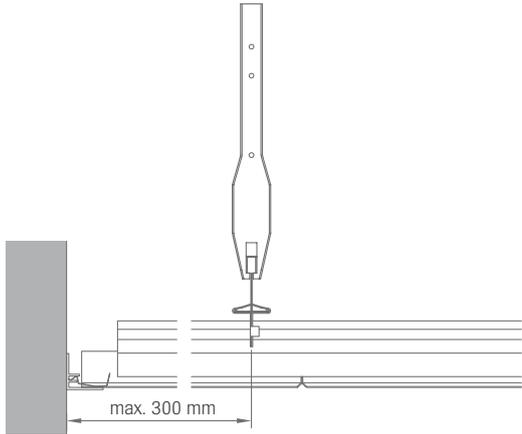
or nail no. 78



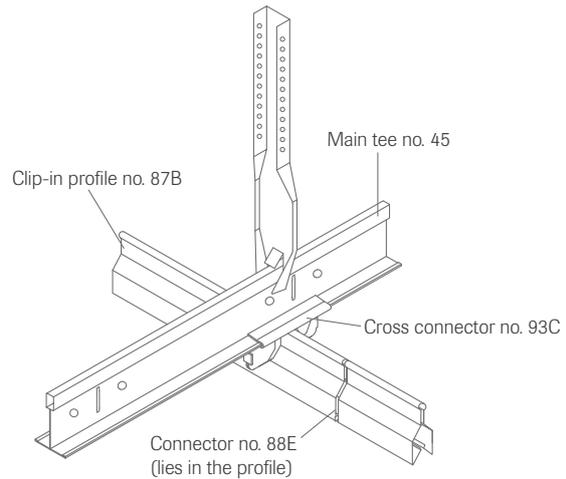
Minimum suspension height approx. 270 mm (no. 17/45) and approx. 150 mm (no. 09/45 and no. 09/5)

The nail should be bent after levelling is completed





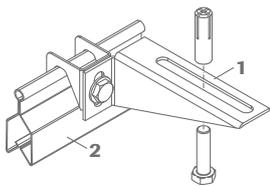
Installation of the first hanger profile takes place at a distance of ≤ 300 mm from the wall. The first hanger should be placed in the area of the first cross connector. In order to prevent the ceiling from sagging, the joints of the support profile in the individual profile row must be set against one another. Depending on the position, additional hangers should be arranged in the area of the longitudinal couplings.



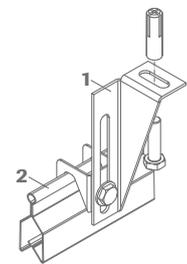
The purpose of the clip-in profiles is to hold the tiles in place. They should be precisely aligned depending on the tile size and mounted under the T profile using the cross connector no. 93C. The clip-in profiles are joined together using connector no. 88E.

To avoid downward deflection of the ceiling, the clip-in profile joints in the individual profile rows must be offset relative to one another.

Direct fixing

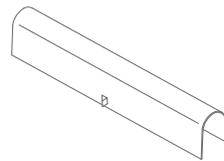


Installation height up to the lower edge of the ceiling tiles 52 - 59 mm
horizontal shift approx. ± 52 mm



Installation height up to the lower edge of the ceiling tiles 87 - 115 mm
horizontal shift approx. ± 5 mm

- 1 Direkt fix bracket no. 09E87
- 2 Clip-in profile no. 87E

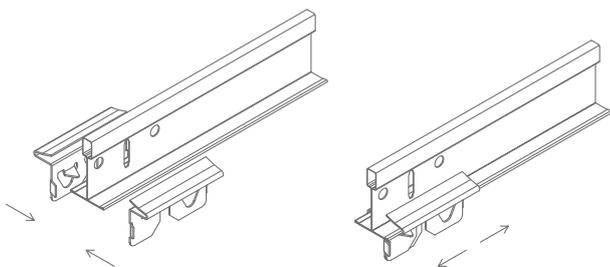


Installation and removal of tiles

The tiles for the clip-in systems are provided with stamped nubs on two outer edges opposite each other which guarantee a friction-fitted connection with the clip-in section. The tiles must be pressed into the clip-in profiles so that they audibly click into place.

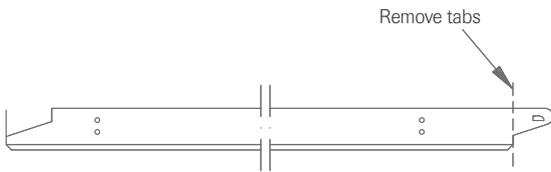
The demounting or swinging down of the tiles is only possible with a special tool, the clip tool no. 99005. The tool is pushed into the unclamped panel joint - directly next to the clip-in section. The spring hinge of the tool must be on the side of the tile to be separated. After the spring has clicked into place in the tile edge, the tile can be carefully withdrawn from the clip-in section. The same procedure is applied to the other tile edges.

Suspension and connection of clip-in profiles



The cross connector no. 93C is composed of two identical parts. For assembly, they are pushed onto the mounting rail from either side and pressed together firmly. The integrated lugs create a non-detachable connection. The cross connectors can then be moved and aligned on the clip-in profiles.

Swinging down of tiles

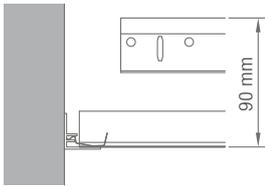


In the S 22 system, all panels can be folded down, apart from edge panels. For the easy disassembly of the edge panels, the “flaps” of the panels must be cut.

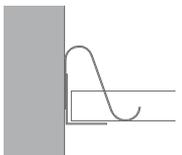
Note: The panels can be removed downwards by carefully pushing the clip-in profiles apart using a screwdriver.

Wall perimeters

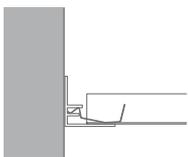
The distance between the upper edge of the main tee and the lower edge of the metal tile is 90 mm, and this is not adjustable. This means that the wall angles have to be fixed extremely precisely.



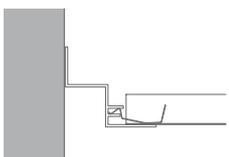
The following wall angle versions are available:



L wall angle no. 50G (steel, visible side white) in combination with wall perimeter clip no. 99009



F wall angle no. 50F (aluminium, visible side white powder-coated) in combination with wall spring clip no. 5220

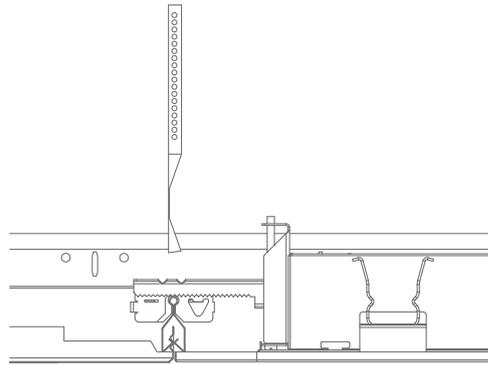


F wall angle no. 5620F (aluminium, visible side white powder-coated) in combination with wall spring clip no. 5220

Light fixtures

OWA can supply compatible light fixtures for this system.

For details see OWA-brochure no. 9630 e.



The position of the lights must be clarified prior to installation of the suspended ceiling. No lights can be mounted in the area of the main tee profiles.

OWA can supply compatible integrated lighting for this system. These lights can be installed instead of tiles in the primary structure.

The lighting must be suspended separately or additional hangers must be arranged on the primary structure around the lighting.

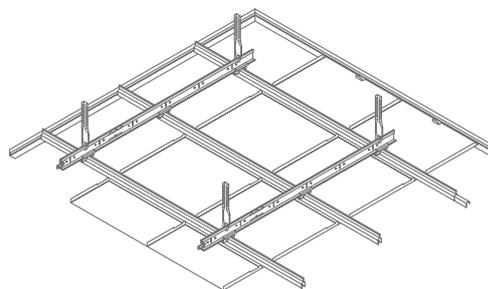
Downlights can be integrated according to instructions “Spotlights, loudspeakers and other fittings” (page 28). The required tile cut-outs can be ordered together with the tiles.

Electrical cables may not be laid onto the primary structure.

Coordination with the electrical planner or installer is important to determine in advance the lighting layout and the number of additional hangers. (Experience shows that the retrospective installation of hangers is more difficult, more expensive and they are therefore, more likely to be omitted leaving a potentially serious, **concealed defect**.)

Clean room ceiling

Where **non-perforated metal tiles** are used, the system S 22 meets the requirements for clean room ceilings (see OWA-brochure no. 9398 - Special purpose metal ceilings).



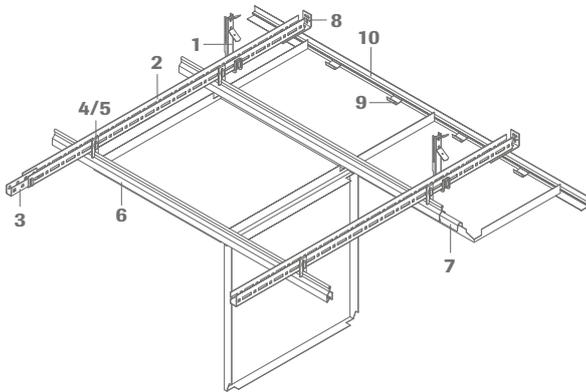
For this, for uneven walls, the joint between the wall angle and the wall must be sprayed out with acrylic or an equivalent elastic material.

It is important that the perimeter tiles are pressed against the wall angle with the respective wall spring clip. In some circumstances, two or more wall springs have to be used per tile.

Please contact us if you wish to install our ceilings in clean rooms.

7.2 S 32 – concealed swing down

Construction detail



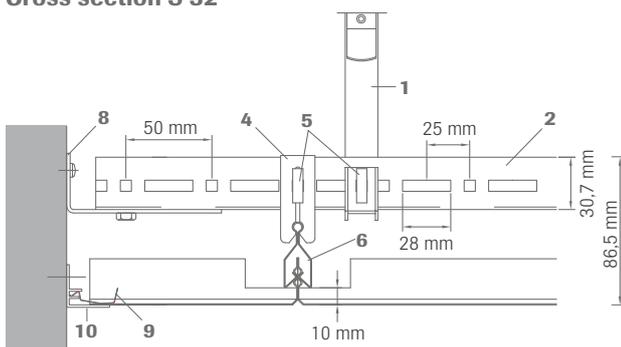
- 1 Hanger no. 1782E
- 2 U profile no. 70E
- 3 Connector no. 77E
- 4 Hanger no. 11E
- 5 Safety clip no. 66E
- 6 Clip-in profile no. 87B
- 7 Connector no. 88E
- 8 Wall anchor no. 75E
- 9 Wall spring clip no. 5220
- 10 F wall angle no. 50F

The main tee and hanger distances shown in the table below may not be exceeded. They refer only to the loading of the total construction by its own weight. Additional loads must in general be transferred separately.

