

Technical data sheet – U slat with acoustic effectiveness

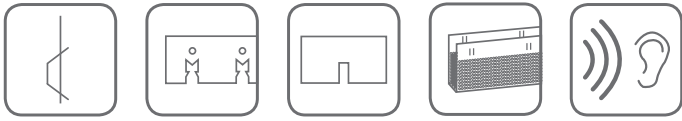


The sophisticated system perfectly adapts to the functional requirements of today's building culture. Technical building services and fire protection systems work invisibly in the background. The inspection-friendly system provides easy access to installations on the bare ceiling. Low system heights, a wide range of colors and a sophisticated light concept complete the system. Worldwide, modern offices, venues, museums, sales areas and public buildings are equipped with our system.

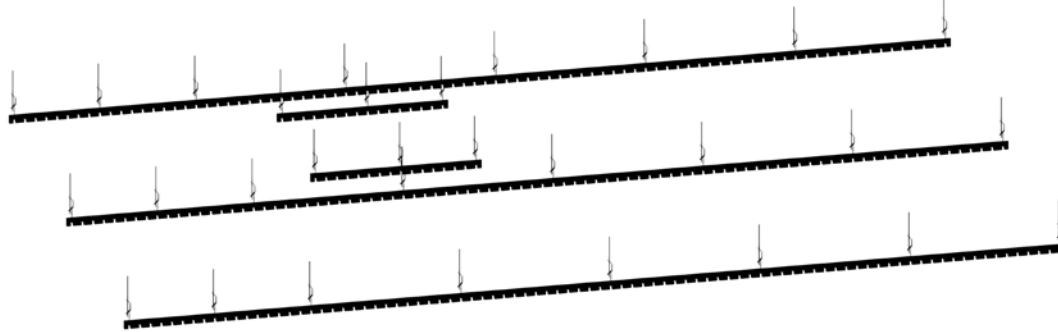
In energy-efficient buildings with concrete core activation (BKT), high demands are made on room acoustics. With a

free cross-section of 80% and an acoustic absorption value (α_w) of 0.40 (H), the acoustic slat is the link between a good climate and pleasant room acoustics. The slats are micro-perforated and equipped with a special sound-absorbing acoustic fleece to fill the profile. In this way, we achieve full absorption of the ambiance. The acoustic slats have fleece on the inside and fire protection class A2 (building material class DIN 4102-A2) according to the standard DIN 4102-1.

Construction of the system

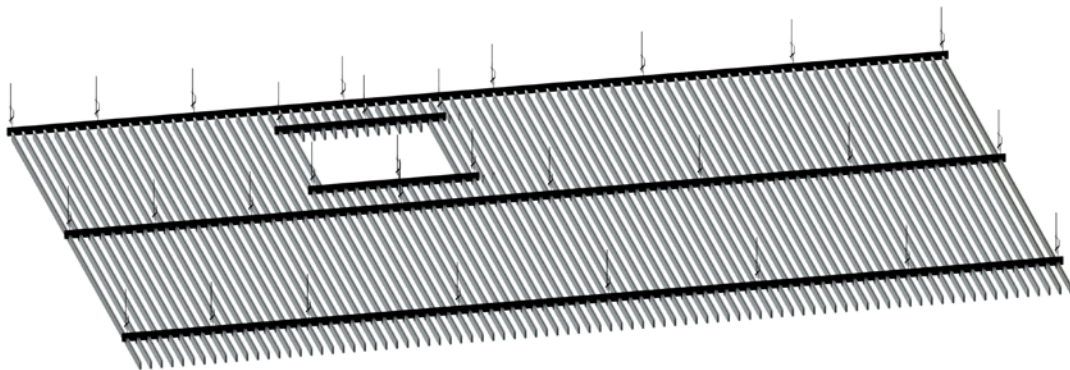


Hanger with mounting rails (construction without suspension wire)

