

Concepts

Products

Service



## Multifunctional in all areas.

Lindner Canopy Ceilings and Plafotherm® Heated/Chilled Canopy Ceilings



**Lindner**

Building New Solutions

# Building new solutions.

Lindner undertakes major projects worldwide in all areas of interior fit-out, insulation technology, industrial services and building facades. From pre-planning through to project completion Lindner is your partner of choice.

The Company's extensive manufacturing capability enables quality to be strictly maintained whilst allowing maximum flexibility to meet individual project requirements.

Environmental considerations are fundamental to all Lindner's business principles.

Through partnerships with clients Lindner turns concepts into reality.

## Choosing Lindner you have:

**Lindner Concepts:**  
Tailored solutions specifically geared to satisfy individual project requirements

**Lindner Products:**  
Quality materials and systems to the very highest industry standards

**Lindner Service:**  
Comprehensive project management services

# Lindner Canopy Ceilings

We have developed metal canopy ceilings which meet the demand for functionality, high quality and technical requirements to be combined with design. Moreover, the canopy ceiling can be equipped with heating and cooling technology guaranteeing pleasant temperatures.

From perfect cooling to improved room acoustics and integration of lighting, sprinklers and ventilation systems, these canopy ceilings underscore the individuality of your rooms. Impress with our beautifully designed canopy systems.

Our professional team of developers, sales people and project leaders work closely with you to achieve individual solutions for your project in terms of capacity, aesthetics, acoustics and much more.



## Your benefits at a glance

- Many different arrangements and designs
- Integrated Plafotherm® Heating and Cooling Systems create a pleasant temperature
- Factory-assembled elements that are particularly easy to install
- Smoothly integrated Lindner Lighting Systems
- Wide choice of perforations
- Outstanding acoustics

# Content

## **LMD Canopy Ceilings**

Thermal activation	9
LMD-DS 312	10
LMD-DS 313	11
LMD-DS 320	12
Sound absorption	14
Building material class	14

## **Plafotherm® Heated/Chilled Canopy Ceilings**

Plafotherm® DS 312 / 313 / 320	16 - 17
Heating and Cooling	18
Building material class	19
Sound absorption	20
Plafotherm® DS Tabs	22
Heating and Cooling	23
Sound absorption	23
Plafotherm® DSTAS	24
Heating and Cooling	25 - 26
Sound absorption	26

## **Hydraulic Components**

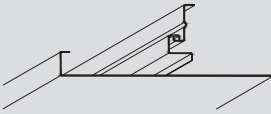
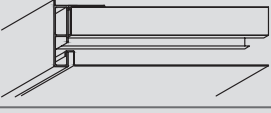
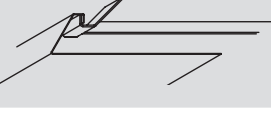
## **Lindner Lighting systems**

## **Surfaces**

## **Green Building**



# LMD Canopy Ceilings

System			Page
LMD-DS 312		<b>Metal Canopy Ceiling without frame</b> without circumferential frame, ceiling panels removable	10
LMD-DS 313		<b>Metal Canopy Ceiling with frame</b> with circumferential frame, removable ceiling panels with Swing-Down option	11
LMD-DS 320		<b>Metal Canopy Ceiling in filigree optics</b> large format canopy ceiling, expandable on the short side	12



Belsenpark, Düsseldorf, Germany





DATEV, Nuremberg, Germany

## Tested quality



Building material class A2-s1, d0 tested to EN 13501-1  
Class A (IBC) tested to ASTM E84  
Class 0 tested to BS 476 part 6 / 7



Light reflectance approx. 82 %  
9010 acc. to Lindner,  
unperforated tested to DIN 5033



Sound absorption  
up to sound absorption class A  
tested to ISO 11654



Durability  
exposure class A  
tested to EN 13964, table 8 and 9



Environmental product declarations  
validated to ISO 14025

## Certification / Regulations



Execution of the system ceilings  
tested to EN 13964



Quality standard according to the  
technical regulations of TAIM  
(Association of Industrial Metal Ceiling  
Manufacturers TAIM e. V.)

## Technical data

<b>Canopy Ceiling</b>	Canopy length/width and panel length/width depending on the system, made of zinc-galvanised steel, powder-coated, aluminium available on request
<b>Edges</b>	Angled or square
<b>Perforation</b>	Available in all standard perforations depending on panel dimensions resp. material, see Surface Brochure
<b>Surface</b>	Electrostatically applied powder-coating further surfaces see Surface Brochure
<b>Colour</b>	9010 acc. to Lindner, other colours in RAL and NCS available
<b>Substructure</b>	Profile manufactured from aluminium or galvanised sheet steel, roll-formed or bent steel profile including suspension
<b>Relevant norms</b>	DIN EN 10152 / 10327 / 13964, DIN EN ISO 12944





SWR, Stuttgart, Germany  
© Achim Birnbaum



# Thermal activation

For areas with increased performance requirements, we offer the possibility to combine an existing thermal activation of building components of a concrete ceiling with Lindner canopy ceilings. Thus, the optics can be improved and the sound absorption can be increased.



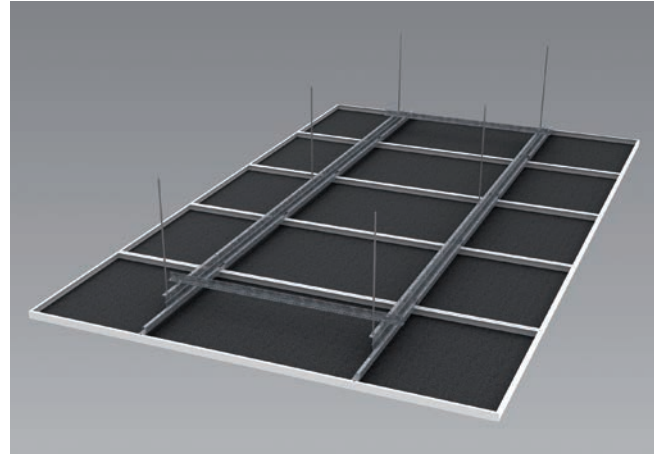
- 1 Thermally activated concrete ceiling
- 2 LMD-DS / Plafotherm® DS Canopy ceiling
- 3 Free convection

## Your benefits at a glance

- The influence on the cooling capacity of a thermally activated concrete ceiling with suspended Lindner canopy ceilings is very low (depending on the suspension height and arrangement)
- Outstanding acoustics due to perforated metal canopy ceilings
- Smoothly integrated Lindner Lighting Systems
- Numerous design possibilities due to floating optics
- Wide choice of surfaces