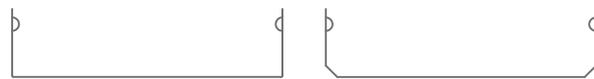
You have to install the hangers on the intersections of the U profile and clip-in profile, not more than 100 mm apart. The maximum distance of the hangers is thus dependent on the length of the plates, but may not exceed a distance of 2000 mm.

Tile length \leq	Main tee profile distance T \leq	Hanger distance A \leq
600 mm	1875 mm	1200 mm
625 mm	1875 mm	1250 mm
1250 mm	1350 mm	1250 mm
1500 mm	1200 mm	1500 mm
2000 mm	1050 mm	2000 mm
2500 mm	850 mm	2000 mm

Cross section S 32



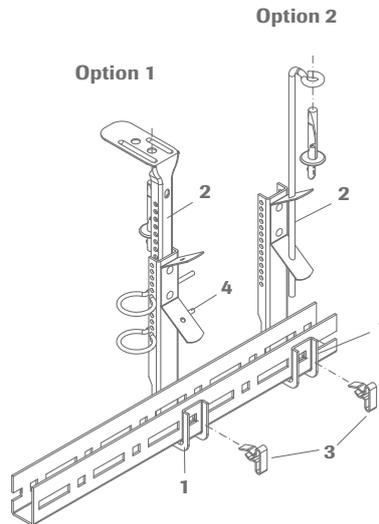
Edge detail



Edge 02

Edge 01

Suspension



Minimum suspension height approx. 220 mm (nonius hanger)

Option 1

- 1 Nonius hanger lower section no. 1782E
- 2 Nonius hanger extension no. 16/...
- 3 Safety clip no. 66E
- 4 Safety pin no. 76

Where the nonius hanger is supporting only the weight of the ceiling, only one safety pin sufficient. In the event of tensile and pressure loading, two pins must be mounted.

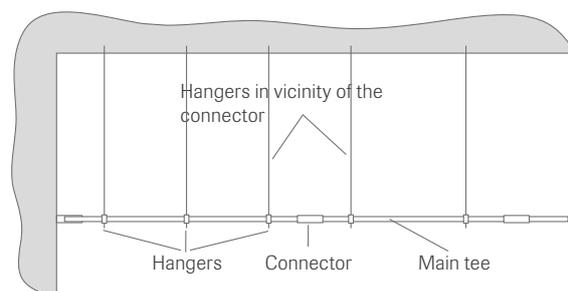
Option 2

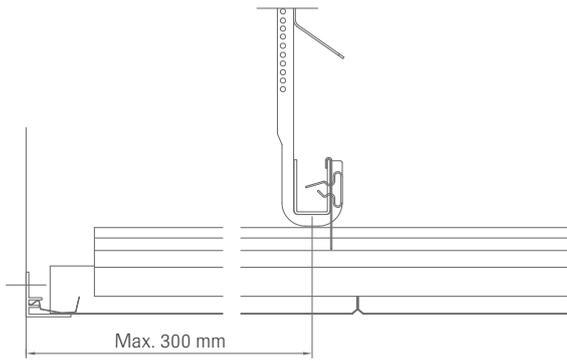
- 1 Nonius hanger lower section no. 1782E
- 2 Suspension rod no. 14/.../1 or 14/.../2
- 3 Safety clip no. 66E

Wire overhang for the spring of at least 15 mm.

Caution:

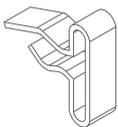
Using non-rigid hangers will make the mounting and revision of the panels more difficult.





The external no. 70E U profiles of a row must be hung at a minimum of three locations. All other profiles must be mounted with at least two hangers. Depending on the position, additional hangers should be arranged in the area of the longitudinal coupling.

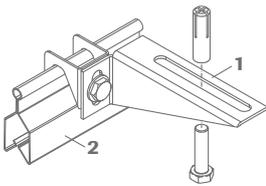
Installation of the first no. 70E U profile takes place at a distance of ≤ 300 mm from the wall. In order to prevent the ceiling from sagging, the joints of the support profile in the individual profile row must be set against one another.



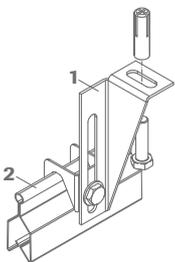
Safety clip no. 66E

The safety clip is mounted correctly with the longer spring side upwards. The safety clip can be easily demounted by finger pressure.

Direct fixing



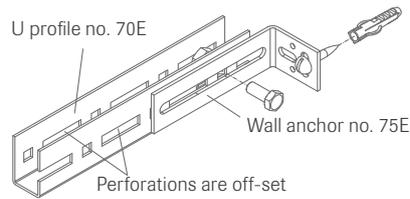
Installation height up to the lower edge of the ceiling tiles 55 - 62 mm
Horizontal shift approx. ± 25 mm



Installation height up to the lower edge of the ceiling tiles 88 - 117 mm
Horizontal shift approx. ± 5 mm

- 1 Direkt fix bracket no. 09E87
- 2 Clip-in profile no. 87E

Wall anchor

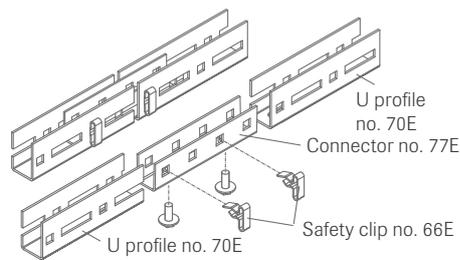


After the U profiles have been precisely aligned, each U profile row is clamped to the walls using a wall anchor no. 75E. The wall anchor can be arranged both next to the U profile (version shown) as well as under the U profile.

Please note:

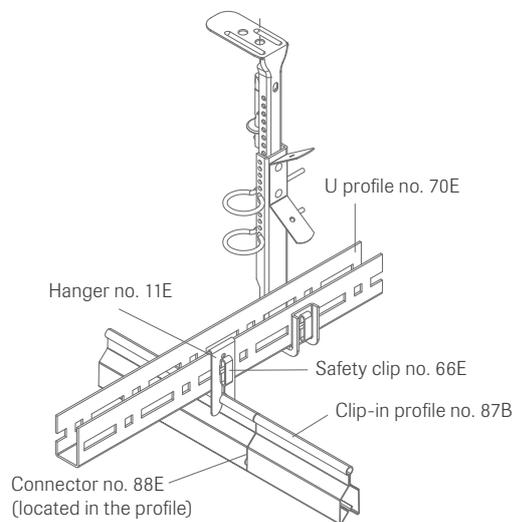
The perforations of the individual parallel-mounted U profiles must be aligned. The perforations on the sides of the U profiles are offset relative to one another. In this way, slight differences in the alignment of the perforations can be compensated for.

Connection of U profiles



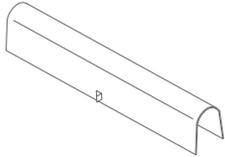
U profiles are connected using connector no. 77E, which also allows some length tolerance. They are joined together with M6 bolts and the safety clip no. 66E. To avoid downward deflection of the ceiling, the joints of the U profiles in the individual section rows must be offset relative to one another.

Suspension and connection of clip-in profiles



The purpose of the clip-in profiles is to hold the tiles in place. They should be precisely aligned depending on the tile size and suspended from the U profile using the connector no. 11E. The hanger must be clamped into the U profile using the safety clip no. 66E. The clip-in profiles are joined together using connector no. 88E.

To avoid downward deflection of the ceiling, the clip-in profile joints in the individual profile rows must be offset relative to one another.



Installation and removal of tiles

The tiles for the clip-in systems are provided with stamped nubs on two outer edges opposite each other which guarantee a friction-fitted connection with the clip-in section. The tiles must be pressed into the clip-in profiles so that they audibly click into place.

Dismounting or folding out of the panels is possible only with a dismounting tool. The tool is inserted into the non-clamped panel joint - immediately alongside the clip-in profile. After the tool has engaged in the panel edge, the panel can be carefully extracted out of the clip-in profile. You can proceed in the same manner on the other panel edges.



Swinging down of tiles

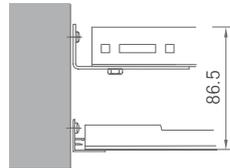


In the S 32 system, all panels can be folded down, apart from edge panels. For the easy disassembly of the edge panels, the "flaps" of the panels must be cut.

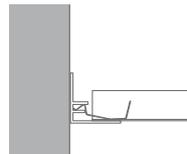
Note:
The panels can be removed downwards by carefully pushing the half clip-in rails apart using a screwdriver.

Wall perimeters

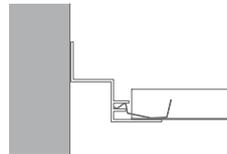
The distance between the upper edge of the U profile and the lower edge of the metal tile is 86 mm, and not adjustable. This means that the wall angles have to be fixed extremely precisely.



The following wall angle versions are available:



F wall angle no. 50F (aluminium, visible side white powder-coated) in combination with wall spring clip no. 5220



F wall angle no. 5620F (aluminium, visible side white powder-coated) in combination with wall spring clip no. 5220

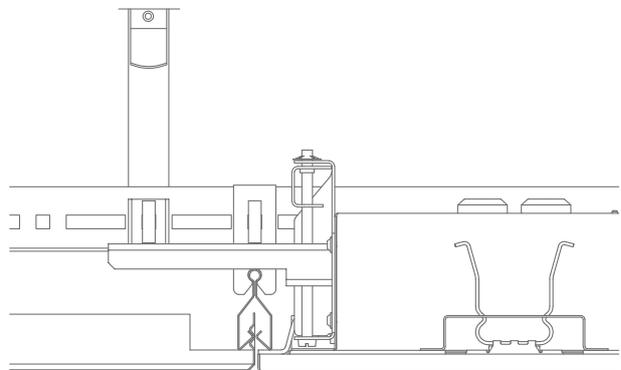
Panels which are supported by a wall section cannot be removed downwards directly or swung down. Consequently, in the case of smaller or narrow areas at least three tiles per installation row are required so that initially the penultimate tile and then the wall tile can be demounted.