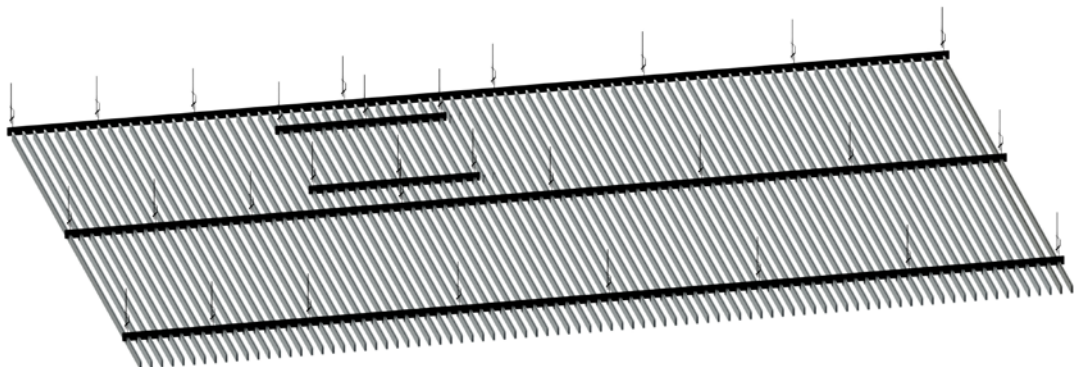


suspension wire is not included has to be provided by the customer

Installation of the slats

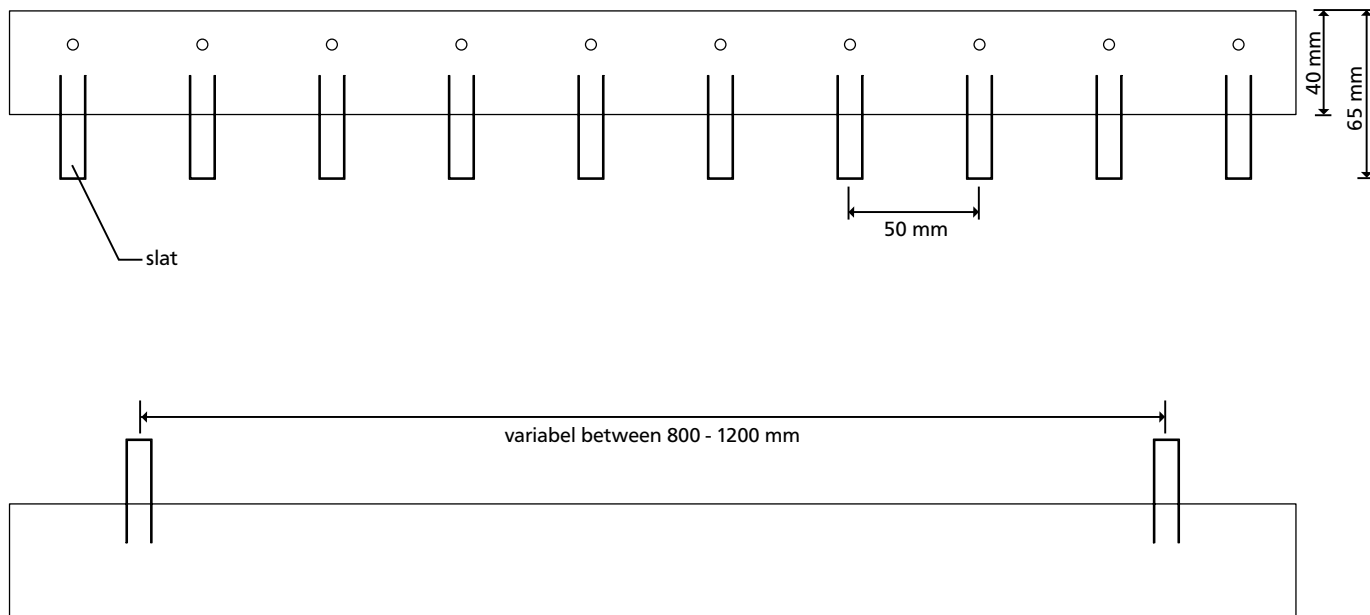


Installation of inspection element



U slat system with acoustic effectiveness

Technical data:



Acoustic slat system	
Material:	pre-painted aluminum, stove enamelled
Perforation:	micro-perforated 0.7 mm, perforation height only up to 40 mm
Material thickness:	0.4 mm
Slat height:	40 mm (50 and 60 mm on request)
Web width:	10 mm
Max. slat length:	2,850 mm
Module:	freely selectable Recommended: module 50, as this was the basis for the assessment
Color:	Standard colors RAL 9003/9016, special colors according to RAL and NCS feasible

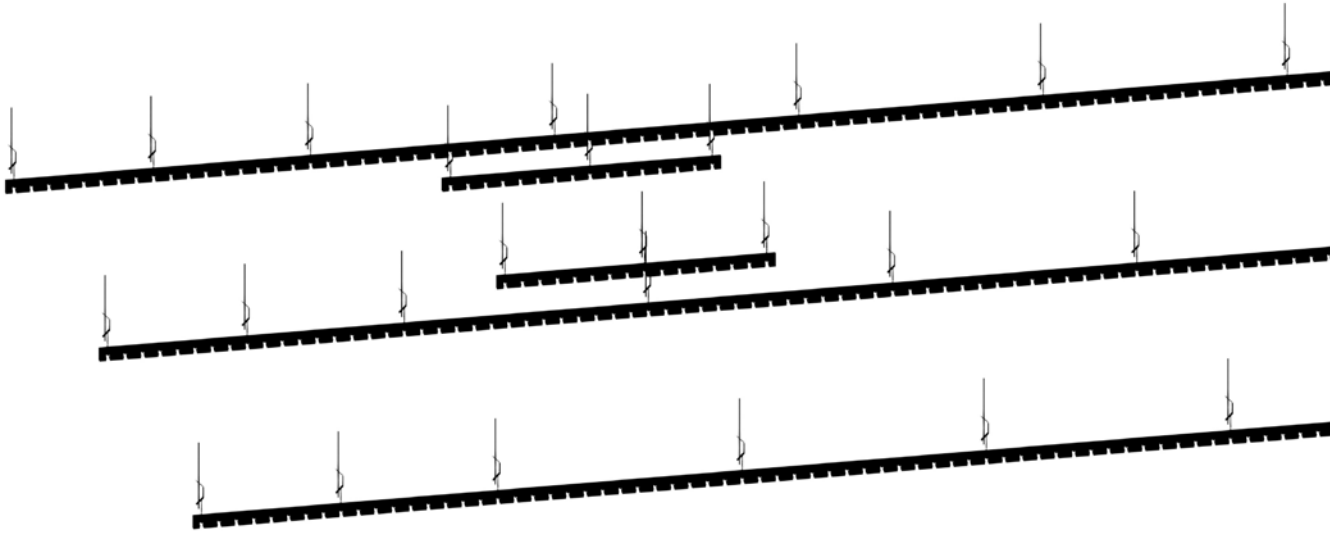
Absorption & fire protection	
Fire protection:	Fire protection class A2
Absorption value:	0,40 (H)

