

LMD-L 601

Baffle Ceiling
Standard installation

Illustration 1



- 8. Vernier hanger upper section
- 9. Vernier safety split pin
- 18. Self-tapping screw
- 26. Suspension channel
- 121. Vernier hanger lower section
- 123. Connector (movable)
- 124. Metal baffle

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1. Safety instructions

- The installation has to be carried out with the necessary carefulness so that neither oneself nor another person is endangered by the installation and so that every other kind of damage is avoided
- Necessary measures concerning the security on site, e.g. barriers and protective equipment, have to be taken
- The national regulations for operational safety have to be regarded
- The assembly operation is fully liable for the conformity of the system
- The metal ceiling may only be installed by qualified persons with the necessary technical knowledge, training, instructions and qualifications
- Changes on the ceiling system or the use of foreign material cause variances of the technical characteristics of the metal ceilings and have to be agreed upon with the manufacturer
- Other ceiling systems and combinations with other types of ceilings may only be used in accordance with the manufacturer
- Basically it is only allowed to use materials according to the corresponding manufacturer's instructions
- The installation has to be carried out corresponding to this instruction. This document is without entitlement of completeness. Variances have to be clarified with the manufacturer
- Metal ceilings are, without a former clarification with the manufacturer, not adapted for the support of additional loads or for the fastening of partitions
- It is strongly recommended to fill out the check list for every component and to keep it with the documents for building structure
- Standard metal ceilings are only applicable for interior rooms. Additional requirements, for example the use in outdoor or swimming baths, have to be treated severally and have to be prearranged project-oriented

2. Additional documents

Additional to this installation guideline, the following documents can be consulted if required:

- DIN EN 13964
- TAIM – Instructions for installation and application (<http://www.taim-ev.org>)
- Cleaning instruction for metal ceilings

3. Preparation of installation

3.1. Constructional precondition

3.1.1. Surroundings

It is the task of the client to make sure that the access to the construction site is sufficiently accessible for 40 t-vehicles.

Only specifically authorised assembly personnel are allowed to open or close the ceiling until the approval of the ceiling. These assemblers have to possess specialised knowledge and appropriate tools.

The client has to make sure that the place of installation is in close proximity provided with an appropriate location for stock and detrital container as well as an electrical connection.

3.1.2. Preface

For the installation of metal ceilings, minimum requirements concerning structures, logistics, adjustment of the building services, environment, climate etc. have to be respected.

To permit an orderly installation, certain basic prerequisites have to be secured before the assembly starts. These are not part of the scope of services of the Lindner AG or the installation company and have to be fulfilled by the client.

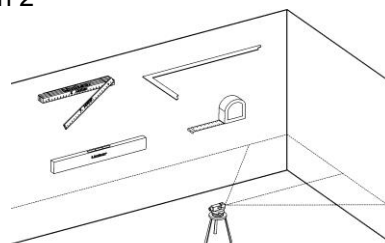
Scopes of application and demands on metal ceilings are specified in the 'TAIM' guidelines (editor TAIM e.V.) and are met by Lindner metal ceilings, as far as nothing else is agreed upon. 'TAIM' guidelines are available on demand.

Requirements and applications which deviate from this, for example special requirements concerning security, special conditions of the operation and the climate, surfaces, additional loads, wind loads etc., have to be regarded by the client within his planning.

3.1.3. Benchmarks

Benchmarks of height and determination of axes have to be provided by the client. These have to be dimensioned in such a way that no measured lengths exceeding 30 m per storey will be necessary for the marking for the ceiling installation.

Illustration 2



3.1.4. Environmental conditions

If no special specifications have been agreed upon, DIN EN 13964 table 7, class A and the environmental conditions of a relative air humidity up to 70% and a relative temperature up to 25°C mentioned in it are considered as agreed. It is only allowed to start the installation of the metal ceilings if the room is dried and the facade is closed. Condensate formation in the ceiling void has to be obviated by the client. High humidity has to be subsequently obviated to avoid corrosion or mildew on mineral surfaces.

As far as further demands occur due to the application in exterior areas, high air humidity or low strain of chloride, these have to be extensively specified and agreed upon.