See point 5.3 for additional wall angles and information on installation.

Light fixtures

OWA can supply compatible light fixtures for this system.

For details see OWA-brochure no. 9630 e.



OWA supplies the appropriate integrated lighting for this system. These light fixtures can be mounted in place of a panel.

The lighting must be suspended separately or additional hangers must be arranged on the primary structure around the lighting

In general, **downlights** must be suspended independently. The required tile cut-outs can be ordered together with the tiles.

Electrical cables may not be laid onto the primary structure.

Coordination with the electrical planner or installer is important to determine in advance the lighting layout and the number of additional hangers. (Experience shows that the retrospective installation of hangers is more difficult, more expensive and they are therefore, more likely to be omitted leaving a potentially serious, **concealed defect**.)

7.3 S 33 – exposed, demountable, 24 mm S 45 – exposed, demountable, 15 mm

Special features:

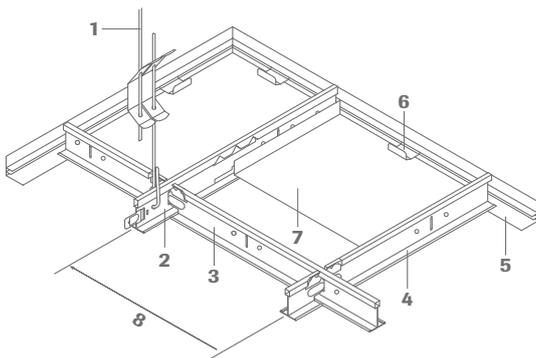
Exposed lay-in systems are extremely cost-effective and permit the simple removal of ceiling tiles.

The suspension or click-in systems described here can be used to create the required modules. Technical implementation details may differ from the structures described herein.

The systems S 33 and S 45 cliq are similar. They differ only by the visible flange width and the type of connection of the cross tees. Depending on the border detail, wall angles or shadow wall angles are used. In general, the tile dimensions are ~ 6 mm smaller than the module size.

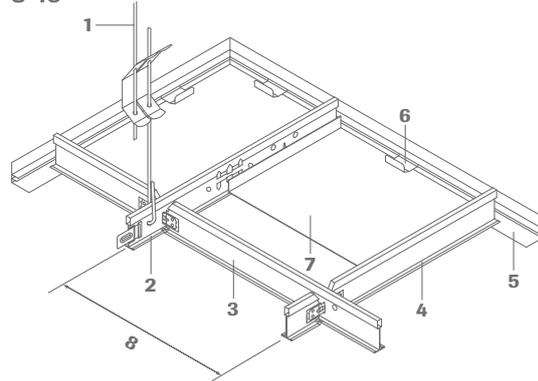
Further information such as dimensions, installation examples can be found in OWAtecta system leaflets.

Construction detail S 33



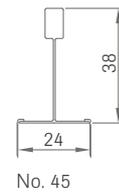
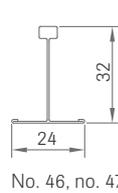
- 1 Hanger
- 2 Main tee no. 45
- 3 Cross tee no. 47
- 4 Cross tee no. 46
- 5 Wall angle no. 50F
- 6 Wall spring clip no. 5220
- 7 Metal tile
- 8 Module distance

S 45

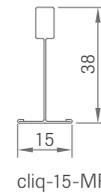


- 1 Hanger
- 2 Main tee cliq-15-MR
- 3 Cross tee long cliq-15-CT
- 4 Cross tee short cliq-15-CT
- 5 Wall angle no. 50F
- 6 Wall spring clip no. 5220
- 7 Metal tile
- 8 Module distance

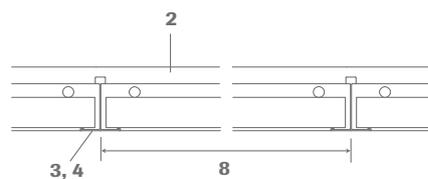
Section dimensions S 33



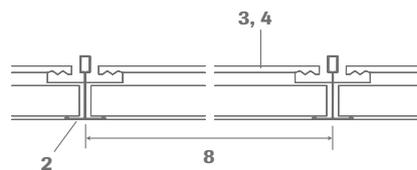
S 45



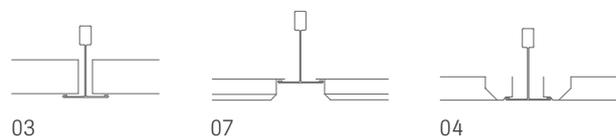
Section S 33



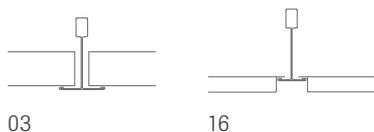
Cross section S 33



Edge detail S 33



S 45



When using converging cross-profiles (e.g. the OWAcliq system), shadow gaps may form for edge detail 03 and 04 in the joint area. This is system- and design-related and does not entitle the user to make a complaint.

Installation note

Exposed systems combine many advantages of dry construction methods. These systems are distinguished by their simple construction, high performance and in most cases easy access to the cavity.

Integrated service elements

During planning and the installation of the ceiling the information shown in point 5.4 should be taken into consideration. For lighting modules for exposed systems, see OWAlifetime collection price list.

Dowels and fixings

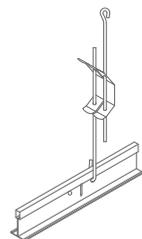
The type of fixings should suit the type of structural slab.

Suspension

For details of standard OWAconstruct hangers suitable for exposed suspension systems, please see point 5.2.

Hanger distance

In general, the span should not exceed 1250 mm from the perimeter, and depending on the ceiling function, it should be between 400 mm and 1250 mm. In profile connection areas, additional hangers may be required.



Adjustable hanger with double tension spring no. 12/.../2

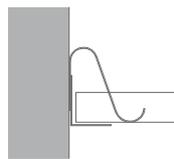
Minimum suspension height

80 – 100 mm (depending on the existing structural slab). For easy mounting of 120 mm tiles (depending on the existing structural slab).

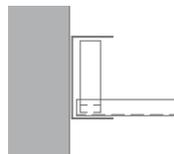
Wall perimeters

Depending on the edge version of the tiles, various wall section profile versions are available:

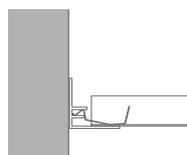
For edge 03 and edge 04



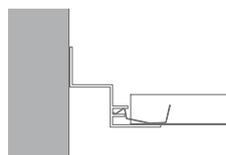
L wall angle no. 50G (steel, visible side white) in combination with wall perimeter clip no. 99009



C wall angle no. 57 (steel, visible side white) in combination with wall spring clip no. 5210

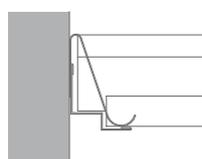


F wall angle no. 50F (aluminium, visible side white powder-coated) in combination with wall spring clip no. 5220



F wall angle no. 5620F (aluminium, visible side white powder-coated) in combination with wall spring clip no. 5220

For edge 07 and edge 16

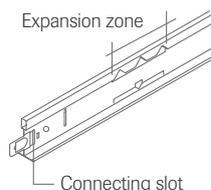


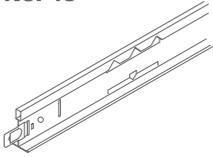
Wall angle no. 50/15G (steel, visible side white) in combination with wall perimeter clip no. 99010

For additional wall angles and information on installation, see OWAtecta brochure no. 9300 e.

Profile construction for exposed system S 33

The main and cross tees are designed to create a number of standard module sizes e.g. 625 mm and 600 mm. The main tees are produced with slots at predetermined centres to allow connection of the cross tees.v

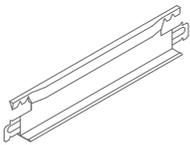


Main tee (visible width 24 mm)**No. 45**

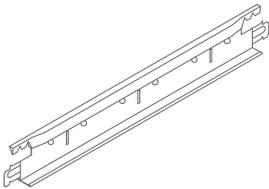
For grid 625 mm - length 3750 mm: slot spacing 156.25 mm
for grid 600 mm - length 3700 mm: slot spacing 100 mm - height 38 mm

Cross tees

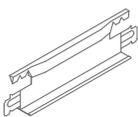
(visible width 24 mm)

No. 46

600 mm or 625 mm centres - height 32 mm

No. 47

1200 mm or 1250 mm centres - height 32 mm

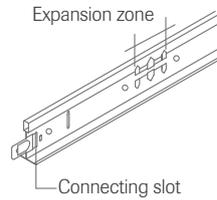
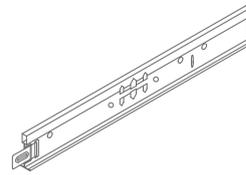
No. 48

185 mm, 300 mm, 312.5 mm or 400 mm centres - height 32 mm

The cross tees form an integral part of the suspension system and interconnect with both the main tees and other cross tees to form the desired module. They are supplied with connecting tabs either end. The two cross tees hook into the main tee slot. It must be ensured that the connecting tabs are fitted flush and not on the wrong side (see point 7.5.12).

Profile construction for exposed system S 45

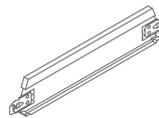
The main and cross tees are designed to create a number of standard module sizes e.g. 625 mm and 600 mm. The main tees are produced with slots at predetermined centres to be clicked on the joggled cross tees.

**Main tee** (visible width 15 mm)**cliq-15-MR**

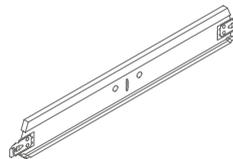
For grid 625 mm - length 3125 mm: slot spacing 156.25 mm
for grid 600 mm - length 3000 mm: slot spacing 100 mm - height 38 mm

Cross tees

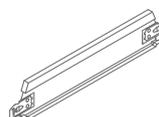
(visible width 15 mm)

cliq-15-CT short

600 mm or 625 mm centres - height 38 mm

cliq-15-CT long

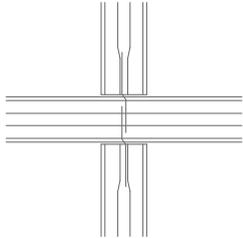
1200 mm or 1250 mm centres - height 38 mm

cliq-15-CT short

185 mm, 300 mm, 312.5 mm or 400 mm centres - height 38 mm

The cross tees form an integral part of the suspension system and interconnect with both the main tees and other cross tees to form the desired module. They are supplied with connecting tabs either end. The two cross tees hook into the main tee slot. It must be ensured that the connecting tabs are fitted flush and not on the wrong side.