Further technical information	
Installation height:	65 mm (slat + mounting rail)
Weight/m ² (mod. 50):	2,4 kg/m ² incl. supporting construction

Module	Free cross-section (approx. %)	Weight incl. supp. const.(kg/m ²)	Serial meter/m ² (w/o supp. const.)
30	64.5	4.25	33.33
35	69.5	3.70	28.57
40	73.0	3.25	25.00
45	75.0	2.91	22.22
50	78.0	2.65	20.00
60	81.0	2.25	16.66
80	85.5	1.75	12.50
100	88.0	1.45	10.00

The slat spacing (measured from axis to axis) is called the module. Various examples are listed here. However, the module can also be set individually. The free cross-section describes the openness of the system to the bare ceiling.

Mounting rails and hangers



The spacing of the mounting rails can be determined in a ceiling plan. The mounting rail spacing is not subject to a grid dimension with regular spacing and can therefore be perfectly adapted to the fittings and installations in the room.

The mounting rail spacing can be varied between 800 and 1,200 mm or less. Spacing of 1,500 mm is possible in individual cases but not desirable as a rule. The mounting rails are connected with rivets of 4 x 6 mm. Cut pieces can be re-inserted at the end.

Fire protection

The general building authority test certificate evaluates the „acoustic lamella“ made of perforated aluminum sheeting and a fleece applied on the inside as non-combustible building materials (building material class DIN 4102-A2) according to the DIN 4102-1 standard.

Checked by:
MFPA Leipzig GmbH, Gesellschaft für Materialforschung und Prüfungsanstalt für das Bauwesen Leipzig mbH

Checked on:
March 14, 2022

The spacing between the individual hangers should be 700 to 800 mm. It is mandatory that the slat joint lies under a mounting rail. Both slats are fixed in the mounting rail with a slat connector and aligned in the longitudinal direction.

Supporting construction

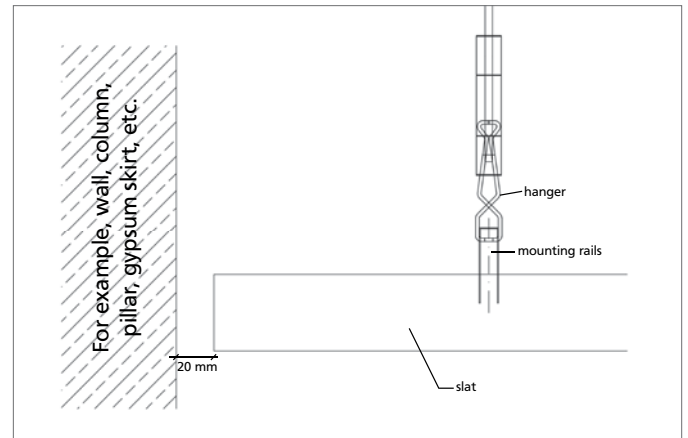
Mounting rail length: 2,500 mm with module 50
Mounting rail color: RAL 9005 or in slat color
Hanger lower part: black



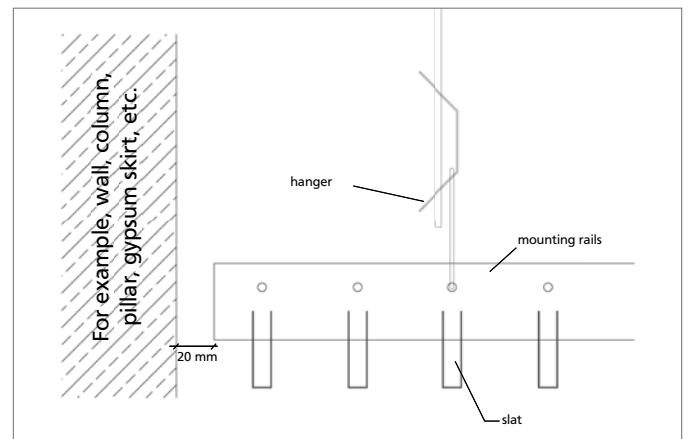
Lip and slat connectors

Lip

As a rule, the slat ends with a 20 mm shadow gap before the wall. The slat can project up to 300 mm. We provide lip profiles on request.

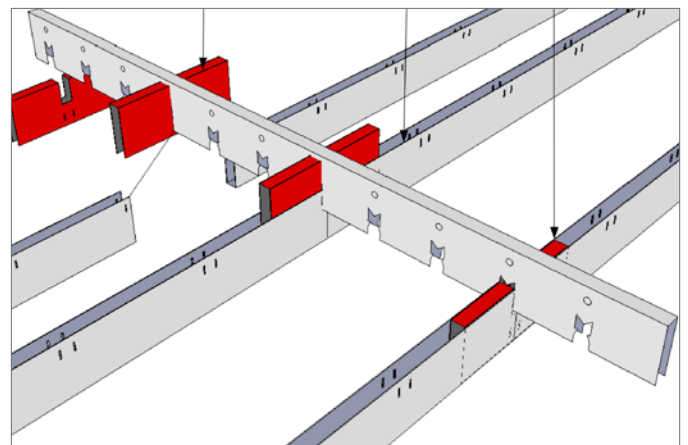


The mounting rail should also be mounted with some spacing to the wall (10-20 mm). The entire system must hang self-supporting within the room. Fixing it to adjacent components is strongly discouraged. The mounting rail must project the last slat at least 5-10 mm to fully include it.