3.1.5. Integration of benchmarks and the handling of constructional tolerances on site

Illustration 3

Finished buildings and their benchmarks often diverge from their intended position according to the plan. It is advised to arrange such an inspection according to the national norms and rules, to create reflected ceiling plans and plans for the order, which are based on actually existing dimensions and to retain and evaluate discrepancies in measurement concerning the planning, ordering and installation of the ceiling at the earliest.

The integration of benchmarks, for example of facade grids or pillars, has to be tested in due time.

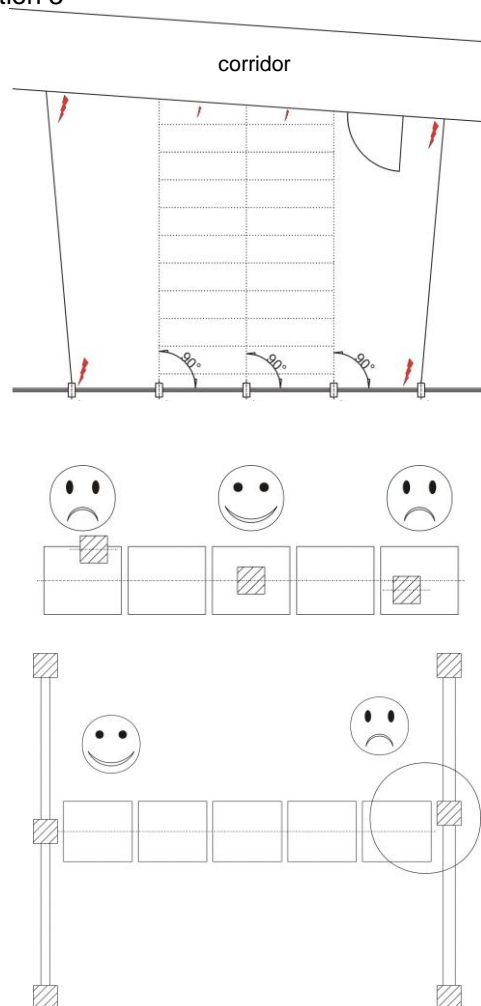
It is possible that position and alignment of the facade pillars etc. do not exactly conform to the condition according to plan.

In conjunction with the precise alignments of the metal ceilings this can appear visibly unpleasant and if it is disregarded it can result in complaints.

Custom-fit, special panels or other measures may be reasonable.

The consequences of the above-mentioned inspections, for example the direction of installation, definition of the alignments, position of custom-fit panels and so on, have to be detected and defined by the assembly operation in cooperation with the planner of the building and is not among the manufacturer's area of responsibility.

It is advised that the assembly operation notifies the planner of the building as soon as possible about discrepancies in measurement and that the assembly operation effects an approval for the solution that has to be realised.



3.2. Storage information/delivery of the material

Illustration 4

Please check all materials thoroughly for damages before the installation starts. We have to reject claims in an inbuilt condition.

Do not store the metal panels outdoor and protect them against moisture and insolation!

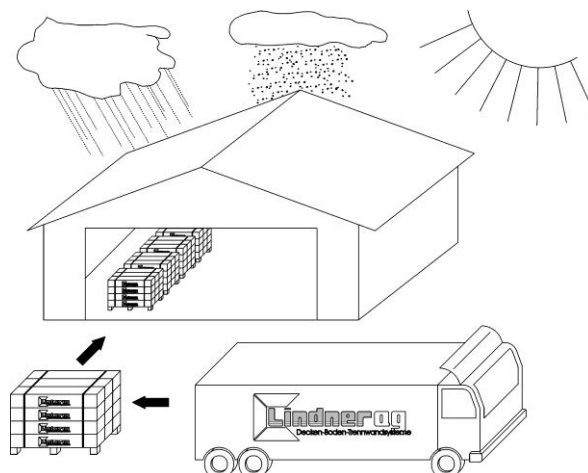
If metal panels are delivered on pallets or in wooden boxes, the panels have to be stored there until installation.

The metal panel packages have to be stored holohedral, even and dry, as well as with the direction of the arrow upwards.

Maximum three rows of packages may be stacked one upon the other. The second row has to be stacked rotated 90° to stabilise the stack

If a longer period of storage is planned, the manufacturer has to be previously asked.