Cross tee



Cross tee no. 46 or no. 47

Crossing point support profiles - connector profiles

The cross tees are provided with hanging flaps and click connectors at both ends. Two cross tees must be inserted into a slit. Here, it should be ensured that the contoured flaps are attached aligned and not laterally reversed.

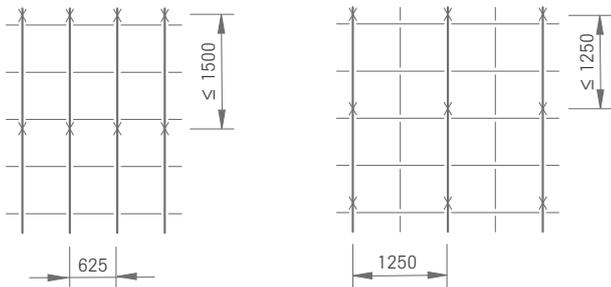
The ends of the hanger profiles are provided with connectors which produce a tight connection when they are interlocked.

The cross tees should be supported by the wall angle and not come up against the wall (min. 5 mm or 1/3 of the lower side width of the edge trim).

Additional loads on the cross tee profiles must be transferred via additional hangers.

Installation possibilities

example with 625 mm module



Main tee profile distance = 625 mm
module distance ≤ 1500 mm

Main tee profile distance = 1250 mm
module distance ≤ 1250 mm

Light fixtures

OWA can supply compatible light fixtures for this system. These lights can be installed instead of tiles in the primary structure.

The lighting must be suspended separately or additional hangers must be arranged on the primary structure around the lighting.

In general, **downlights** must be suspended independently. The required tile cut-outs can be ordered together with the tiles.

Electrical cables may not be laid onto the primary structure.

Coordination with the electrical planner or installer is important to determine in advance the lighting layout and the number of additional hangers. (Experience shows that the retrospective installation of hangers is more difficult, more expensive and they are therefore, more likely to be omitted leaving a potentially serious, **concealed defect**.)

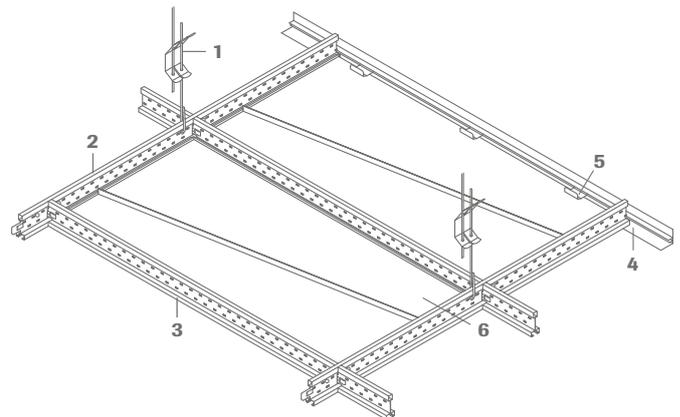
7.4 S 45b Trapeze – exposed, demountable

Special features

The S 45b system is a high-quality exposed system. The assembly is fundamentally comparable to the systems described under section 7.3.

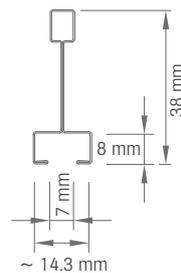
The OWAtecta panels are inserted in this structure. They are located flush-mounted in the system due to their edge formation.

Construction detail S 45b Trapeze



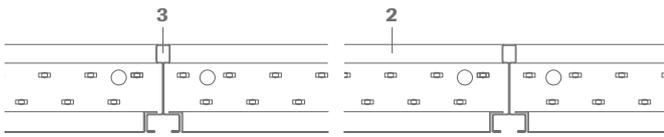
- 1 Hanger no. 12/.../...
- 2 Main tee no. 3500, slitted every 600 mm
- 3 Cross tee no. 3524, 1200 mm
- 4 F wall angle no. 50F
- 5 Wall spring no. 5220
- 6 Trapeze metal tile

Section dimensions

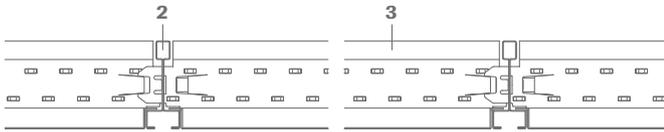


No. 3500 and no. 3524

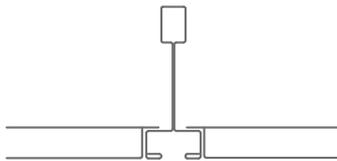
Section



Cross section



Edge detail



K16

Installation note

Many benefits of dry-type construction are unified with exposed systems. The system is characterised by its simple assembly and high functionality, with the option to revise the surface layers at the same time.

In contrast to the traditional OWAconstruct T profile system, the OWAline profile system does not possess any cover material in the exposed area. OWAline light profiles are secured against opening using fastenings in the vertical bar of the profile.

Integrated service elements

The basics from section 5.5 must be taken into account in the implementation and planning. See the OWAconsult collection price list for module light fixtures for trapezoidal panels.

Dowels and fixings

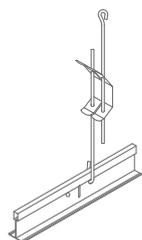
The fastening should be selected according to section 5.0, depending on the type of bare ceiling.

Suspension

Standard OWAconstruct hanger systems for exposed systems, see section 5.2.

Hanger distance

The hanger distance is 1250 mm from the external boundary, between 400 mm and 1250 mm depending on the function. Additional hangers must be inserted in the area of the profile connectors.

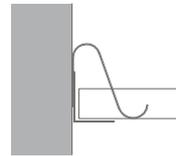


Adjustable hanger with double tension spring no. 12/.../2

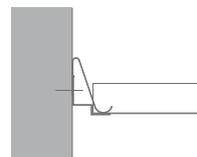
Minimum suspension height

80 – 100 mm (depending on the concrete present).
For easy ceiling installation of the panels 120 mm (depending on the concrete present).

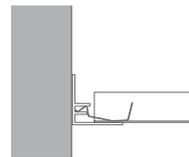
Wall perimeters



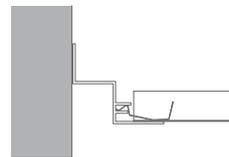
L wall angle no. 50G (steel, visible side white) in combination with wall perimeter clip no. 99009



Wall angle no. 50/15G (steel, visible side white) in combination with wall perimeter clip no. 99010

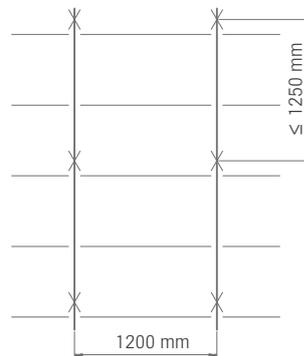


F wall angle no. 50F (aluminium, visible side white powder-coated) in combination with wall spring clip no. 5220



F wall angle no. 5620F (aluminium, visible side white powder-coated) in combination with wall spring clip no. 5220

Installation possibilities



Main tee profile distance = 1200 mm
module distance ≤ 1250 mm

Light fixtures

OWA can supply compatible light fixtures for this system. These lights can be installed instead of tiles in the primary structure.

The lighting must be suspended separately or additional hangers must be arranged on the primary structure around the lighting.



In general, **downlights** must be suspended independently. The required tile cut-outs can be ordered together with the tiles.

Electrical cables may not be laid onto the primary structure.

Coordination with the electrical planner or installer is important to determine in advance the lighting layout and the number of additional hangers. (Experience shows that the retrospective installation of hangers is more difficult, more expensive and they are therefore, more likely to be omitted leaving a potentially serious, **concealed defect**.)

7.5 S 36 – Success

Foldable over the longitudinal edge OR individually demountable

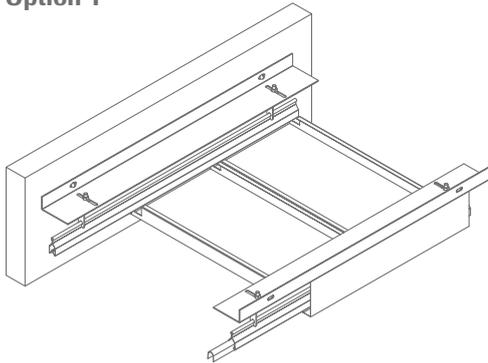
Edge detail



Longitudinal edges: 10

Short edges: 02

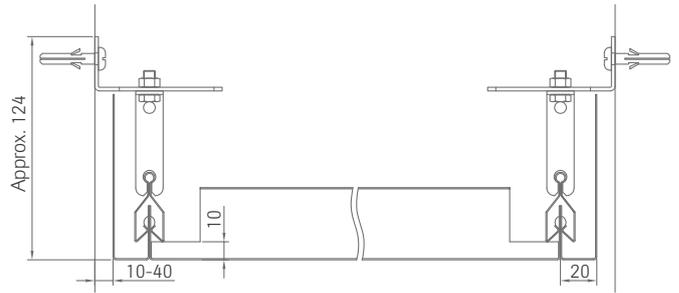
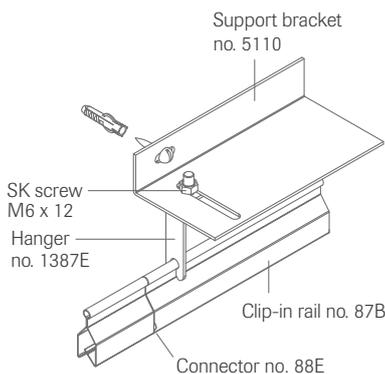
Option 1



With this version, a distance of 10 - 40 mm between the panel plate and the wall is possible. In the event of larger distances, then versions 2 or 3 should be implemented.

Fixing distances

Support bracket no. 5110: 500 mm (angle pre-drilled)
hanger no. 1387E: 500 mm (angle pre-drilled)

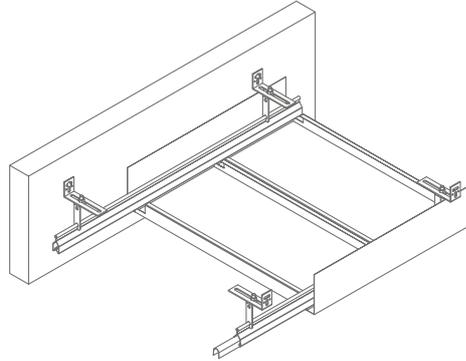


Minimum suspension height

The support bracket can be mounted directly underneath the concrete. Note the height of any possible lights.