# LMD-DS 312

Metal Canopy Ceiling without circumferential frame, ceiling panels removable

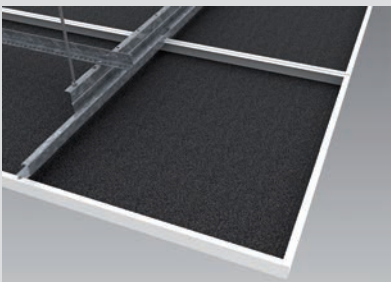
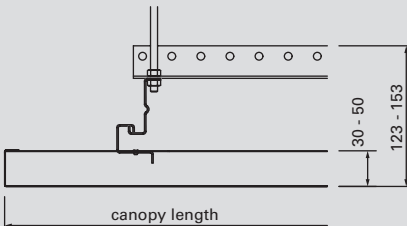


This canopy ceiling satisfies by its simplicity. It consists of multiple powder-coated ceiling panels which are suspended from a concealed substructure to form a canopy ceiling. Recessed and surface-mounted light fittings can be easily integrated. The panels can be removed individually, making maintenance easy. The canopy ceiling meets the highest acoustic requirements when used with effective inlays.

### Advantages:

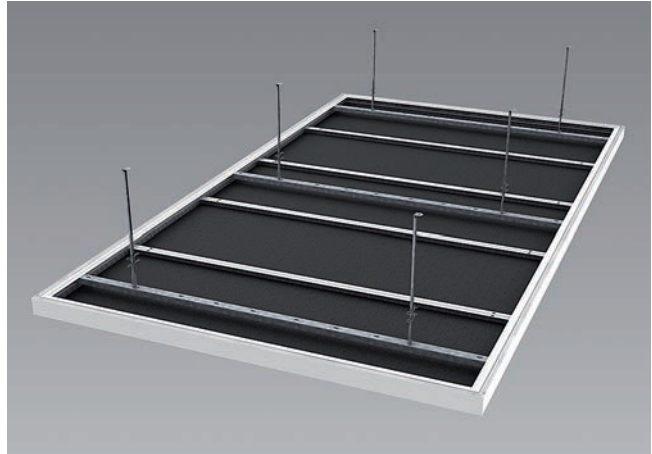
- Individual installation or installation in series
- Each ceiling panel can be removed individually
- Improves the acoustics in your rooms
- Integration of recessed and surface-mounted light fittings
- Different sizes and layouts available

## Standard design

Canopy ceiling	Method of installation	Material
		<p>Canopy length: depending on requirements Canopy width / panel length: up to 3,000 mm Panel width: up to 1,250 mm</p>

# LMD-DS 313

Metal Canopy Ceiling with circumferential frame, removable ceiling panels with Swing-Down option

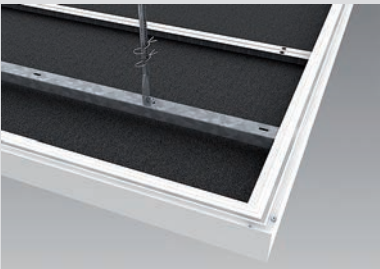
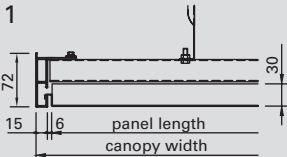
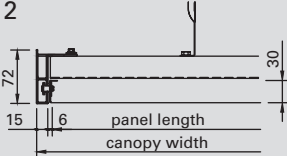


This canopy ceiling consists of a powder-coated surrounding frame, installed with a concealed sub-structure and Lay-In or Swing-Down ceiling panels. These canopy ceilings can be installed individually or in series. Recessed and surface-mounted light fittings can be easily integrated. Perforated canopy ceilings can be provided with acoustically effective inlays, thus meeting maximum acoustic requirements.

#### Advantages:

- Individual installation or installation in series
- Each ceiling panel can be individually removed and also be made to swing down
- Improves the acoustics in your rooms
- Integration of recessed and surface-mounted light fittings
- Different sizes and layouts available
- Modular construction thanks to the aluminium profile frame

## Standard design

Canopy ceiling	Method of installation	Material
	<p>Type 1</p>  <p>Type 2</p> 	<p>Canopy length: depending on requirements Canopy width: up to 2,241 mm Panel width: up to 1,000 mm Panel length: up to 2,199 mm</p>

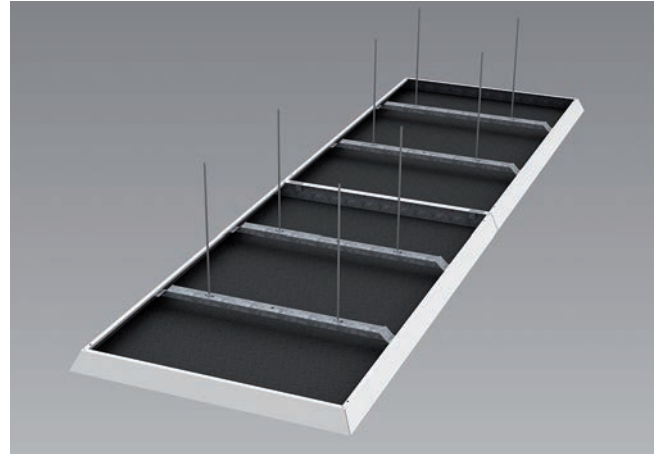


# LMD-DS 320

Metal Canopy Ceiling in filigree optics – Large format canopy ceiling, expandable on the short side



Büro- und Ärztehaus, Leutkirch, Germany

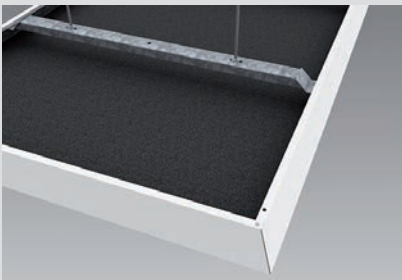
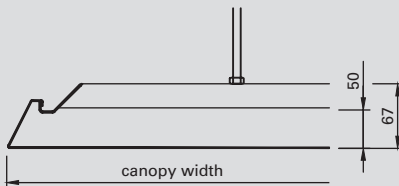


This is a removable canopy system. The angled edges provide a finely detailed visual effect: the system can be installed as individual panels or in series. The suspension system is determined on a project-by-project basis, depending on shape and dimensions required. Outstanding sound absorption is achieved with acoustically effective inlays. In addition, recessed and surface-mounted light fittings can be easily integrated, giving a pleasing visual effect.