The following annotations concerning the protective foil have to be regarded.



3.3. Disposal of residual material

The disposal of metal ceiling waste does not pose an unusual threat with possibly sharp-edged components provided that the waste is handled with adequate care and appropriate personally well-fitting protective equipment is worn (for example protective gloves, safety shoes, helmet, safety glasses etc.).

Metal ceilings do not contain harmful substances which endanger the health according to the guideline 67/548/EWG.

Waste has to be disposed according to the respective regionally-binding regulations (for example the law of circular flow economy and the waste management law, packaging ordinance etc.).

Basically it is not allowed to dispose construction waste, which is contaminated with harmful substances, at domestic refuse dumps. This construction waste has to be transported to facilities for special waste which are built for that purpose.

Nationally and regionally-binding regulations have to be adhered to e.g. packaging ordinances, whereby all packages have to be returned to the economic cycle.

Separation of waste generated on site is recommended to avoid collateral mixing. The separation of the waste generated on site has to be anticipated and has to be coordinated for each individual case.

Regionally valid waste codes have to be respected.

3.4. Surface protection

3.4.1. Powder-coated ceiling panels

To protect the surface, powder-coated ceiling panels are packaged back-to-back.

Adjacent visible sides are protected against scratches by means of foam strips during the transport.

These have to be removed before the installation of the panels.

3.4.2. Ceiling panels with protective foils

To protect surfaces which are not powder-coated, the surfaces are furnished with protective foils.

Steel sheet:

The protective foil can be removed from steel sheet after 4 – 5 months after the delivery of the ceiling panels.

Aluminium/stainless steel:

With aluminium/stainless steel ceiling panels with transparent foil (not UV resistant), the foil should be removed within 4 weeks after delivery.

With aluminium/high-grade steel ceiling panels with non-transparent foil, for example white or black (UV resistant), the foil should be removed within 3 months after delivery.

Due to the influence of strong UV radiation (for example in the area of the facades) these periods can be shorter.

Please notice that the expiration of this period may make it difficult to remove the foil properly and as a consequence of this, it may be possible that residues from the foil respectively adhesive will remain on the surface of the panels. In this case great cleaning effort has to be expected.

For cleaning works the cleaning instructions have to be regarded.

Please consult the manufacturer for the removal of adhesive residues with detergents.

4. Structural condition for installation

4.1. Raw ceiling

Is the structural condition for installation known?

→ no →

Call the
construction
management

↓
yes
↓

See part 4.3

4.2. Determining the type of fastening

Depending on the strain on the ceiling system, the structural condition for installation and the type of fastening (for example anchors), the fastening distance has to be defined. Thereby do not overload anchors, suspension, connectors, profiles and panels! (Necessary load securities have to be respected). National directions have to be observed.

Only anchors or fasteners with a valid verification (for example a building-authority approval, see the respective national rules as well as the "TAIM" guidelines) have to be used.

→ no →

Call the
manufacturer

↓
yes
↓

If all conditions are met you can start with the installation of the ceiling system!

5. Fixings

Safety instruction:

- Depending on the strain on the ceiling system, the structural condition for installation and the type of fastening (for example anchors) the fastening distance has to be defined!

5.1. Raw ceiling

Safety instructions:

- Only anchors approved by ETA or a building authority may be used
- The anchor has to be precisely fixed according to the instructions of the anchor manufacturer!

6. Installation of substructure

6.1. Vernier suspension

Sicherheitshinweis:

- Maximum centre distance for suspension channels: 2500 mm.
- The vernier hanger should be installed as close as possible to the abutment of suspension channels, maximum 250 mm distance.
- Distance between baffle ending and suspension channel must not exceed 500 mm.