Please note: The support bracket must be fixed precisely in terms of height. There is no further opportunity for adjustment. The clip-in profiles can be displaced horizontally.

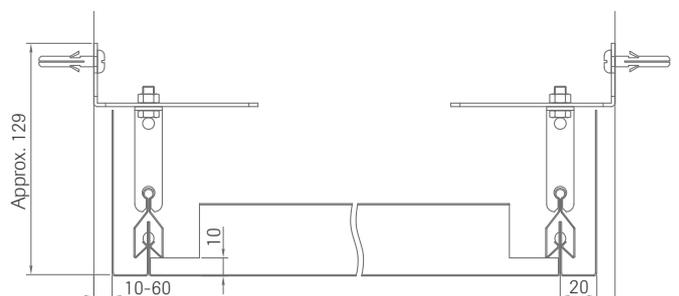
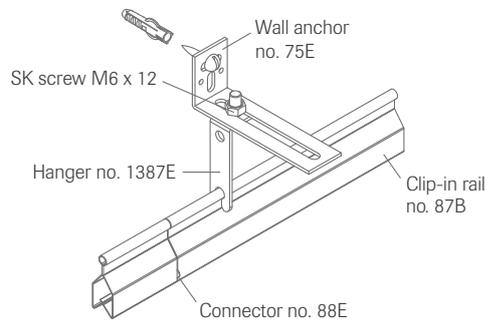
Option 2



With this version, a distance of 10 - 60 mm between the panel plate and the wall is possible. In the event of larger distances, then version 3 should be implemented.

Fixing distances

Wall anchor no. 75E: 500 mm
hanger no. 1387E: 500 mm

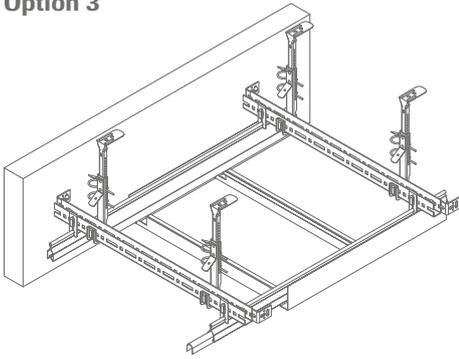


Minimum suspension height

The wall anchor can be mounted directly underneath the concrete. Note the height of any possible lights.

Please note: The wall anchor must be fixed precisely in terms of height. There is no further opportunity for adjustment. The clip-in profiles can be displaced horizontally.

Option 3

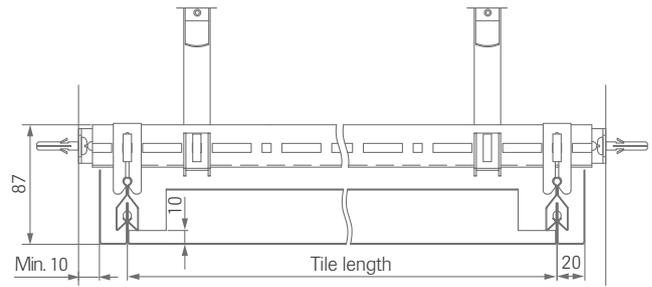


In option 3, the hanger profile no. 70E is suspended with hanger no. 1782E and fixed to the wall with wall anchor no. 75E. In this attachment variant, the distance between the short side of the panel plate and the wall can be chosen freely.

The hangers should always be placed at the crossing points of hanger profile and clip-in profile and should not be installed further than 100 mm away from them. Therefore the maximum distance between the hangers depends on the length of the tiles but must not exceed 2000 mm.

Connecting no. 70E hanger profiles using coupling no. 77E (see system S 32).

Tile length ≤	Main tee profile distance T ≤	Hanger distance A ≤
600 mm	1875 mm	1200 mm
625 mm	1875 mm	1250 mm
1250 mm	1350 mm	1250 mm
1500 mm	1200 mm	1500 mm
2000 mm	1050 mm	2000 mm
2500 mm	850 mm	2000 mm



Mounting and dismantling the panels

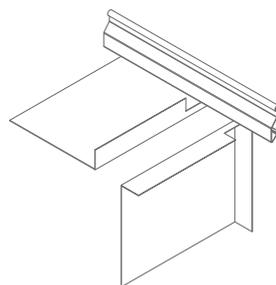
The panels for the clip-in systems are provided with embossed nubs at the upstands of the front sides which ensure a load-carrying connection with the clip-in profile. The panels must be inserted into the clip-in profile such that they audibly engage.

Folding out of the panels is possible only with a revision tool. The tool is inserted into the non-clamped panel joint - immediately alongside the clip-in profile. After the tool has engaged in the panel edge, the panel can be carefully extracted out of the clip-in profile. You can proceed in the same manner on the other panel edges.



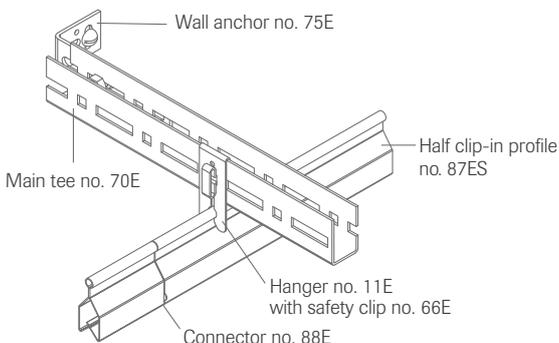
Folding out the panels

In the S 36 Success system, the panels can be folded down. The front edges are provided with special folding down flaps for this purpose. When they are open, the panels can be pushed together in order to increase the opening area.



Note:

The panels can be removed downwards by carefully pushing the half clip-in rails apart using a screwdriver.

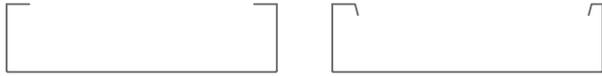


The clip-in rail is mounted using hanger no. 11E. The minimum distance between the panel and wall is approx. 10 mm.

7.6 S 36 – Progress

Panels can be swung down along the short side or individually removed.

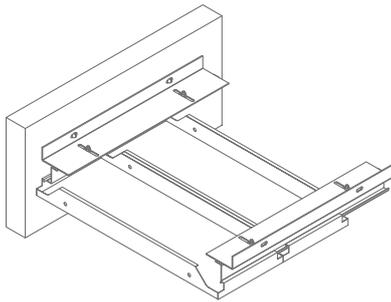
Edge detail



Longitudinal edges: 10

Short edges: 11s

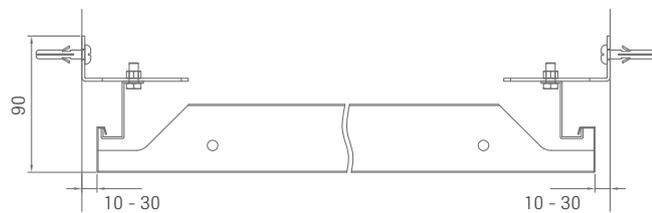
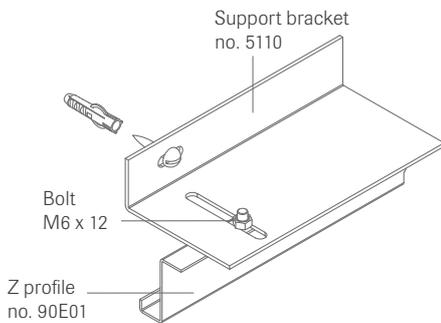
Option 1



To install the panels a minimum distance of 10-15 mm is required between the wall and the panel tile. If the distance is greater, options 2 or 3 should be used.

Fixing distances

Load-bearing angle no. 5110: 500 mm (angle pre-drilled)
Z profile no. 90E01: 500 mm (angle pre-drilled)

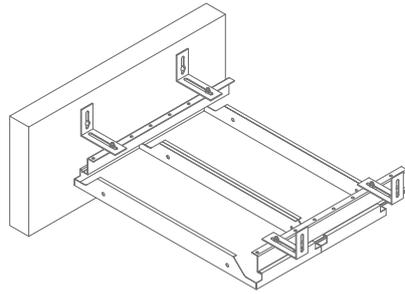


Minimum suspension height

The support bracket can be mounted directly underneath the concrete. Note the height of any possible lights.

Please note: The support bracket must be fixed precisely in terms of height. There is no further opportunity for adjustment. The Z profiles can be displaced horizontally.

Option 2



Depending on the wall anchor used, this options allows for a distance of 10-75 mm is required between the wall and the panel tile. If the distance is greater, options 3 should be used.

Fixing distances

Wall anchor no. 75E bzw. 99008: 500 mm
Z profile no. 90E01: 500 mm

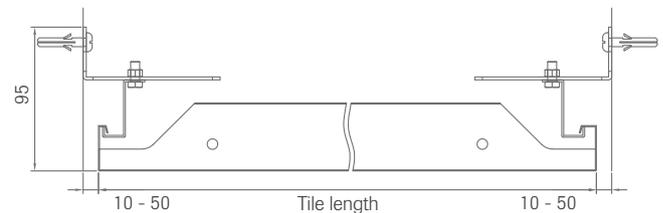
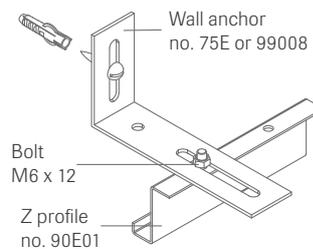


Illustration showing wall anchor no. 75E

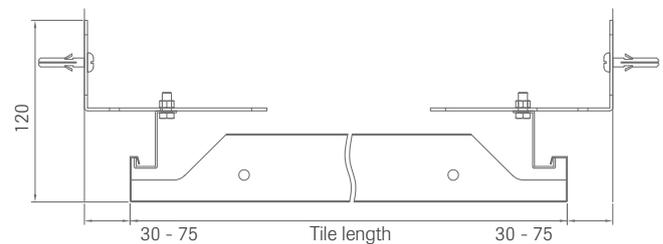


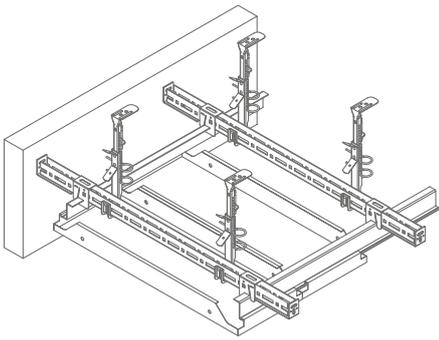
Illustration showing wall anchor no. 99008

Minimum suspension height

The support bracket can be mounted directly underneath the concrete. Note the height of any possible lights.