Slat connectors

To connect the slats, the slat connector is slid into the mounting rail with the closed side upwards into the press cut. Then the slats are snapped into place in the mounting rail from both sides. Finally, the connector is slid into the slats.



Absorption increase with the HAUFE absorber system

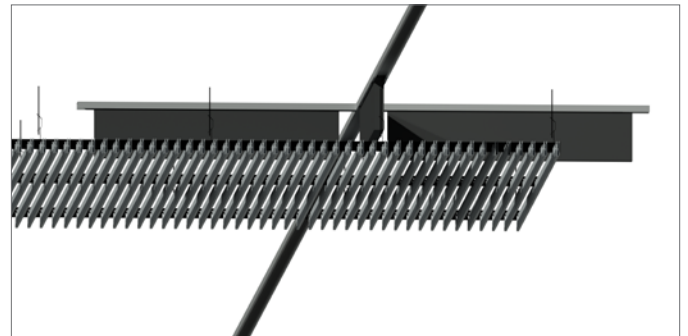
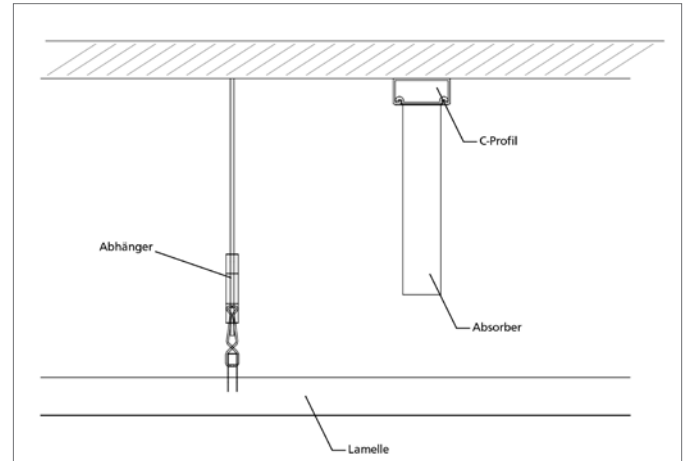
Improvement in sound absorption

As an accessory, you will receive an absorber system that also placed above the acoustic slats. It is available in different variants and enables an additional improvement in sound absorption in the room. The lamella system thus continues to offer a free cross-section of 80 percent. However, an α_w value of 0.6 can be achieved with this combination.

The HAUFE acoustic absorber is above the slat system and can be attached in the direction of the slats and the mounting rail. The absorbers are between 600 mm and 1,250 mm long, 100 – 300 mm high and 42 mm wide. The fire protection class of the whole system corresponds to A2, the color is black.

Technical data acoustic absorber:

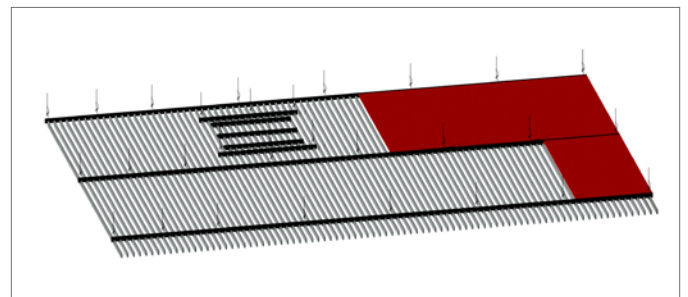
Height:	100/200/300 mm
Length:	600/625/1,200/1,250 mm
Thickness:	42 mm
Color:	white/black
Fire protection class:	A1



Acoustic panel

Of course, our slat systems can also be flat be covered with an acoustically effective board, whereby sound absorption values of up to $\alpha_w = 1.0$ (H) can be achieved. However, this closes the system, which means that additional fire protection systems have to be installed on the second level.

However, the panel can also be attached to the soffit in order to take advantage of the free cross-section of the ceiling.



Acoustic slat system – certified absorption

Absorption with acoustic slats

In conjunction with sound-absorbing walls and floors, sound absorption values of $a_w = 0.40$ (H) according to DIN EN ISO 11654 enable perfect room acoustics without affecting the climatic characteristics of concrete core activation.