6.1.1. Materials

Pos. No. 8

		
Vernier hanger upper section Type depending on required length	Anchor Type depending on structural condition for installation	

6.1.2. Fastening distance: Centre distance to distance between hangers

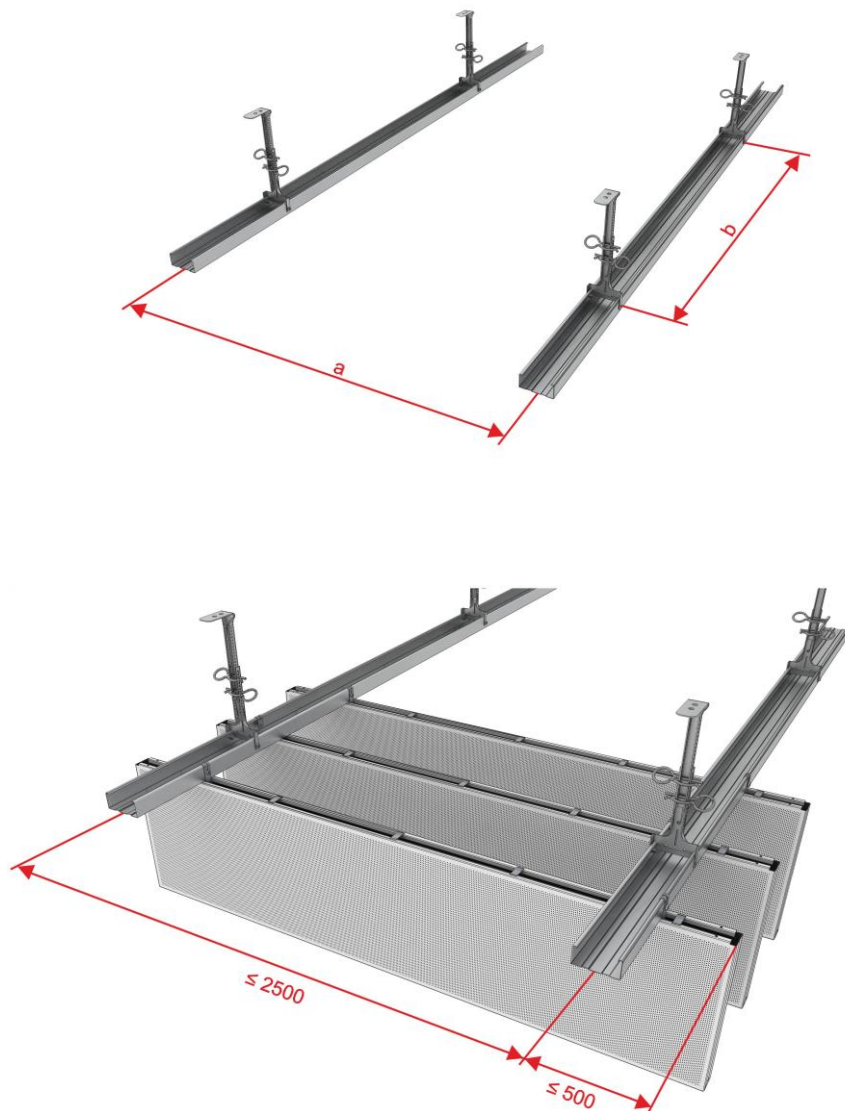
Notice:

- The following recommendation for the centre distance does only correspond to standard ceilings with a maximum baffle length of 3000 mm and a width of 30 mm without additional loads. The ratio (grid / hanger distance) has to be reduced appropriately regarding different baffle heights, widths, centre distances and inlays, whereby more baffle weight is produced per meter suspension channel. In case of uncertainty please confer with the system producer.

With mineral wool inlay:				
Length in mm:	Baffle:		Substructure:	
	Height in mm:	Centre distance A in mm:	Grid a in mm	Hanger distance b in mm
3000	260	350	2500	1200
3000	200	250	2500	1200
3000	150	210	2500	1200

Without mineral wool inlay:				
Length in mm:	Baffle:		Substructure:	
	Height in mm:	Centre distance A in mm:	Grid a in mm	Hanger distance b in mm
3000	260	250	2500	1200
3000	200	200	2500	1200
3000	150	160	2500	1200