Please note: The support bracket must be fixed precisely in terms of height. There is no further opportunity for adjustment. The Z profiles can be displaced horizontally.

Option 3

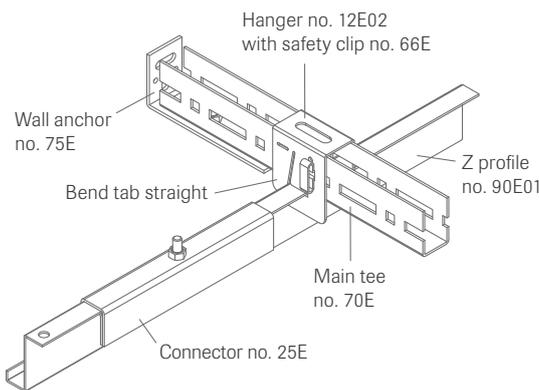


In option 3, the hanger profile no. 70E is suspended with hanger no. 1782E and fixed to the wall with wall anchor no. 75E. When using this version, the distance between the short side of the tile and the wall can be freely selected.

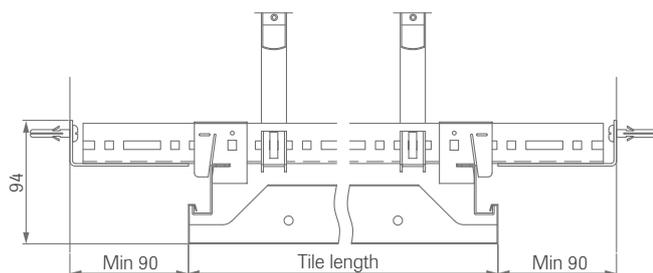
The hangers should always be placed at the crossing points of hanger profile and clip-in profile and should not be installed further than 100 mm away from them. Therefore the maximum distance between the hangers depends on the length of the tiles but must not exceed 2000 mm.

Tile length ≤	Main tee profile distance T ≤	Hanger distance A ≤
600 mm	1875 mm	1200 mm
625 mm	1875 mm	1250 mm
1250 mm	1350 mm	1250 mm
1500 mm	1200 mm	1500 mm
2000 mm	1050 mm	2000 mm
2500 mm	850 mm	2000 mm

Connection of U profiles no. 70E using connector 77E (see system S 32).

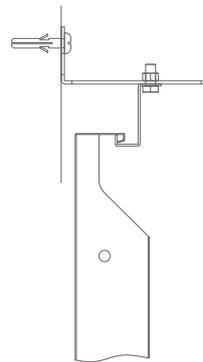
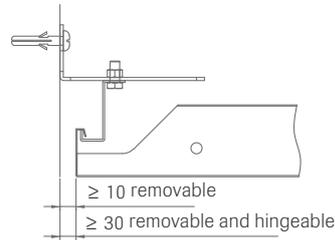


Z profiles no. 90E are mounted using bracket 12E02. The minimum distance between a panel and the wall must be 90 mm. If the distance is less than 90 mm, option 1 or 2 should be used.



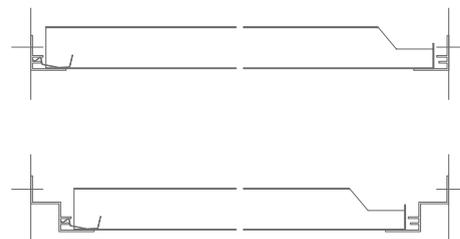
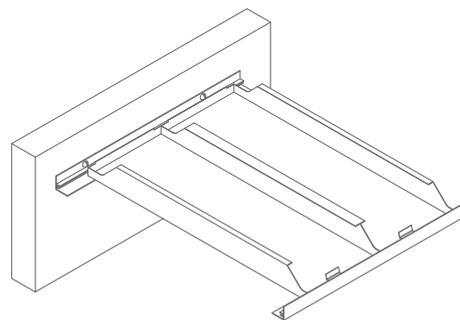
Installation and removal of tiles

To install or to remove tiles, a minimum distance of 10 mm between the short side of the tile and the wall is required. To allow the panels to hinge down, a minimum distance of 30 mm is required.



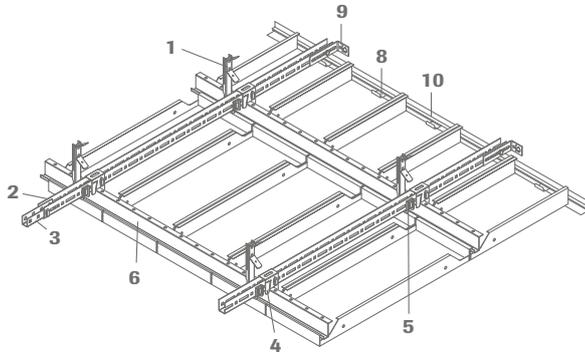
7.7 S 36 – lay-on

Here, the metal panels (also warehouse metal panels) are placed on the F edge trim, cut on one side if need be, and secured with a wall spring clip. The “suspension depth” depends on the wall angle and the length of the tiles. Up to 250 mm depth may be required.



7.8 S 39 – concealed hook-on suspension system using Z profiles, demountable

Main tee profile and hanger distances



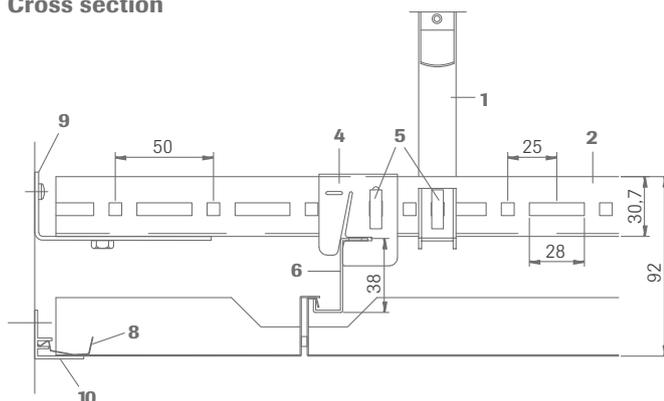
- 1 Hanger no. 1782E
- 2 U profile no. 70E
- 3 Connector no. 77E
- 4 Hanger no. 12E02
- 5 Safety clip no. 66E
- 6 Z profile no. 90E01
- 7 Connector no. 25E ((not in the drawing))
- 8 Wall spring clip no. 5220
- 9 Wall anchor no. 75E
- 10 Wall angle no. 50F

The main tee and hanger distances shown in the table below may not be exceeded. They refer only to the loading of the total construction by its own weight. Additional loads must in general be transferred separately.

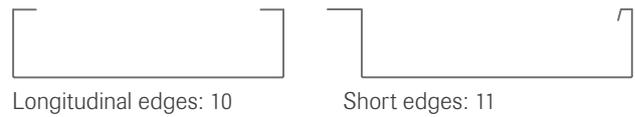
You have to install the hangers on the intersections of the U profile and Z profile, not more than 100 mm apart. The maximum distance of the hangers is thus dependent on the length of the plates, but may not exceed a distance of 2000 mm.

Tile length \leq	Main tee profile distance T \leq	Hanger distance A \leq
600 mm	1900 mm	1250 mm
625 mm	1875 mm	1250 mm
1250 mm	1350 mm	1250 mm
1500 mm	1200 mm	1500 mm
2000 mm	1050 mm	2000 mm
2500 mm	850 mm	2000 mm

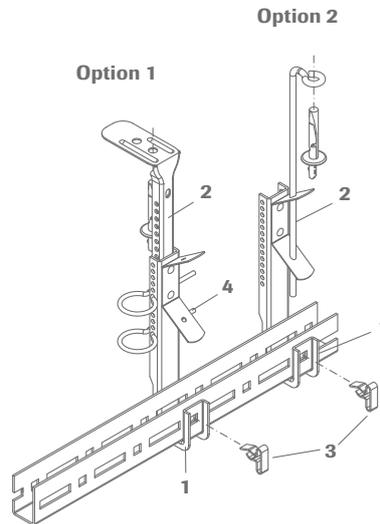
Cross section



Edge detail



Suspension



Minimum suspension height approx. 220 mm (nonius hanger))

Option 1

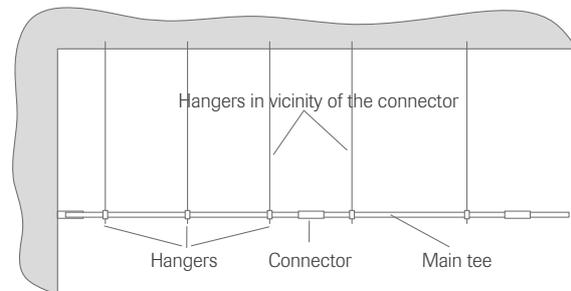
- 1 Nonius hanger lower section no. 1782E
- 2 Nonius hanger extension no. 16/...
- 3 Safety clip no. 66E
- 4 Safety pin no. 76

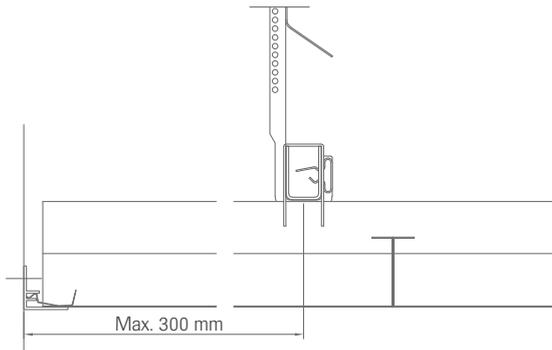
Where the nonius hanger is supporting only the weight of the ceiling, only one safety pin no. 76 is sufficient. In the event of tensile and pressure loading, two pins must be mounted.

Option 2

- 1 Nonius hanger lower section no. 1782E
- 2 Suspension rod no. 14/.../1 or 14/.../2
- 3 Safety clip no. 66E

Wire overhang for the spring of at least 15 mm.





The external no. 70E U profiles of a row must be hung at a minimum of three locations. All other profiles must be mounted with at least two hangers. Depending on the position, additional hangers should be arranged in the area of the longitudinal coupling.