**Advantages:**

- Angled edges optionally create a finely detailed visual effect
- Each ceiling panel can be individually removed
- Improves the acoustics in your rooms
- Integration of recessed and surface-mounted light fittings

## Standard design

Canopy ceiling	Method of installation	Material
		<p>Canopy length: depending on requirements Canopy width / panel width: up to 1,250 mm Panel length: up to 2,950 mm</p>





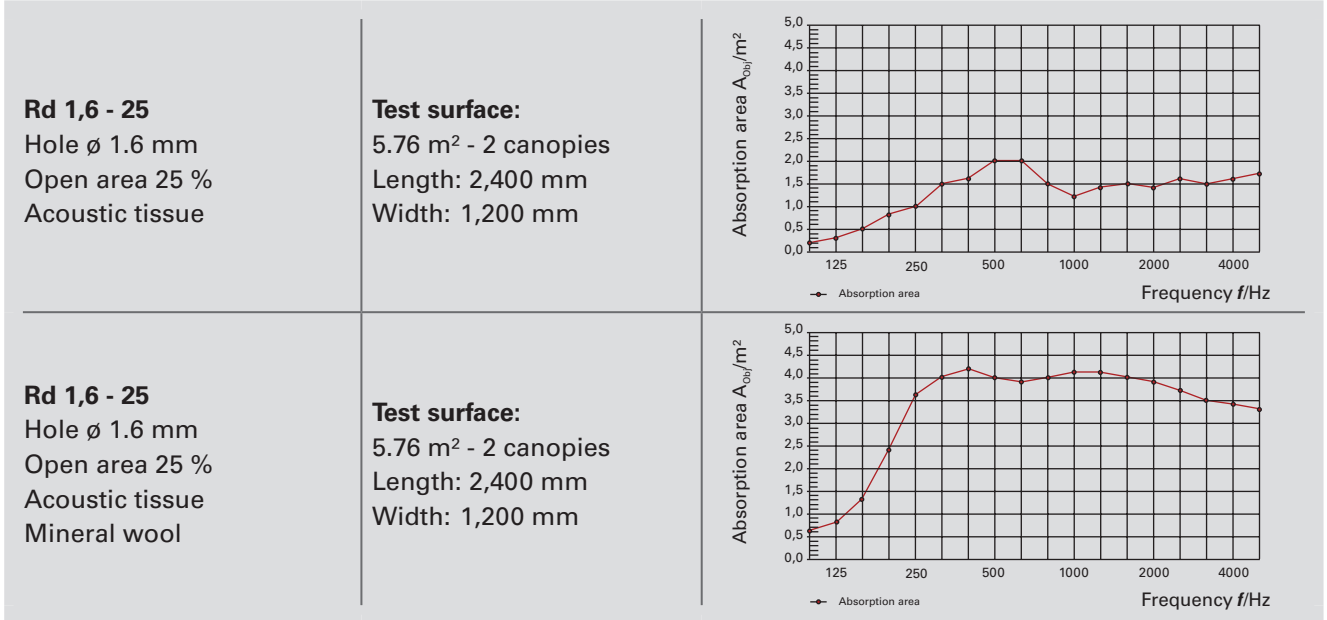
Büro- und Ärztehaus, Leutkirch, Germany





# Sound absorption

Example of the range of standard perforations available for ceilings **without** Heating and Cooling Technology. The sound absorption capacity is indicated as equivalent sound absorption area per canopy  $A_{obj}$ .



# Building material class

Product	Building material class	
<p><b>Metal ceiling panel</b> Metal ceiling panel manufactured from galvanized sheet steel, including powder-coated surface in colour 9010 acc. to Lindner and bonded acoustic tissue on the reverse side</p>	<p>A2-s1, d0 tested to EN 13501-1</p>	
<p><b>Mineral wool inlay</b> Mineral wool shrink-wrapped in acoustic transparent foil</p> <p>Insula A2 Insula I Insula Basic</p>	<p>A2-s1, d0 tested to EN 13501-1 B1 tested to DIN 4102-1 B2 tested to DIN 4102-1</p>	





# Plafotherm® Heated/Chilled Canopy Ceilings

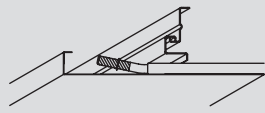
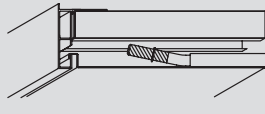
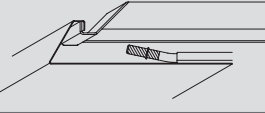
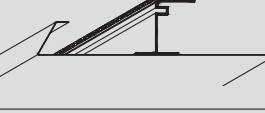
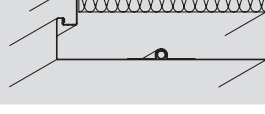


The integrated Heating and Cooling Technologies of Plafotherm® DS create a pleasant temperature for any living and working environment. The tried and tested canopy ceiling system ensures safe handling. We will be glad to give your metal canopy ceiling a distinctive look by applying one of our many eye-catching Lindner surfaces.



Fein Kompetenzzentrum, Schwäbisch-Gmünd, Germany

## Programme

System			Page
Plafotherm® DS 312		<b>Heated and Chilled Canopy Ceiling without frame</b> without circumferential frame, ceiling panels removable	-
Plafotherm® DS 313		<b>Heated and Chilled Canopy Ceiling with frame</b> with circumferential frame, removable ceiling panels with Swing-Down option	-
Plafotherm® DS 320		<b>Heated and Chilled Canopy Ceiling in filigree optics</b> large format canopy ceiling, expandable on the short side	-
Plafotherm® DS Tabs		<b>Metal Canopy Ceiling for concrete core activation</b> large format canopy ceiling for thermally activated components	22 - 23
Plafotherm® DS TAS		<b>Hybrid Heated and Chilled Canopy Ceiling</b> thermo-active canopy ceiling for subsequent concrete core working	24 - 26

## Tested quality



Building material class A2-s2, d0  
tested to EN 13501-1



Light reflectance approx. 82 %  
9010 acc. to Lindner,  
unperforated tested to DIN 5033



Sound absorption  
up to sound absorption class A  
tested to ISO 11654



Durability  
exposure class A  
tested to EN 13964, table 8 and 9



Environmental product declarations  
validated to ISO 14025



Nominal cooling capacity up to 162 W/m<sup>2</sup>  
tested to DIN EN 14240 (10 K)  
Nominal heating capacity up to 199 W/m<sup>2</sup>  
tested to DIN EN 14037 (15 K)

## Certification / Regulations



Execution of the system ceilings  
tested to EN 13964



Quality standard according to the  
technical regulations of TAIM  
(Association of Industrial Metal Ceiling  
Manufacturers TAIM e. V.)