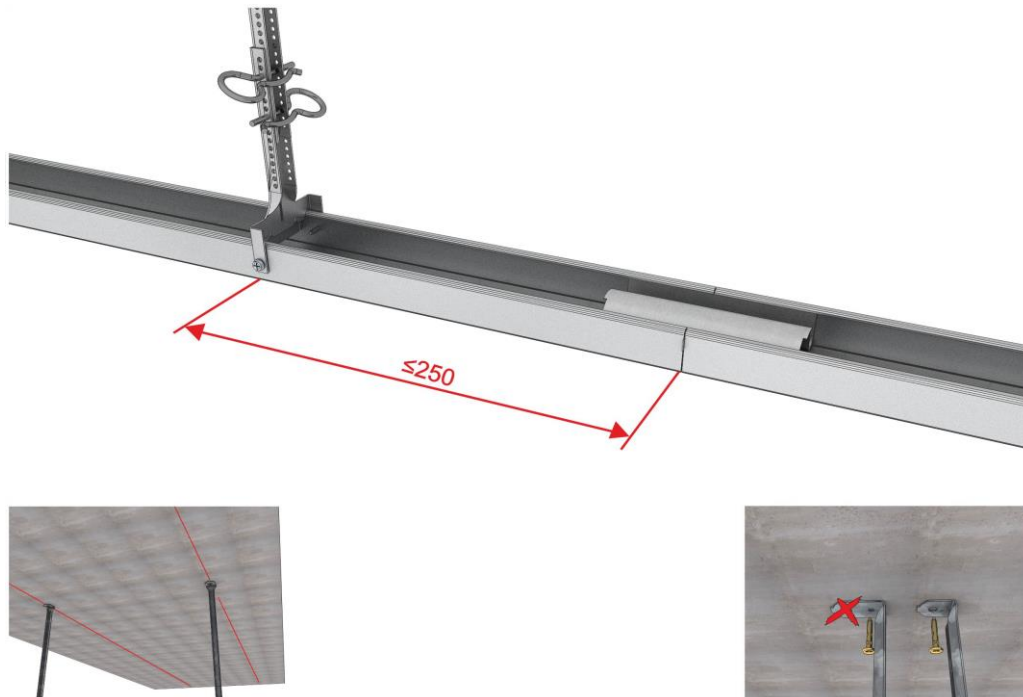
Illustration 5



6.1.3. Installation process






- Mark centre distance for suspension channel grid (Pos. No. 26)
- Determine fastening points, maximum distance to suspension channel abutment: 250 mm
- Drill a hole for the anchor
- Fasten vernier hanger upper section (Pos. No. 8) by means of an anchor according to the instruction of the manufacturer

Illustration 6



6.2. Installation of suspension channels

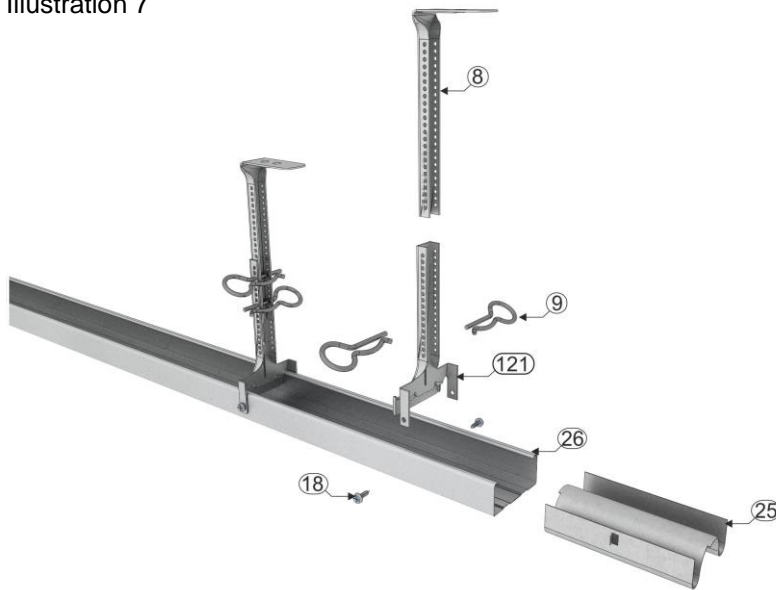
6.2.1. Materials

Pos. No. 26 	Pos. No. 121 	Pos. No. 25 
Suspension channel Depending on design	Vernier hanger lower section (00036909) For suspension channel	Longitudinal connector for suspension channel (00120654)
Pos. No. 9 	Pos. No. 18 	
Vernier safety split pin (00026789)	Self-tapping screw (00027521) SBS 3.9x11	