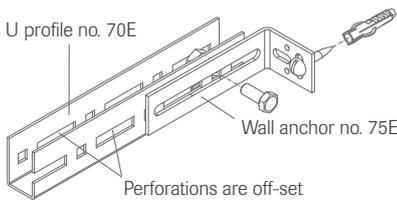
Installation of the first no. 70E U profile takes place at a distance of ≤ 300 mm from the wall. In order to prevent the ceiling from sagging, the joints of the support profile in the individual profile series must be set against one another.



Safety clip no. 66E

The safety clip is mounted correctly with the longer spring side upwards. The safety clip can be easily demounted by finger pressure.

Wall anchor

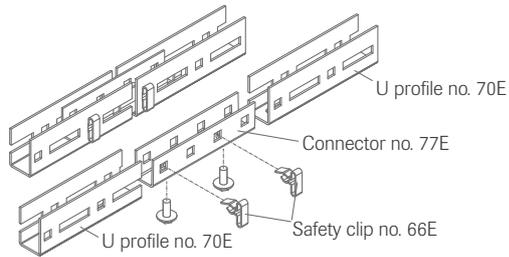


After the U profiles have been precisely aligned, each U profile row is clamped to the walls using a wall anchor no. 75E. The wall anchor can be arranged both next to the U profile (version shown) as well as under the U profile.

Please note: The perforations of the individual parallel-mounted U profiles must be aligned.

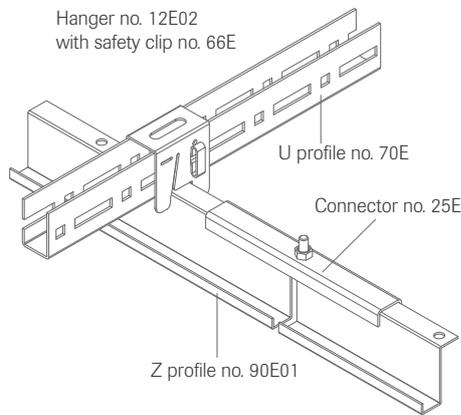
The perforations on the sides of the U profiles are offset relative to one another. In this way, slight differences in the alignment of the perforations can be compensated for.

Connection of U profiles



U profiles are connected using connector no. 77E, which also allows some length tolerance. They are joined together with M6 bolts and the safety clip no. 66E. To avoid downward deflection of the ceiling, the joints of the U profiles in the individual section rows must be offset relative to one another.

Suspension and connection of Z main tee profiles

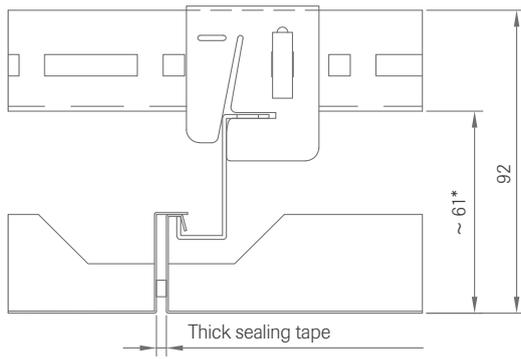


The Z profiles serve to house the tiles. They should be precisely aligned depending on the tile size, including sealing tape and pushed into the hanger no. 12E02. The hanger must be clamped into the U profile using the safety clip no. 66E. After this the projecting tabs on the hanger must be bent downwards to secure the Z-section against falling out.

The Z profiles are connected using connector no. 25E. To avoid downward deflection of the ceiling, the joints of the Z profiles in the individual profile rows must be offset relative to one another.

Installation and removal of tiles

The tile is pushed diagonally (with the longer angled edge upwards) between the Z profiles. The other edge is suspended from the Z-section and the angled edge placed on the Z-section. The Z profiles must be adjusted according with the tile width PLUS the sealing tape.



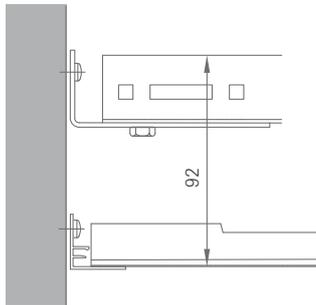
* If height at front side of the tile is 30 mm

The tiles can be removed correspondingly.

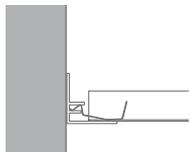
Where heavier loads on the ceiling (increased wind pressure, etc.) are anticipated, it is possible to secure the tiles against lifting or falling out. This can be done using the anti-lift clamp no. 67E, which has to be screwed as shown in into the Z profile to be drilled on site. An anti-lift clamp is required on each tile per Z profile row.

Wall perimeters

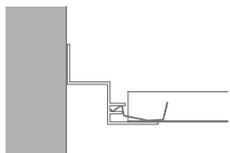
The distance H between the upper U profile edge and underside of the metal tray is not adjustable. This means that the wall angles have to be fixed extremely precisely.



The following wall angle versions are available:



F wall angle no. 50F (aluminium, visible side white powder-coated) in combination with wall spring clip no. 5220



F wall angle no. 5620F (aluminium, visible side white powder-coated) in combination with wall spring clip no. 5220

See OWAtecta brochure no. 9300 e (price list) for additional wall angles and information on installation.

Light fixtures

Please note: The lights must be arranged between the U profiles no. 70E.

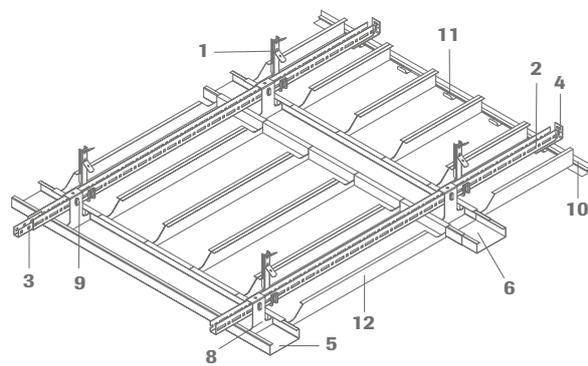
(The installation height of the lighting is normally greater than the distance between the tile and the main tee profile).

Electrical cables may not lie on the supporting structure.

Coordination with the electrical planner or installer is important to determine in advance the lighting layout and the number of additional hangers. (Experience shows that the retrospective installation of hangers is more difficult, more expensive and they are therefore, more likely to be omitted leaving a potentially serious, **concealed defect**.)

7.9 S 48 – demountable hingeable – swing down along the long edge

Main tee profile and hanger distances



- 1 Hanger
- 2 U profile no. 70E
- 3 Connector no. 77E
- 4 Wall anchor no. 75E
- 5 C-Bandraster profile no. 8010B
- 6 Connector no. 8210B
- 7 Wall anchor no. 8110B (not pictured)
- 8 Hanger no. 7910E
- 9 Safety clip no. 66E
- 10 F wall angle no. 50F
- 11 Wall spring clip no. 5220
- 12 Metal rectangular tile

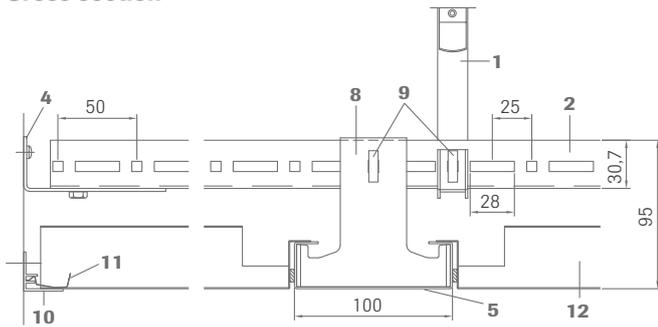
The main tee and hanger distances shown in the table below may not be exceeded. They refer only to the loading of the total construction by its own weight. Additional loads must in general be transferred separately.

You have to install the hangers on the intersections of the U profile and C Bandraster, not more than 100 mm apart. The maximum distance of the hangers is thus dependent on the length of the plates, but may not exceed a distance of 2000 mm.

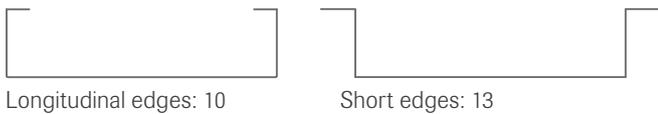
Tile length ≤	Main tee profile distance T ≤	Hanger distance A ≤
600 mm	1875 mm	1200 mm
625 mm	1875 mm	1250 mm
1250 mm	1350 mm	1250 mm
1500 mm	1200 mm	1500 mm
2000 mm	1050 mm	2000 mm
2500 mm	850 mm	2000 mm



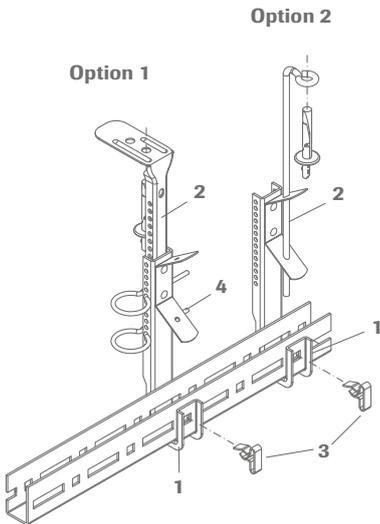
Cross section



Edge detail



Suspension



Minimum suspension height approx. 200 - 250 mm (for easy installation of metal tiles approx. 300 mm is recommended)

Option 1

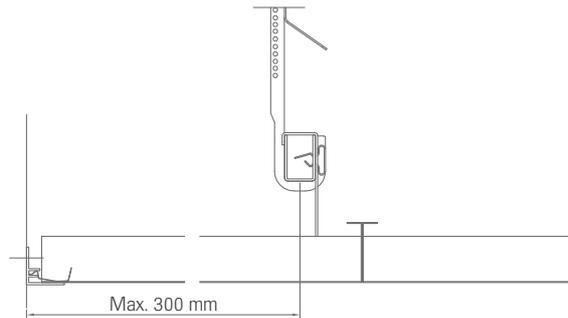
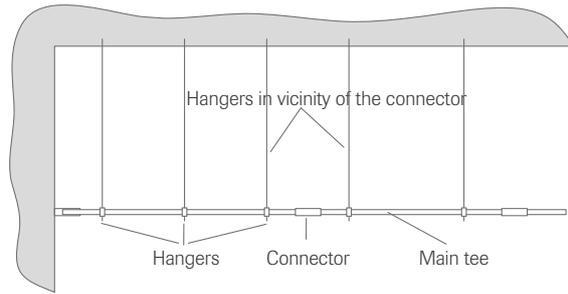
- 1 Nonius hanger lower section no. 1782E
- 2 Nonius hanger extension no. 16/...
- 3 Safety clip no. 66E
- 4 Safety pin no. 76

Where the nonius hanger is supporting only the weight of the ceiling, only one safety pin no. 76 is required. Where the ceiling may be subject to pressure loading, two pins must be used.