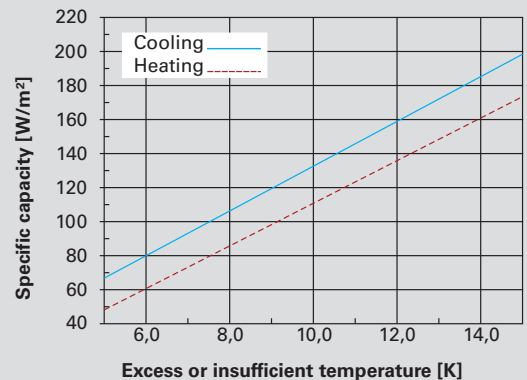
# Plafotherm® DS 312 / 313 / 320



## Heating and Cooling

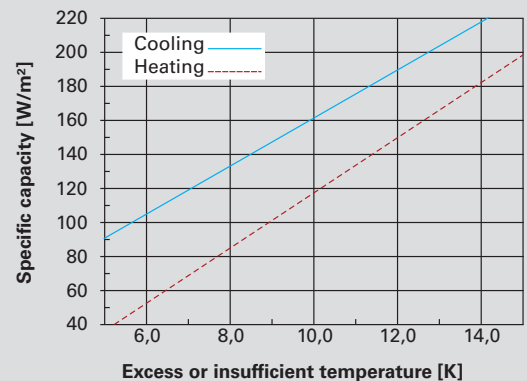
### Heat conducting profile with Cu-pipe fret

<b>Heating/Cooling technology</b>	consisting of aluminium heat conducting profile with copper pipe fret, integrated into ceiling panel for thermal conductivity
<b>Heat conducting profile</b>	aluminium profile plain or perforated, standard widths of 80 and 120 mm
<b>Pipe fret</b>	copper coil, 12 x 0.5 mm or 12 x 0.75 mm
<b>Water volume</b>	approx. 1 l/m <sup>2</sup>
<b>Centre distance</b>	from 90 mm on
<b>Nominal cooling capacity acc. to DIN EN 14240 (10K)</b>	132 W/m <sup>2</sup>
<b>Nominal heating capacity acc. to DIN EN 14037 (15K)</b>	174 W/m <sup>2</sup>



### Graphite panel with Cu-pipe fret

<b>Heating/Cooling technology</b>	consisting of graphite panel with copper pipe fret, integrated into ceiling panel for thermal conductivity
<b>Heat conducting profile</b>	heat conducting graphite panel plain or perforated
<b>Pipe fret</b>	copper coil, 12 x 0.5 mm
<b>Water volume</b>	approx. 1 l/m <sup>2</sup>
<b>Centre distance</b>	100 mm
<b>Nominal cooling capacity acc. to DIN EN 14240 (10K)</b>	162 W/m <sup>2</sup>
<b>Nominal heating capacity acc. to DIN EN 14037 (15K)</b>	199 W/m <sup>2</sup>



### Excess or insufficient temperature $\Delta T$ in [K]

$$\Delta T_K = \vartheta_R - \frac{\vartheta_{VL} + \vartheta_{RL}}{2}$$

$$\Delta T_H = \frac{\vartheta_{VL} + \vartheta_{RL}}{2} - \vartheta_R$$

$\Delta T_K$  = insufficient temperature (cooling application) [K]

$\Delta T_H$  = excess temperature (heating application) [K]

$\vartheta_R$  = room temperature [°C]

$\vartheta_{VL}$  = flow temperature [°C]

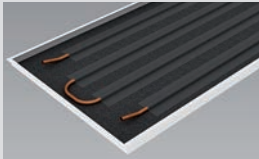
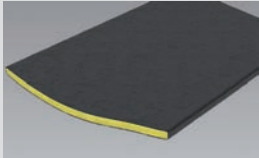
$\vartheta_{RL}$  = return-flow temperature [°C]

### Recommended operating data

Supply temperature (Cooling)	15 - 17 °C
Temperature spread	2 - 4 K
Supply temperature (Heating)	30 - 35 °C
Temperature spread	4 - 6 K
Recommended pressure drop	25 - 30 kPa



# Building material class

Product	Building material class	
<b>Plafotherm® metal ceiling panel</b> Metal ceiling panel manufactured from galvanized sheet steel, including powder-coated surface in colour 9010 acc. to Lindner, bonded acoustic tissue on the reverse side and heat conducting profile	A2-s2, d0 tested to EN 13501-1	
<b>Insula Mineral wool inlay</b> Mineral wool shrink-wrapped in acoustic transparent foil  Insula A2 Insula I Insula Basic	A2-s1, d0 tested to EN 13501-1 B1 tested to DIN 4102-1 B2 tested to DIN 4102-1	



SWR, Stuttgart, Germany  
© Achim Birnbaum



# Sound absorption

Example of possible standard perforations for Heated and Chilled Ceilings with heat conducting profiles. The sound absorption capacity is indicated as equivalent sound absorption area per canopy  $A_{Obj}$ .

## Standard heat conducting profile

<p><b>Rv 2,0 - 20</b>            Hole <math>\varnothing</math> 2.0 mm            Open area 20 %            Acoustic tissue            heat conducting profile            with Cu-pipe fret</p>	<p><b>Test surface:</b>            7.2 m<sup>2</sup> - 3 canopies            Length: 1,725 mm            Width: 1,390 mm</p>	<table border="1"> <caption>Approximate data for Rv 2,0 - 20 (Acoustic tissue)</caption> <thead> <tr> <th>Frequency f/Hz</th> <th>Absorption area <math>A_{Obj}/m^2</math></th> </tr> </thead> <tbody> <tr><td>125</td><td>0.2</td></tr> <tr><td>250</td><td>1.2</td></tr> <tr><td>375</td><td>1.7</td></tr> <tr><td>500</td><td>1.8</td></tr> <tr><td>625</td><td>1.7</td></tr> <tr><td>1000</td><td>1.1</td></tr> <tr><td>2000</td><td>1.1</td></tr> <tr><td>4000</td><td>1.0</td></tr> </tbody> </table>	Frequency f/Hz	Absorption area $A_{Obj}/m^2$	125	0.2	250	1.2	375	1.7	500	1.8	625	1.7	1000	1.1	2000	1.1	4000	1.0
Frequency f/Hz	Absorption area $A_{Obj}/m^2$																			
125	0.2																			
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625	1.7																			
1000	1.1																			
2000	1.1																			
4000	1.0																			
<p><b>Rv 2,0 - 20</b>            Hole <math>\varnothing</math> 2.0 mm            Open area 20 %            Acoustic tissue            Mineral wool            heat conducting profile            with Cu-pipe fret</p>	<p><b>Test surface:</b>            7.2 m<sup>2</sup> - 3 canopies            Length: 1,725 mm            Width: 1,390 mm</p>	<table border="1"> <caption>Approximate data for Rv 2,0 - 20 (Mineral wool)</caption> <thead> <tr> <th>Frequency f/Hz</th> <th>Absorption area <math>A_{Obj}/m^2</math></th> </tr> </thead> <tbody> <tr><td>125</td><td>0.5</td></tr> <tr><td>250</td><td>1.8</td></tr> <tr><td>375</td><td>2.4</td></tr> <tr><td>500</td><td>2.5</td></tr> <tr><td>625</td><td>2.4</td></tr> <tr><td>1000</td><td>2.3</td></tr> <tr><td>2000</td><td>1.8</td></tr> <tr><td>4000</td><td>1.5</td></tr> </tbody> </table>	Frequency f/Hz	Absorption area $A_{Obj}/m^2$	125	0.5	250	1.8	375	2.4	500	2.5	625	2.4	1000	2.3	2000	1.8	4000	1.5
Frequency f/Hz	Absorption area $A_{Obj}/m^2$																			
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625	2.4																			
1000	2.3																			
2000	1.8																			
4000	1.5																			