6.2.2. Installation process

- Cut the suspension channel (Pos. No. 26) to the required length
- Insert vernier hanger lower section (Pos. No. 121) in the suspension channel (Pos. No. 26) at the suspension points
- Align suspension channel (Pos. No. 26) horizontally and vertically for the preset ceiling height
- Fasten the vernier hanger lower sections (Pos. No. 121) by means of two vernier safety split pins (Pos. No. 9) to the vernier hanger upper sections (Pos. No. 8)
- Screw vernier hanger section (Pos. No. 121) by means of self-tapping screws (Pos. No. 18) to the suspension channel (Pos. No. 26)
- Please consider that maximum height tolerances according to DIN EN 13964 for the height adjustment of the ceiling as well as additional deflection resulting from other components to be installed in the course of installation have to be respected (profiles, connectors for hook-on profile to suspension channel, permitted additional loads)

Illustration 7




6.3. Installation of longitudinal connector for suspension channel

Notice:

- The cutting edge of the suspension channel should be 90°, the cross-section of the suspension channel must remain.

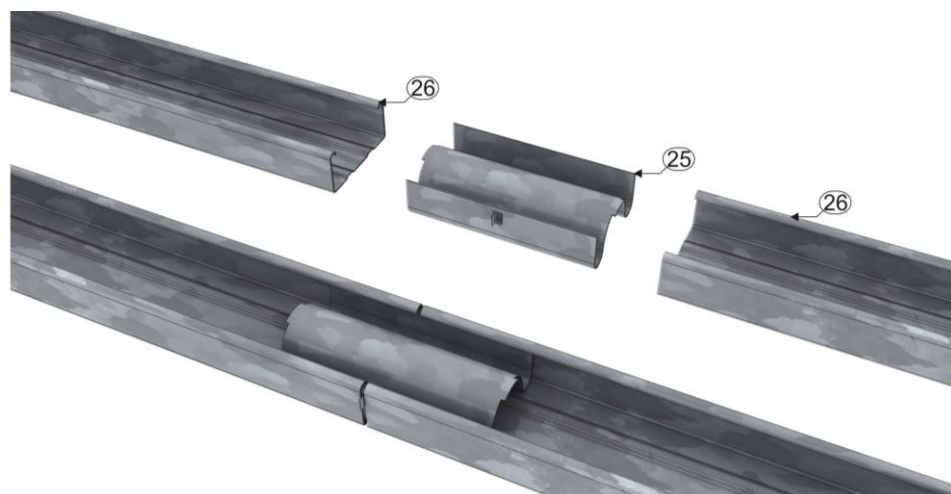
6.3.1. Materials

Pos. No. 26		Pos. No. 25	
Suspension channel Depending on design		Longitudinal connector for suspension channel (00120654)	

6.3.2. Installation process

- Insert the longitudinal connector (Pos. No. 25) halfway into the suspension channel (Pos. No. 26) at the profile abutment
- Insert the rest of the longitudinal connector (Pos. No. 25) into the abutting of the suspension channel (Pos. No. 26)

Illustration 8



7. Installation of baffles

Safety instructions:





- Use only stable ladders or scaffolds.
- 2 persons are necessary for the installation of baffles.
- The connectors (Pos. No. 123) have to be alternately installed to the suspension channel (Pos. No. 26) to avoid unbalanced loads on the suspension channel.
- The connector (Pos. No. 123) has to be installed to the suspension channel (Pos. No. 26) at an angle of 90°.

Notice:

- Distance between baffle ending and suspension channel must not exceed 500 mm.