Inspection date:
March 28, 2023

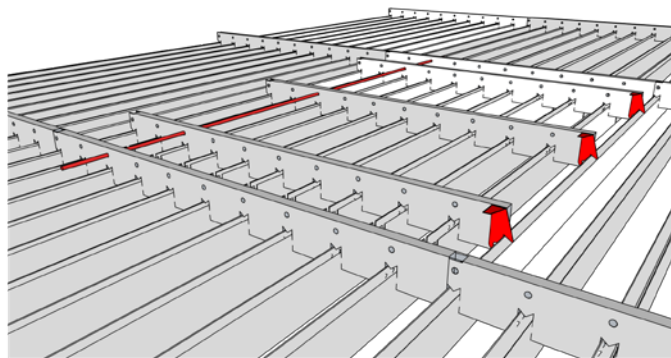
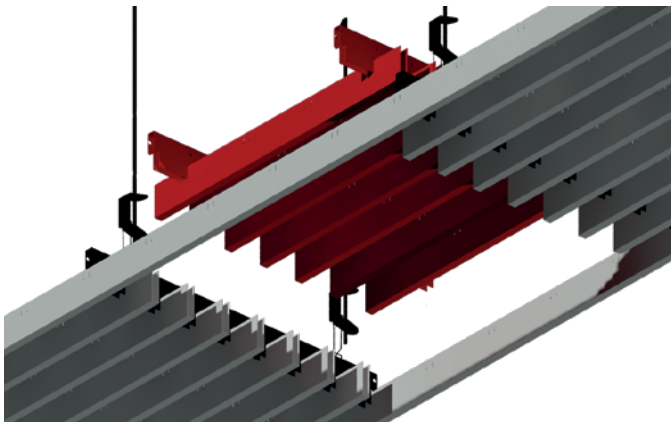
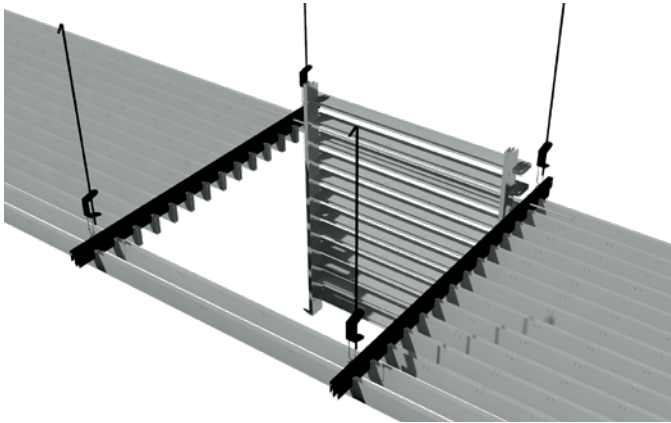
Inspection place:
SG-Bauakustik, Institute for Acoustic Product Optimization,
Schornsheim

Measured values:
The rated degree of absorption according to DIN EN ISO 11654:1997 is $a_w = 0.40$ (H); sound absorption class D

Request for test certificates

Would you like to receive the detailed test certificates of all tested variants? We will be happy to send them to you. Simply contact us by telephone or send us an e-mail to: buero@haufe-deckensysteme.de

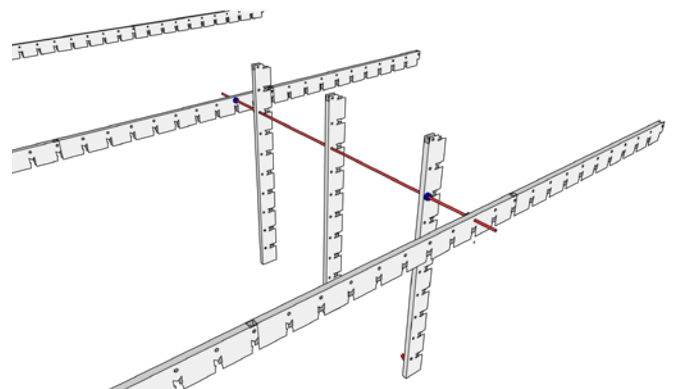
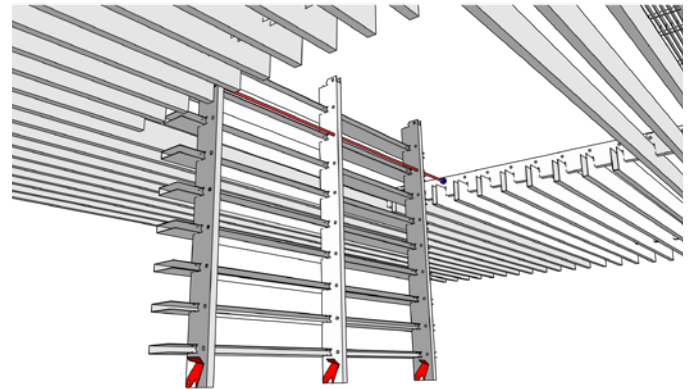
Inspection of HAUFE slat ceilings



Basically, the HAUFE slat ceiling can be inspected very easily. After the slat connector has been slid back into the mounting rail, the slats are pressed together a little and released from the mounting rail holders. For quick access to installations above the ceiling, we recommend an inspection flap that opens downwards. It can be opened by simply sliding back the latch. The dimensions are 600 x 600 mm (other sizes on request).

The inspection element (see figure below) can be removed upwards or downwards. The mounting rail is cut even and provided with four latches for a downward removal. The opening is done by a simple downward removal.

The eyelet wire is not included and has to be provided by the customer.



ZUMTOBEL linear light INLINE



 ZUMTOBEL

Together with Zumtobel, we have developed a luminaire that fits perfectly into our slat ceiling.

Thanks to their low installation height and their excellent glare control, ZUMTOBEL light strips can be easily integrated into the HAUFE slat system across the board. The solution combines aesthetics, light, air conditioning and soundproofing.

There are three variants for different applications without breaking the architectural style:

- recessed lights
- surface-mount modules
- pendant modules

LINK



Accent lights are also available, which can be used either as selective accent lighting or as an accent/linear combination.