## 50 % acoustically effective heat conducting profiles

<p><b>Rg 2,5 - 16</b>            Hole <math>\varnothing</math> 2.5 mm            Open area 16 %            Acoustic tissue            50 % acoustically effective            heat conducting profiles</p>	<p><b>Test surface:</b>            8 m<sup>2</sup> - 2 canopies            Length: 5,000 mm            Width: 800 mm</p>	<table border="1"> <caption>Approximate data for Rg 2,5 - 16 (Acoustic tissue)</caption> <thead> <tr> <th>Frequency f/Hz</th> <th>Absorption area <math>A_{Obj}/m^2</math></th> </tr> </thead> <tbody> <tr><td>125</td><td>0.2</td></tr> <tr><td>250</td><td>1.5</td></tr> <tr><td>375</td><td>2.5</td></tr> <tr><td>500</td><td>3.2</td></tr> <tr><td>625</td><td>3.5</td></tr> <tr><td>1000</td><td>3.4</td></tr> <tr><td>2000</td><td>2.5</td></tr> <tr><td>4000</td><td>1.8</td></tr> </tbody> </table>	Frequency f/Hz	Absorption area $A_{Obj}/m^2$	125	0.2	250	1.5	375	2.5	500	3.2	625	3.5	1000	3.4	2000	2.5	4000	1.8
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<p><b>Rg 2,5 - 16</b>            Hole <math>\varnothing</math> 2.5 mm            Open area 16 %            Acoustic tissue            Mineral wool            50 % acoustically effective            heat conducting profiles</p>	<p><b>Test surface:</b>            8 m<sup>2</sup> - 2 canopies            Length: 5,000 mm            Width: 800 mm</p>	<table border="1"> <caption>Approximate data for Rg 2,5 - 16 (Mineral wool)</caption> <thead> <tr> <th>Frequency f/Hz</th> <th>Absorption area <math>A_{Obj}/m^2</math></th> </tr> </thead> <tbody> <tr><td>125</td><td>0.8</td></tr> <tr><td>250</td><td>2.8</td></tr> <tr><td>375</td><td>4.2</td></tr> <tr><td>500</td><td>4.8</td></tr> <tr><td>625</td><td>4.8</td></tr> <tr><td>1000</td><td>4.0</td></tr> <tr><td>2000</td><td>3.0</td></tr> <tr><td>4000</td><td>2.5</td></tr> </tbody> </table>	Frequency f/Hz	Absorption area $A_{Obj}/m^2$	125	0.8	250	2.8	375	4.2	500	4.8	625	4.8	1000	4.0	2000	3.0	4000	2.5
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500	4.8																			
625	4.8																			
1000	4.0																			
2000	3.0																			
4000	2.5																			





Daimler Werk Sindelfingen und Böblingen, Germany



# Plafotherm® DS Tabs

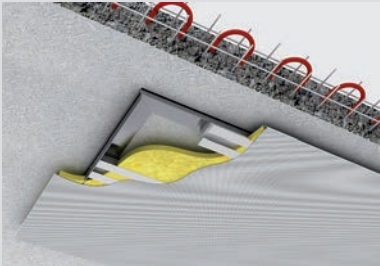
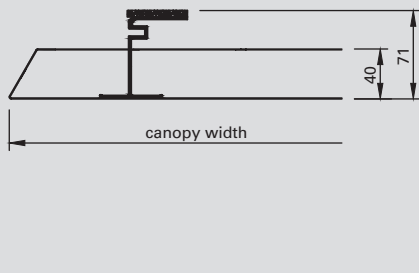
Metal Canopy Ceiling for concrete core activation – Large format canopy ceiling for thermally activated components



Plafotherm® DS Tabs is a thermo-active metal canopy ceiling, which is connected thermally to the concrete core, thus preserving the functionality of the activated concrete ceiling and regulating the room acoustically. The canopy can be made of either aluminium or steel and contains thermally

conductive heat transmission profiles. The connection is coordinated with the used acoustic tissue. To absorb the unevenness of the concrete ceiling, a specially developed heat conducting material is applied to the aluminium profiles, ensuring continuous heat flow through the system.

## Standard design

Canopy Ceiling	Method of installation	Material
		<p>Canopy length: up to 3,000 mm (multi-part) Canopy width: up to 1,400 mm</p>



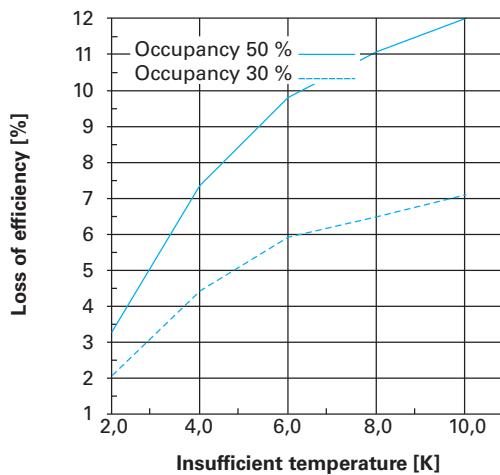
# Heating and Cooling

**Heat conducting technology:** Consisting of aluminium carrier profile and heat conducting material, thermally conductive and connected to the concrete core and the canopy ceiling.

Aluminium carrier profile: Aluminium extruded section as carrier profile and heat conducting profile, manufactured to DIN EN 12020.

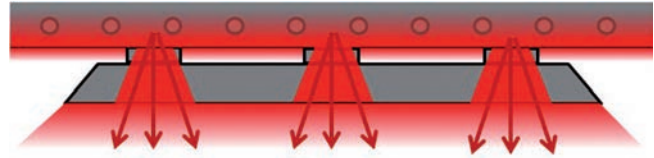
Heat conducting material: Absorbs the unevenness of the concrete ceiling and creates a surface-to-surface connection between the canopy and the ceiling.