7.1. Installation of baffles

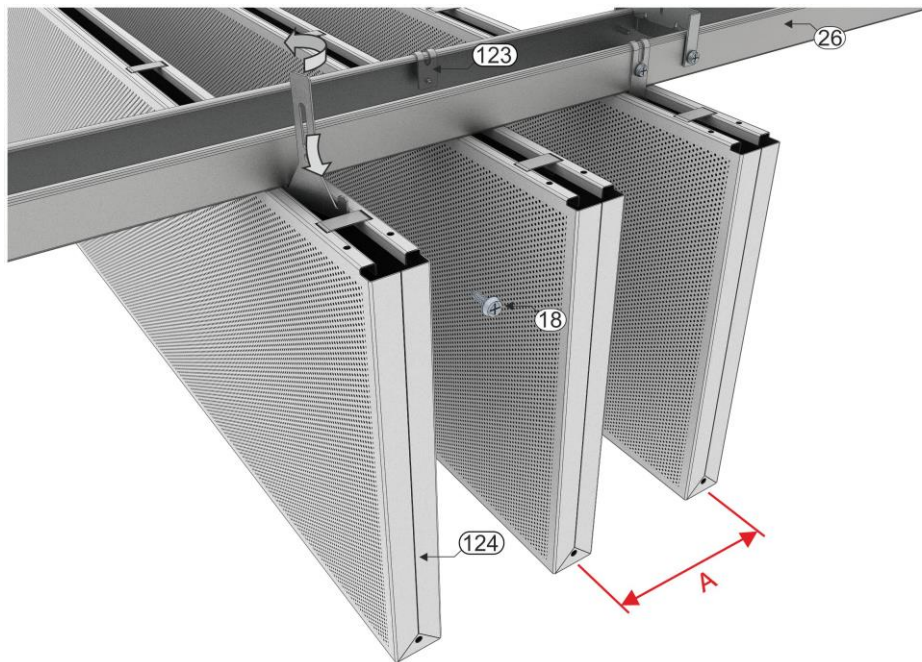
7.1.1. Materials

Pos. No. 124			Pos. No. 18	
Baffle		Cotton gloves	Self-tapping screw (00027521) SBS 3.9x11	
Pos. No. 123				
Connector				

7.1.2. Installation process

- Mark the preset centre distance for baffles (Pos. No. 124) on the suspension channels (Pos. No. 26)
- Clean cotton gloves should be worn
- Screw the connector (Pos. No. 123) into the baffle (Pos. No. 124)
- Align the baffle (Pos. No. 123) and bend the connector (Pos. No. 123) around the suspension channel (Pos. Nr. 26)
- Arrange the connector (Pos. No. 123) adjacently in turns
- Screw the connector (Pos. No. 123) to the suspension channel (Pos. No. 26) by means of a self-tapping screw (Pos. No. 18)

Illustration 9



7.2. Installation of longitudinal connector

Notice:

- Longitudinal connector can only be installed to the “open” ending of a baffle

7.2.1. Material

Pos. No. 139

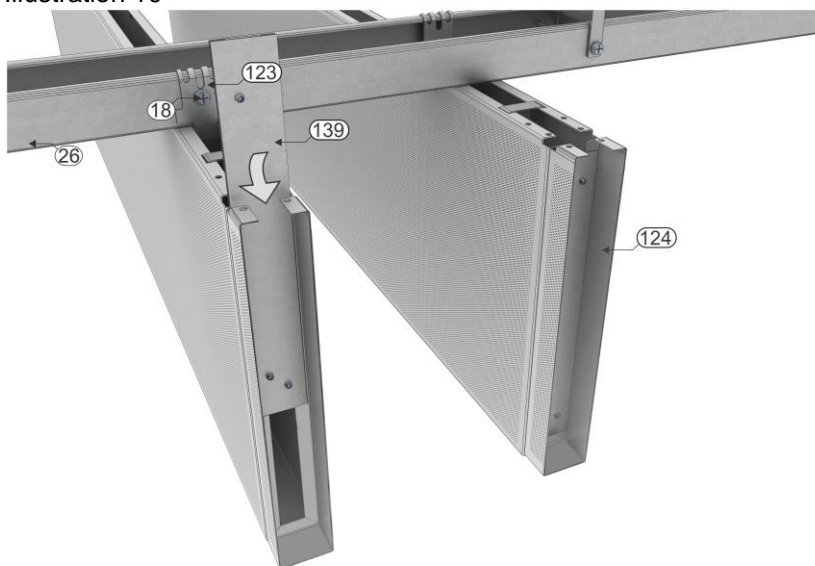


Longitudinal connector

7.2.2. Installation process

- Align the baffle (Pos. No. 124) and install it
- Insert the longitudinal connector (Pos. No. 139) from above into the baffle (Pos. No. 124) at the abutment of the baffles

Illustration 10



8. Installation of lighting units/ventilations or other fixtures

Safety instructions:

- Additional fixtures, fittings and loads have to be suspended separately. The planner of the building has to specify the fastening of additional loads fastening elements, cables, sprinklers, integrated lighting units, loudspeakers, ventilation grille, as well as the preparation of cut-outs. These specifications have to be considered for the installation by the assembly operation!
- Ceiling panels with fixtures have to be secured against removal, swing-down mechanism or movement.
- The installation and the electrical connection of lighting units may only be executed by expert staff!