Option 2

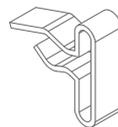
- 1 Nonius hanger lower section no. 1782E
- 2 Suspension rod no. 14/.../1 or 14/.../2
- 3 Safety clip no. 66E

Hanger rods must protrude through the adjustable bracket by at least 15 mm.



The external no. 70E U profiles of a row must be hung at a minimum of three locations. All other profiles must be mounted with at least two hangers. Depending on the position, additional hangers should be arranged in the area of the longitudinal coupling.

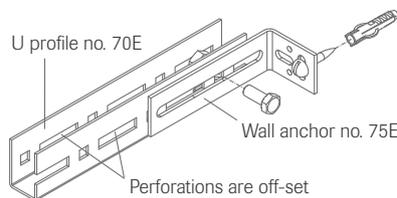
Installation of the first no. 70E U profile takes place at a distance of ≤ 300 mm from the wall. In order to prevent the ceiling from sagging, the joints of the support profile in the individual profile series must be set against one another.



Safety clip no. 66E

The safety clip is mounted correctly with the longer spring side upwards. The safety clip can be easily demounted by finger pressure.

Wall anchor

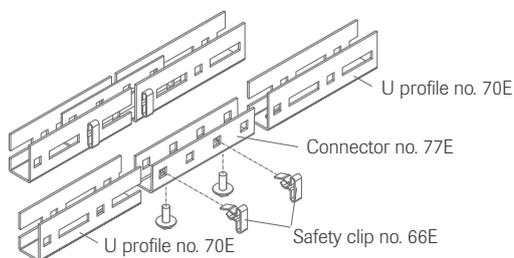


After the U profiles have been precisely aligned, each U profile row is clamped to the walls using a wall anchor no. 75E. The wall anchor can be arranged both next to the U profile (version shown) as well as under the U profile.

Please note: The perforations of the individual parallel-mounted U profiles must be aligned.

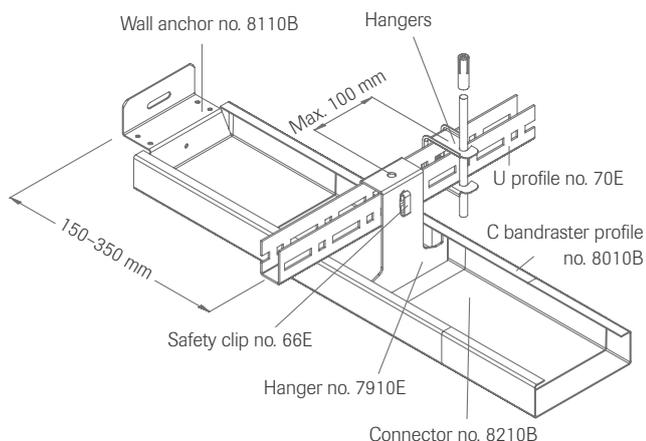
The perforations on the sides of the U profiles are offset relative to one another. In this way, slight differences in the alignment of the perforations can be compensated for.

Connection of U profiles

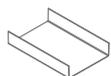


U profiles are connected using connector no. 77E, which also allows some length tolerance. They are joined together with M6 bolts and the safety clip no. 66E. To avoid downward deflection of the ceiling, the joints of the U profiles in the individual section rows must be offset relative to one another.

Suspension and connection of bandrafter profiles



The bandrafter profiles serve to house the tiles. They should be precisely aligned depending on the tile size and suspended from the U profile using the connector no. 7910B. The hanger must be clamped into the U profile using the safety clip no. 66E. The connector no. 8210B is used to connect the bandrafter profiles.

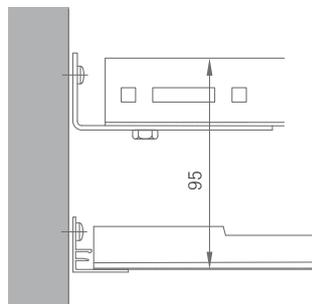


To avoid downward deflection of the ceiling, the joints of the bandrafter profiles in the individual profile rows must be offset relative to one another. The bandrafter profile rows are clamped at both ends with wall anchor no. 8110B to the walls.

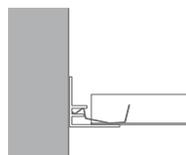
Please note: The bandrafter profiles may not be clamped too tightly between the walls (distance to wall approx. 10 mm).

Wall perimeters

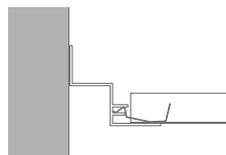
The distance H between the upper U profile edge and underside of the metal tray is not adjustable. This means that the wall angles have to be fixed extremely precisely.



The following wall angle versions are available:



F wall angle no. 50F (aluminium, visible side white powder-coated) in combination with wall spring clip no. 5220



F wall angle no. 5620F (aluminium, visible side white powder-coated) in combination with wall spring clip no. 5220

See OWAtecta brochure no. 9300 e (price list) for additional wall angles and information on installation.

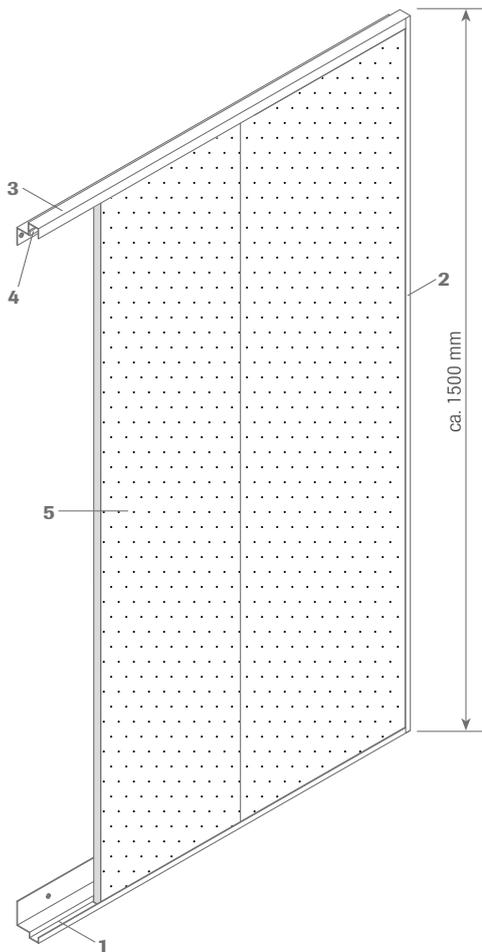
7.10 S 60 – magnetic pin-board wall absorber

Edge detail



Longitudinal edge 10

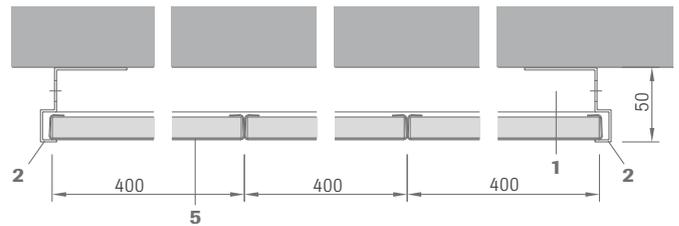
Short edge open



- 1 Bottom wall angle, length: 1990 mm
- 2 Lateral wall angle, length: 1518 mm
- 3 Top wall angle, length: 1990 mm
- 4 Sealing tape
- 5 OWAtecta magnetic pin-board wall absorber

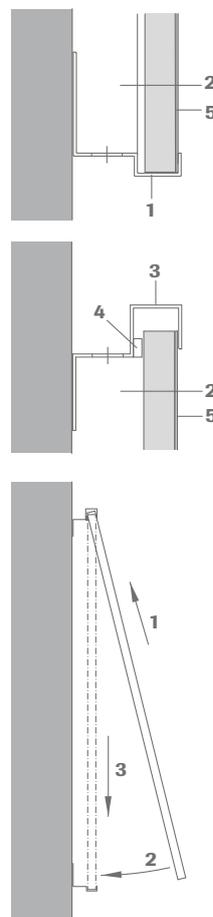
For additional technical details, please refer to OWA-brochure no. 9366 e.

Cross section



To allow easy installation and removal, the wall absorber should comprise at least of 3 components.

Installation



- Attach lower wall angle horizontally (angle is pre-punched).
- Attach lateral wall angle next to the lower wall angle vertically ensuring a flush finish with the lower wall angle (angles are pre-punched).
- Glue the sealing tape in the top wall angle (see illustration).
- Attach the top wall angle horizontally between the lateral wall angles (angles are pre-punched).
- Insert the bundled OWAacoustic tiles in the OWAtecta tiles.
- Push the absorber element into the top wall angle until it fits into the bottom wall angle.
- Warning - do not shift the sealing tape.
- Press the absorber element downwards until it rests on the bottom wall angle.
- The centre element is the last to be installed.

Note:

The 15-mm drill holes in the wall angles have an acoustic function. They may not be concealed or closed.

Adjustment of lateral wall angles

If pin board wall absorbers are to be mounted in special lengths, the lateral wall angles must be adjusted in length. The profiles must be 18 mm longer than the absorber element.

For an installation less than 1200 mm from the floor, we recommend installing a 30 mm thick wooden strip horizontally in the area between the absorber and wall.

These installation instructions should guide you.

The recommendations contained therein are based on practice, existing standards and certificates.

These are recommendations, which implies that they are not legally binding.

On publication of a new edition this brochure ceases to be valid.

Slight structural deviations can be obtained from the corresponding system sheets.

If you have any questions, please contact our OWAtecta team who will be happy to assist you:

tel. +49 9373 201-0
info@owa.de



The information in this brochure is up-to-date at the time of publication. Errors and mistakes excepted. Please contact our competence team OWAconsult for specific advice. Our experts will be happy to answer your questions under the following contact details: tel: +49 9373 201-444 or e-mail: info@owaconsult.de

Odenwald Faserplattenwerk GmbH
Dr.-F.-A.-Freundt-Straße 3 | 63916 Amorbach | Germany
tel +49 9373 201-0 | info@owa.de
www.owa-ceilings.com