**Efficiency:** Depending on occupancy, up to 95 % for cooling as well as heating in reference to the activated concrete ceilings.

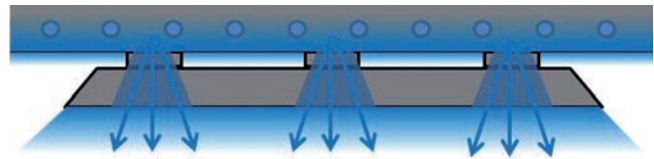


## Modes of operation

Heating



Cooling



# Sound absorption

We have designed our heating and cooling canopies with perforations of varying sizes and configurations. Other options can be found in our Surface Brochure. Specially selected inlays make this ceiling a highly effective acoustic solution.

<b>Rv 1,8 - 19</b> Acoustic tissue Mineral wool 30 mm in PE foil	<b>Test surface:</b> 10 m <sup>2</sup> - 4 canopies Length: 2,000 mm Width: 1,250 mm	$\alpha_w = 0.90$ $SAA / \alpha_{s,m} = 1.09$ $NRC = 1.05$	
<b>Rv 1,8 - 19</b> Acoustic tissue Mineral wool 40 mm in PE foil	<b>Test surface:</b> 10 m <sup>2</sup> - 4 canopies Length: 2,000 mm Width: 1,250 mm	$\alpha_w = 0.95$ $SAA / \alpha_{s,m} = 1.11$ $NRC = 1.05$	
<b>Rv 1,8 - 19</b> Acoustic tissue Mineral wool 30 mm Expanded glass granulate 18 mm	<b>Test surface:</b> 10 m <sup>2</sup> - 4 canopies Length: 2,000 mm Width: 1,250 mm	$\alpha_w = 1.00$ $SAA / \alpha_{s,m} = 1.13$ $NRC = 1.10$	



# Plafotherm® DS TAS

Hybrid Heated and Chilled Canopy Ceiling – Thermo-active canopy ceiling for subsequent concrete core working

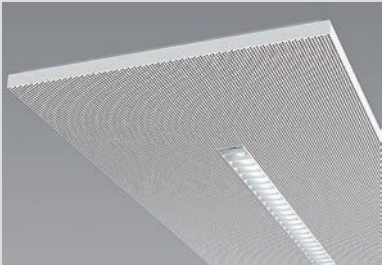
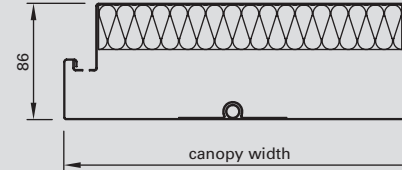


Plafotherm® DS TAS is a thermo-active heated/chilled canopy ceiling for the activation of concrete cores. It is made of aluminium or steel, depending on the requirements. The multifunctional system not only creates feel-good temperatures in your building – integrated lighting fixtures also perfectly illuminate your rooms. The air-ducting aluminium channel is perforated on the back and serves as air diffuser. Plafotherm® DS TAS significantly reduces noise and is available in a wide range of surface finishes.

#### Possible applications:

- Working of the concrete core
- Heating
- Cooling
- Ventilation
- Illumination
- Sound protection
- Design furniture

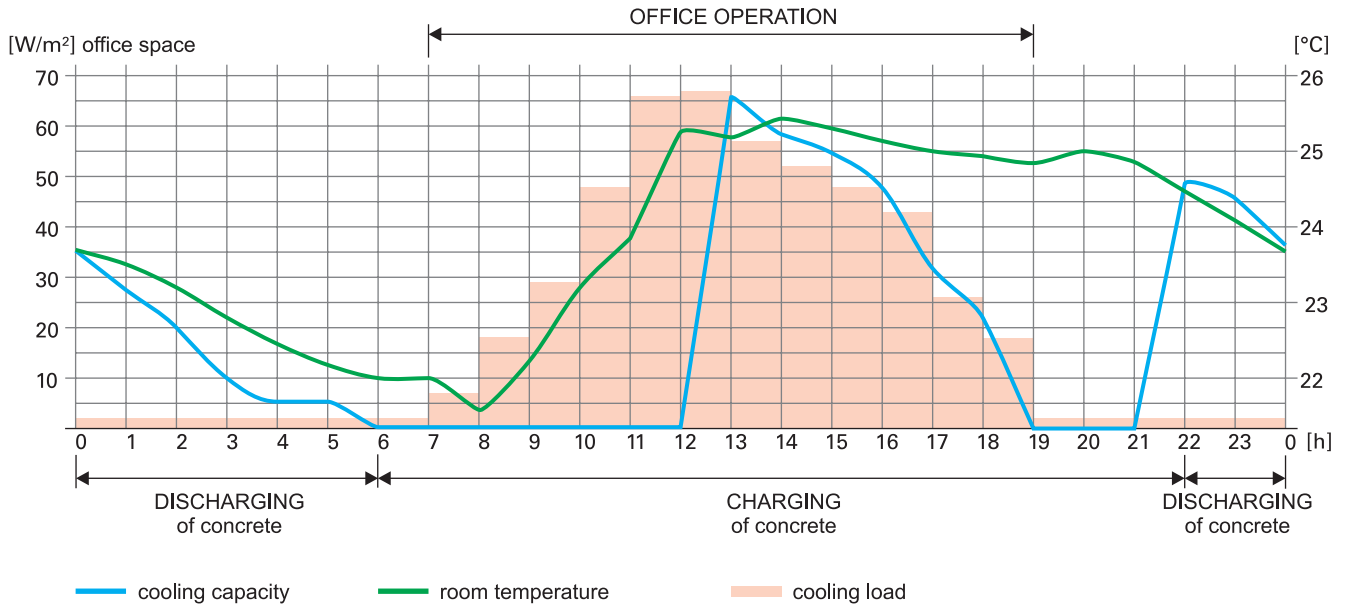
## Standard design

Canopy Ceiling	Method of installation	Material
		<p>Canopy length: up to 9,000 mm Canopy width: up to 1,250 mm</p>