ZUMTOBEL linear light INLINE

INLINE recessed light

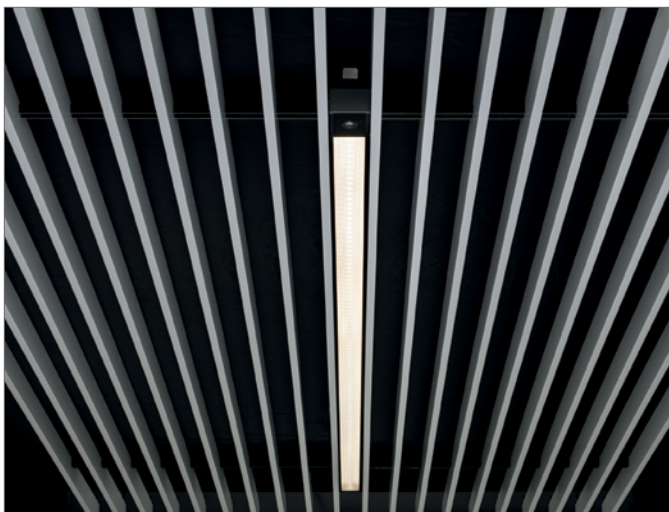
Light strips and recessed lights developed by ZUMTOBEL for the HAUFE slat systems can be integrated into the system across the board. The position of the lights can be determined independently of the position of the mounting rails, since the light strips rest on the slats with tool-free snap holders. The low installation height of 25 mm avoids interrupting the mounting rail.

The system light is routed underneath the mounting rail. This greatly simplifies the interface between the drywaller who installs the slat system and the electrician who usually supplies and installs the lighting. The power supply sits directly on the lamp. The power pack and lamp have a total installation height of 70 mm.

- System luminaires for tool-free integration into HAUFE system ceilings for different slat heights (40 mm and 60 mm)
- Symmetrical wide-beam, homogeneous light distribution with a beam angle of $> 60^\circ$.
- Defined light emission for glare-free light distribution in accordance with EN 12464-2011 with UGR < 19
- Luminaire luminous flux (DALI dimmable): 1500 lm (16 W), 2000 lm (21 W), 2500 lm (26 W), 3000 lm (32 W)
- Colour rendering index: Ra > 90
- Colour temperature: 3000 K (LED930: warm white) or 4000 K (LED940: neutral white), 3500 K on request
- Enclosure colour in black or white (other colours on request)
- Integration of emergency lighting central battery systems according to EN 60598-2-22



Einbauleuchte



recessed light white with sensor



recessed light black with sensor

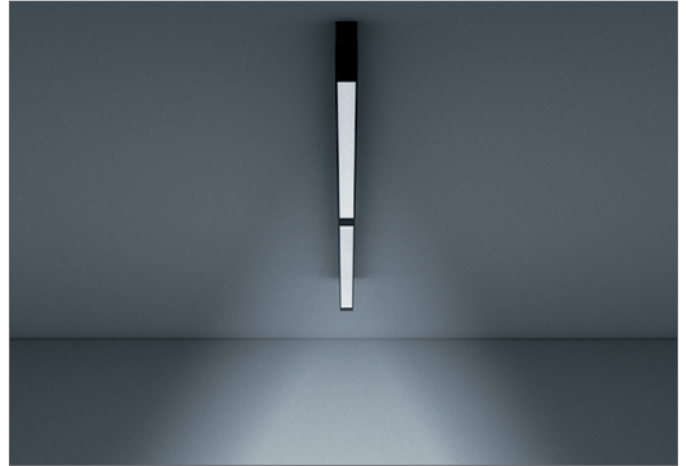
Advice and sales are provided exclusively by our system partner ZUMTOBEL:

Germany: Albert.Pummer@zumtobelgroup.com
Austria: Roman.Brandstaetter@zumtobelgroup.com

ZUMTOBEL linear light INLINE

INLINE surface-mount module

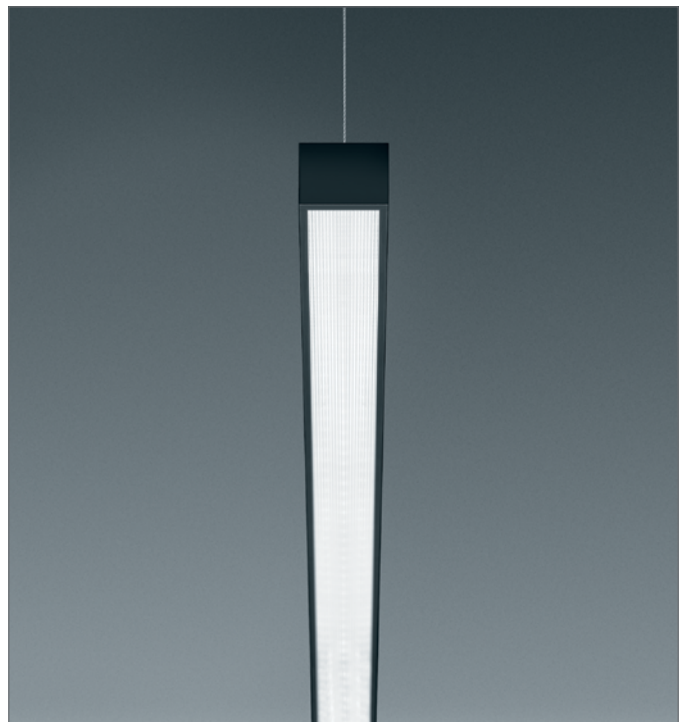
- LED surface-mounted in compact, slimline design and the same design as the Supersystem inline recessed module
- LED driver in the ceiling rose provides a central location for the feed (outlet)
- Intuitive height adjustment via patented suspension mechanism, maximum suspension length 3m
- Connected load: 21 W, 26W or 32 W
- Module lengths: 750 mm, 1000 mm, 1200 mm and 1500 mm
- Symmetric, wide beam, uniform light distribution with 60° beam angle
- Defined light emission for glare-free light distribution in accordance with EN 12464-2011 with UGR < 19
- Light control via a high-quality aluminium-sputtered primary reflector unit made of polycarbonate (PC) in combination with a multilayer MPO+ micro-pyramidal optic
- Further variants available in OPAL and UGR < 22
- Colour rendering index: Ra > 90
- For use with 220 V DC central battery in compliance with EN 60598-2-22