Notices:

- Our ceiling systems in standard configuration are statically designed to support the top layer (considering the safety factor 2.5). The support of additional loads which result from e.g. recessed light fittings has to be clarified in individual cases
- It is neither permitted that lighting units or other fixtures are solely supported by the top layer nor is it permitted to fix them to the top layer, parts of the substructure or suspension without taking further actions
- If lighting units are to be installed into a light-weight ceiling top layer (resp. into suspended ceilings) by an electrician on site, the electrician has to obtain the approval of the ceiling manufacturer by specifying the intended method of fastening as well as the weight of the lighting unit
- The suspension of lighting units or other fixtures has to be designed rigid in compression to ensure security during operations like the replacement of illuminants or the installation of protective casings
- Furthermore an approval of the ceiling manufacturer has to be obtained if lighting units are to be integrated in the metal ceiling top layer and the respective loads shall be directly transferred to the metal ceiling panel

9. Constructions not covered by this installation guideline

Constructions not covered by this installation guideline, other types of ceilings and combinations of different ceiling types may only be executed after consulting the manufacturer.

10. Check list

For your own assurance it is recommended to fill out and retain a checking card for every component.

BV:	Plane:		Component:														Axes:			
Project number	Metal ceiling F0	Metal ceiling F30	Metal ceiling F90	M. honeyc. baffle c.	Bulkhead by C-p. c.	Platothem® Heated and chilled ceiling												OK	Date	Inspected by:
Type of accomplishment																				
Mark the achieved accomplishment with a „X“	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Ceiling height and cutting check verified																		<input type="checkbox"/>		
Suspension distance maintained and checked distance:mm																		<input type="checkbox"/>		
Approved anchor used for application and existing base material type:																		<input type="checkbox"/>		
Anchor visually checked for correct installation																		<input type="checkbox"/>		
Rough grate / post cap / dimension between axes maintained and checked distance: mm																		<input type="checkbox"/>		
Precision grate / lateral carrier section / dimension between axes maintained distance: mm																		<input type="checkbox"/>		
Mineral wool platings inserted correctly and checked																		<input type="checkbox"/>		
Nearby connections achieved and checked according to detail																		<input type="checkbox"/>		
Built-in components additionally suspended from the raw ceiling and checked according to the declaration of the PL																		<input type="checkbox"/>		
Installation guidelines of the producer maintained																		<input type="checkbox"/>		
Material storing checked																		<input type="checkbox"/>		
Cut panels in the perimeter checked according to the correct cutting																		<input type="checkbox"/>		
Fastening clamp inserted correctly																		<input type="checkbox"/>		
Centre/frieze suspension mounted correctly according to the declaration of the PL																		<input type="checkbox"/>		
Function of the ceiling panels checked																		<input type="checkbox"/>		
Ceiling surface with the same colour, exactly aligned, without soiling																		<input type="checkbox"/>		
For the bulkhead by C-p. c: Necessary bracing mounted acc. to requirements																		<input type="checkbox"/>		

Signature PL:
(Only for confirmation, unless the PL himself inspects)

Signature BL/VA:

This recommendation shall serve as a guideline to the assembler.

The application always has to be examined in individual cases due to the fact that no site-related inspection occurred.

The details given therein represent the state-of-the-art and shall inform about our products and their field of application. They are given to the best of our knowledge. No responsibility is taken for the correctness of the information given in this guideline. The relevant standards especially DIN EN 13964 as well as the TAIM standards shall be considered.

Subject to technical alteration in the course of progress.

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Contact:

Lindner SE | Ceilings

Bahnhofstraße 29 | 94424 Arnstorf | Germany

Phone +49 8723 20-3679

ceilings@Lindner-Group.com | www.Lindner-Group.com

Publisher:

Lindner SE | PM Ceilings

Bahnhofstraße 29 | 94424 Arnstorf | Germany