# Heating and Cooling

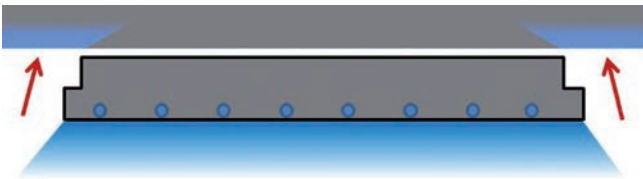
## Diurnal variations in cooling mode



## Modes of operation

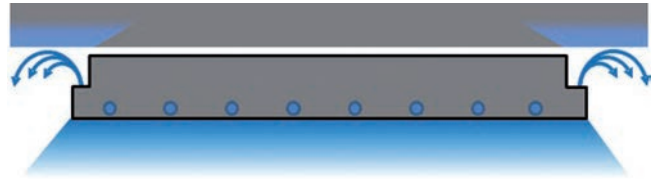
### Night operation

Working of the concrete core



### Peak-load operation

Parallel cooling + supply of fresh air



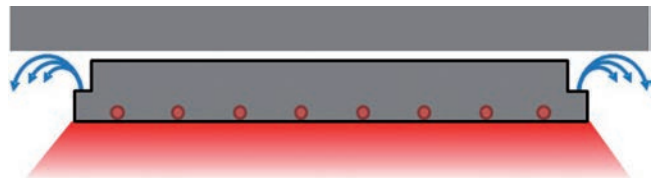
### Standard operation

Discharging of the concrete core + supply of fresh air



### Heat load operation

Heating + supply of fresh air

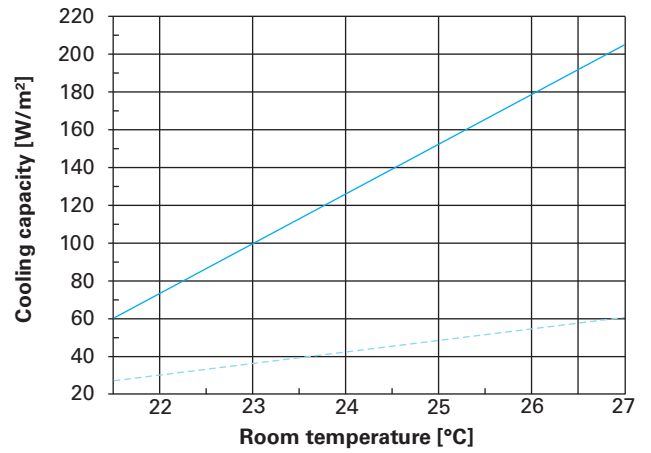


**Total hybrid cooling capacity 152 W/m<sup>2</sup>**

At an insufficient temperature of 8 K, 50 % degree of room occupation, supply air volume 7.5 m<sup>3</sup>/hm<sup>2</sup> floor area and 18 °C supply air temperature.

**Indirect working of the concrete core**

Up to 40 W/m<sup>2</sup>, depending on execution, control strategy and building dynamic.



— Dynamic cooling capacity at 2.5-fold air renewal,  $\vartheta_{zL}$  18 °C, supply of chilled ceiling 16 °C, capacity of working of the concrete core at 50 % occupancy  
 - - - Ventilation capacity



# Sound absorption

Example of possible standard perforations for Heated and Chilled Ceilings with heat conducting profiles. The sound absorption capacity is indicated as equivalent sound absorption area per canopy  $A_{Obj}$ .

<p><b>Rg 1,6 - 13</b>                      Hole <math>\varnothing</math> 1.6 mm                      Open area 13 %                      Acoustic tissue</p>	<p><b>Test surface:</b>                      7.2 m<sup>2</sup> - 2 canopies                      Length: 4,000 mm                      Width: 900 mm</p>	
<p><b>Rg 1,6 - 13</b>                      Hole <math>\varnothing</math> 1.6 mm                      Open area 13 %                      Acoustic tissue                      Mineral wool 30 mm</p>	<p><b>Test surface:</b>                      7.2 m<sup>2</sup> - 2 canopies                      Length: 4,000 mm                      Width: 900 mm</p>	





Wohn- und Geschäftskomplex ARK 143, Bern, Switzerland



# Hydraulic Components

For perfect connections.

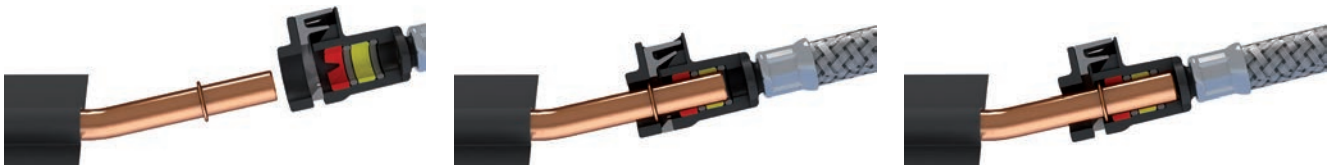
For perfect heating and cooling connections, Lindner provides a great number of hydraulic components and accessory parts.

Advantages:

- Tested system
- One-stop solutions
- Ideal for heating/cooling systems
- Maintained independently from other building trades