INLINE light as surface-mount module

INLINE Pendelleuchte

- Intuitive height adjustment via patent hanger, maximum pendulum length 3m
- LED pendant module in compact, slimline design and the same design as the Supersystem inline recessed module
- LED driver in the ceiling rose provides a central location for the feed (outlet)
- Intuitive height adjustment via patented suspension mechanism, maximum suspension length 3m
- Connected load: 21 W, 26W or 32 W
- Module lengths: 750 mm, 1000 mm, 1200 mm and 1500 mm
- Symmetric, wide beam, uniform light distribution with 60° beam angle
- Defined light emission for glare-free light distribution in accordance with EN 12464-2011 with UGR < 19
- Light control via a high-quality aluminium-sputtered primary reflector unit made of polycarbonate (PC) in combination with a multilayer MPO+ micro-pyramidal optic
- Further variants available in OPAL and UGR < 22
- Colour rendering index: Ra > 90



INLINE light as pendant module

ZUMTOBEL linear light INLINE

INLINE accent lights

- System luminaires for tool-free integration into HAUFE system ceilings for different slat heights (40 mm and 60 mm)
- 6 miniaturised single light heads in linear arrangement
- Mounting: with fixing springs in the slatted ceiling
- Reflector in the colours white, copper and aluminium
- Colour temperature: 3000 K (LED930: warm white) or 4000 K (LED940: neutral white)
- High colour rendering CRI>90



Point accent lighting



accent/linear combination

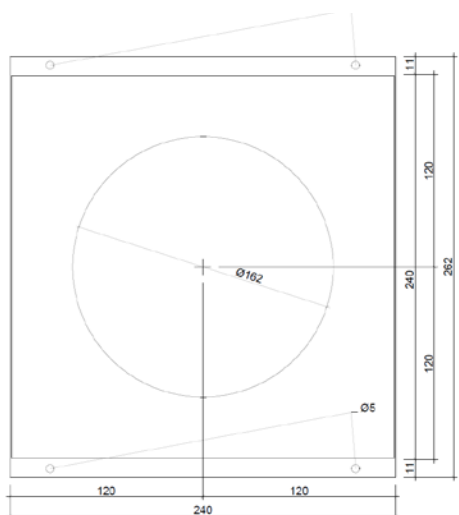


triple combination of accent lights

Module panels

Recessed luminaires, motion detectors, sprinkler systems, etc. are fitted into the slat system using module panels. You can get these from us. The module panels are custom made and varnished in ceiling color.

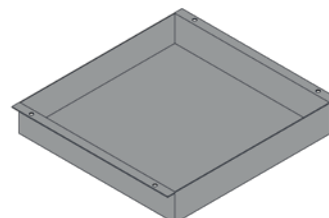
Apart from type A and type B, we can provide other variants on request.



Example of a module panel with the dimensions 240 x 240 x 41 mm and a round cut-out for installations with a diameter $d = 162$ mm

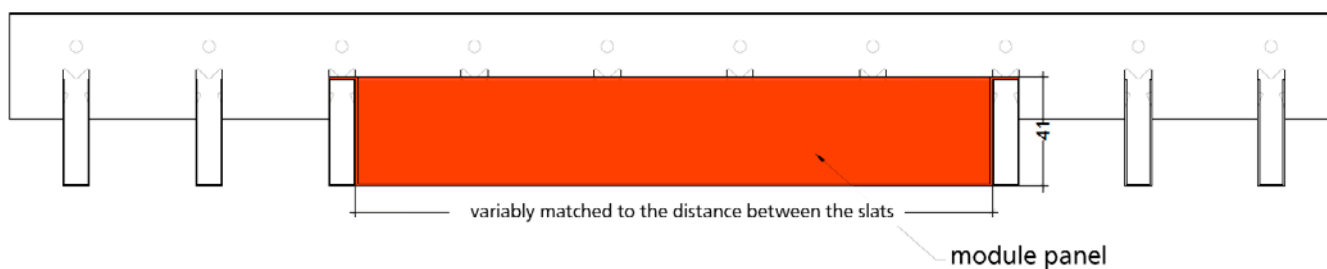
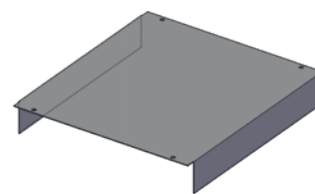
Type A

Module panel type A is flush with the bottom edge of the slat and is considered the standard variant.