## Connection hoses and fittings

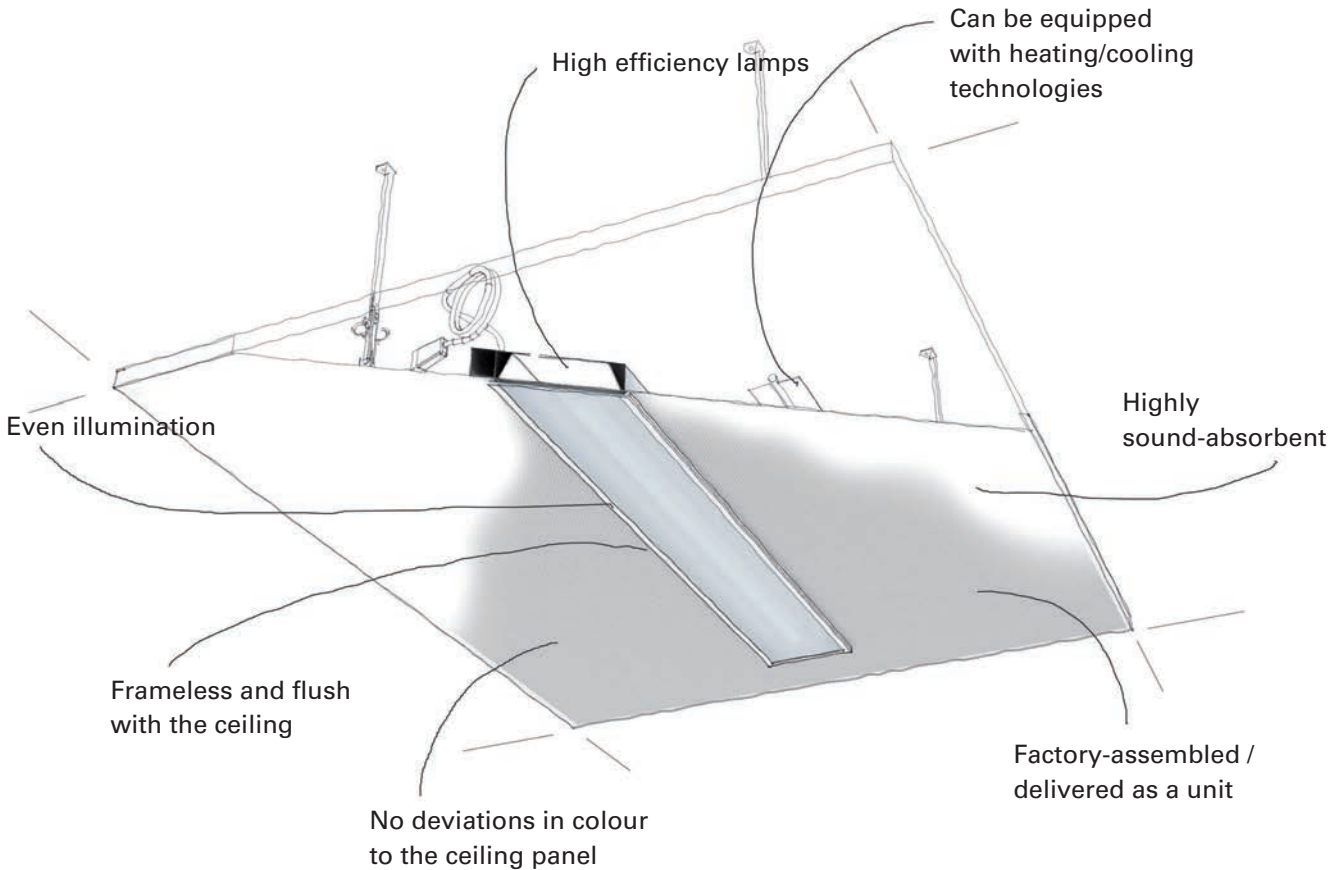
High-grade steel hoses are oxygen impermeable, tested to DIN 4726, and are used as connection hoses. These hoses are perfectly suited to accept a large number of fittings. The quick plug connector MultiQuickConnect does without retaining claws which unnecessarily damage the meanders. Thus, a quick and user-friendly installation and removal is ensured. A locking button that clearly sticks out checks the correct installation and guarantees a positive connection and a secure hold. A system distributor with three outgoing lines completes the system.



# Lindner Lighting systems

Integration is our passion.

Lindner has a wide range of lighting fixtures that fulfill even the most demanding requirements.



## Light Channels

The length and the execution of the light channels can flexibly be adapted to the canopy ceiling length. Moreover, they can be used as supporting element.

## Integrated Luminaires

A wide range of integrated luminaires is available. These luminaires are shapely integrated into ceiling panels. Moreover, they are adapted to the room concept and the lighting quality.

## Pendant Luminaires

The light source can individually be positioned where you need the room to be illuminated. All pendant luminaires are adapted to the geometry of your room.



# Surfaces

Lindner has a wide range of ceiling surfaces for different demands – so that your rooms are not only extraordinary but unique. We apply various colours, patterns, graphics, 3D textures and perforations to your metal ceiling. In particularly challenging areas, we furnish our systems with coatings that are more than just eye-catchers: They create a significant improvement of room quality.



Unilever, Hamburg, Germany



Tsvetnoy Market, Moscow, Russia  
© Chris Gascoigne



Dubai Metro Station, UAE



VR-Bank Heilbronn, Germany  
© Volker Erich Jahr

## Possible surfaces

- Powder Coating
- Design Surface
  - ARTline – Design Powder Coating
  - GRAPHICline – Print Technology
  - EFFECTline – Grinding Technology
  - SPREADline – Customised, image and scattered perforation
- Functional Surfaces
  - Meteo – Corrosion Coating
  - Mutex – Absorber Coating
- Special Surfaces
  - INOXlook – Aluminium with appearance of stainless steel
- Structured Surfaces
  - TOUCHdesign – 3D Surface
  - TOUCHdesign Lunar – 3D high-gloss Surface
  - TOUCHdesign Venas – 3D Structured Surface
  - TOUCHdesign Viva – 3D Expanded Metal Surface
- Expanded Metal
- Perforations



# Green Building

A responsible approach to humans and nature is a matter of course for us as a manufacturer of long lasting ceiling systems in premium quality. We are continuously optimizing our wide range with the objective to further reduce their impact on the environment. Every production step is subject to a thorough control of the ambitious energy, material and quality requirements. This ensures that our clients do not only get a sophisticated product but that they can also rely on the ecological suitability.

Validated environmental product declarations according to ISO 14025 are available for the procedure of proof of the environmental performance of Lindner ceiling systems.



Unilever, Hamburg, Germany



Lindner is a founding member of the German Sustainable Building Council (DGNB) and member of the US Green Building Council. We are actively involved in building up awareness for the principles of sustainable construction and the development of relevant standards.

## Sustainable construction with Lindner ceiling systems:

- Extremely durable products with best functional characteristics and high economic efficiency
- End-to-end procedure of proof of the ecological material characteristics by environmental product declarations
- Consultancy service with all current building certifications, as for example according to DGNB, LEED, BREEAM

## Simply healthier: Lindner ceiling systems.

- High recycling percentage up to 45 %
- VOC values are considerably below the limit according to AgBB / DIBt
- Free from toxicological gases, thus it is toxicologically inoffensive in case of fire according to DIN 53436
- The substances used for pre-cleaning of powder coating are no hazardous substances according to the Ordinance on Hazardous Substances.
- Powder recovery of surface coating of approx. 25 %
- Reference useful life is 70 years according verified EPD
- Up to 30 % of the primary energy demand can be saved with Plafotherm® heated and chilled ceiling systems

## We can do it all for you.

### Lindner Concepts:

- Airports and Railways
- Clean Rooms and Operating Theatres
- Cruise Liner and Ship Fit-out
- General Contracting
- Hotels and Resorts
- Insulation and Industrial Service
- Interior Fit-out and Furnishings
- Special-Purpose Constructions and Stadiums
- Studios and Concert Halls
- System Buildings

### Lindner Products:

- Ceiling Systems
- Doors
- Dry Lining Systems
- Facades
- Floor Systems
- Heating and Cooling Technologies
- Lights and Lighting Systems
- Partition Systems
- Roofing Systems
- Steel & Glass

### Lindner Service:

- Clearance of Harmful Substances
- Construction Management and Project Development
- Deconstruction and Interior Demolition
- General Planning
- Global Product Supplies
- Green Building
- Industrial Scaffolding
- Installation and Building Services
- Research and Development

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