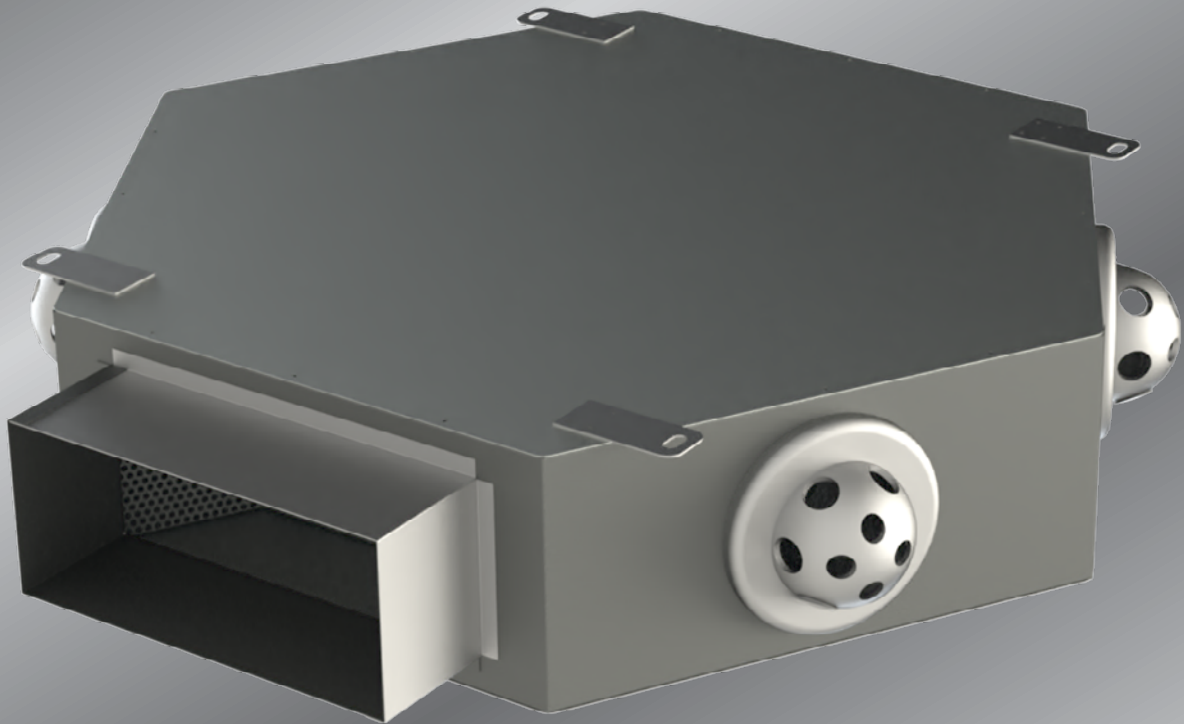


Type B

Module panel type B is flush with the upper edge of the slat.



HAUFE Air diffuser for open ceiling systems



We have had an innovative air outlet developed especially for the HAUFE lamella ceiling. It can be installed invisibly and in a space-saving manner on the ceiling.

With the low construction height of 180 mm and a recommended distance of 40 mm to the upper edge of the lamella ceiling, total construction heights (incl. lamella ceiling) of 285 to 305 mm can be realised. Since there is no physical connection to the slat ceiling, both the slat ceiling and the ventilation system can be installed without interface problems.

Although the air outlet can move an air volume of 300 m³/h at 30 dB (A), there are no noticeable draughts when the room air is mixed. The exhaust air unit, which is almost identical in construction, transports up to 600 m³/h of exhaust air out of the room.

The cooling capacity of the HAUFE surface temperature control can be increased in conjunction with this air diffuser. Compared to a slot diffuser, you can count on uncomplicated installation and at the same time have a very good price-performance ratio.

HAUFE Air diffuser for open ceiling systems

Fields of application

The air diffuser for open ceiling systems LOD is suitable for use in supply and return air installations, for direct connection to the duct system and it is suitable for VAV systems with variable volume flows. The air diffuser is placed directly above an open ceiling system on the raw ceiling.

Function

Both in cooling and heating mode, the air diffuser for open ceiling systems LOD generates a very high induction after blowing out the supply air, thus effectively reducing air velocity and temperature above the open ceiling system. The supply air flows out evenly over a large area and descends into the occupied area at a very low velocity. The field of application of the LOD in cooling mode is at Δt of ≤ -8 K. The supply and return air diffusers are supplied with air or connected directly to the duct system.

Volumetric flow range

Depending on the selected size and model, the volume flow range of the LOD is 35 dB(A) at approx. 670 m³/h in the supply air and in the return air, use in VAV systems of 100 - 40% possible.

Technical info:

- Can be mounted above the HAUFE slatted ceiling
- No trade interfaces ventilation/ceiling
- Mounting to the raw ceiling (sound decoupled)
- „invisible“ black lacquered
- No disturbance of the ceiling optics
- Supply air in cooling mode $\Delta T = 8$ K
- 300m³/h at $L_{wa} = 30$ dB(A)
- Overall height 180mm
- Distance to top edge of ceiling construction ideally 50mm
- Distance between air outlets ideally > 3m

Heating

- 350m³/h per diffuser, $LW = 5$ 1/h
- Sound power $L_{wa} = 35$ dB(A)
- Discharge height 4m
- Flow temperature ceiling 30°C
- Supply air temperature 22°C, $\Delta T = 6$ K
- Room mixing within a very short time
- Vertical temperature curve corresponds to DIN EN ISO 7730
- category A

Cooling

- 235m³/h per diffuser
- $L_{wa} = 27$ dB(A)
- $\Delta T = 6$ K Cooling

LINK



rectangular connection (standard)



round connection