

**LΛB RΛ**

light thinking . EN

acoustic collection by Maciej Karpiak









# LABRA light thinking

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By bringing you light every day, we believe that conscious and creative solutions are essential steps to improving the quality of our lives.

We are helped by our idea of light thinking which combines the awareness of using appropriate solutions and materials that are good both for ourselves and the environment we live in with committing ourselves to the highest quality standards through the precise workmanship of every item.

We are a Polish family company, open to people, ideas and creative solutions. We believe that good relationships are the foundation of growth, plenty of success and good energy. As a manufacturer, we are responsible for how we interact with our environment, how we shape it, and whether we approach it with respecting its rules and values.

By designing and manufacturing fixtures in Poland for over a decade, we have been pursuing an important principle of our production – being local.



# Maciej Karpiak

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A graduate of WSSU in Szczecin - in 2004 he graduated with honors from the Faculty of Interior Architecture. During his studies, he was awarded three times with the President's scholarships for exceptionally gifted artists. As a student, he has been awarded many times in Polish and international design competitions

He focuses his interests very intensively on future technologies that are to improve life on Earth, as well as on the issue of transferring life to other planets.

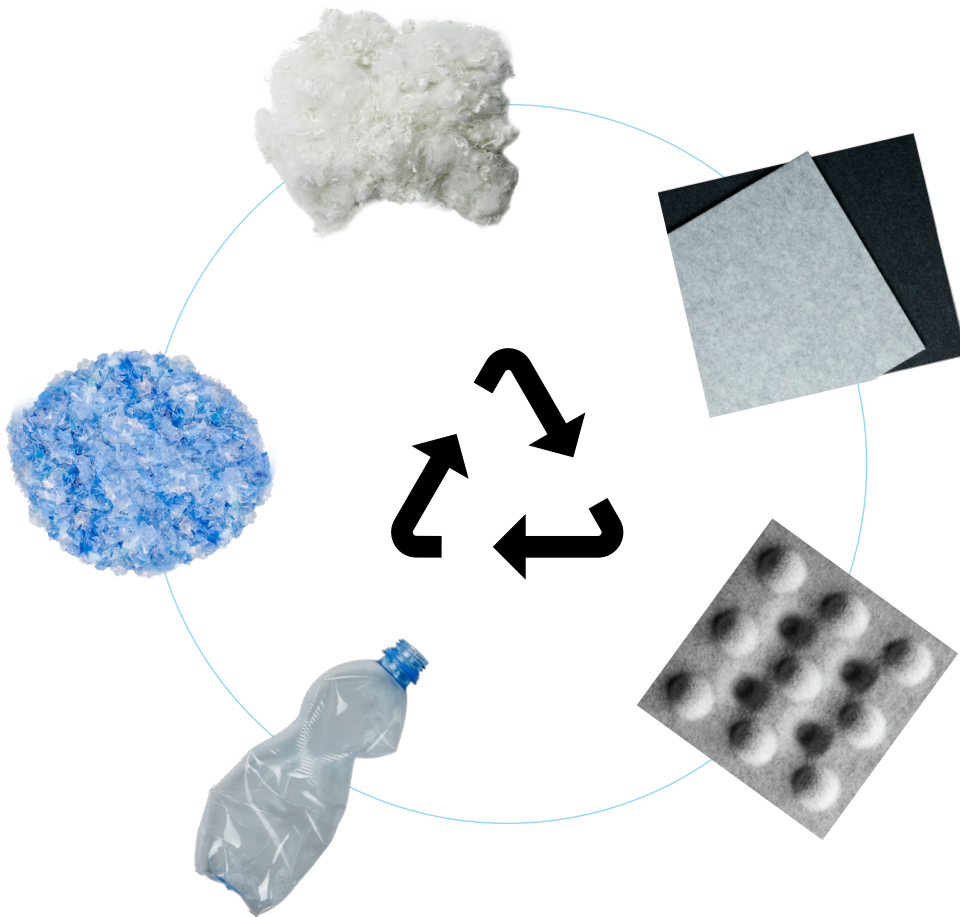
The products designed by Maciej Karpiak took part in numerous individual and collective exhibitions in Poland, Germany, Italy, the Netherlands, Belgium, Great Britain, Russia, France, etc.

At the Academy of Art in Szczecin, he runs the following workshops: Bionics and Multidisciplinary Product Design.





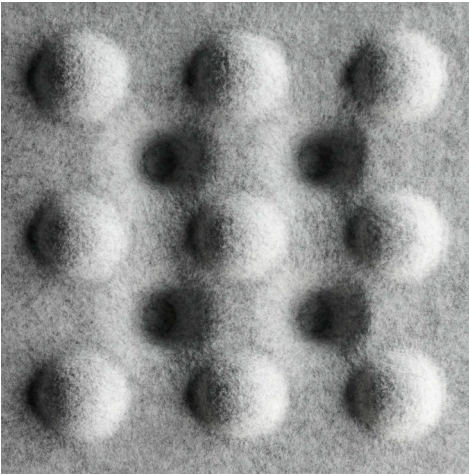




- Each of us in one year throws away an average of 66 plastic bottles.
- Unprocessed PET bottle can decompose up to 500 years
- Recycling a plastic bottle starts with selective collection and segregation.
- Bottles in the form of pressed bales go to the production halls. There they are subjected to the process of grinding into flakes in a special mill.
- Dried flakes are processed in the extruder into blue and white PET regranulate from which it is made into non-woven PETfelt fabric
- PETfelt can then be thermoformed - resulting in stiffening of the panel and embossing of a characteristic pattern

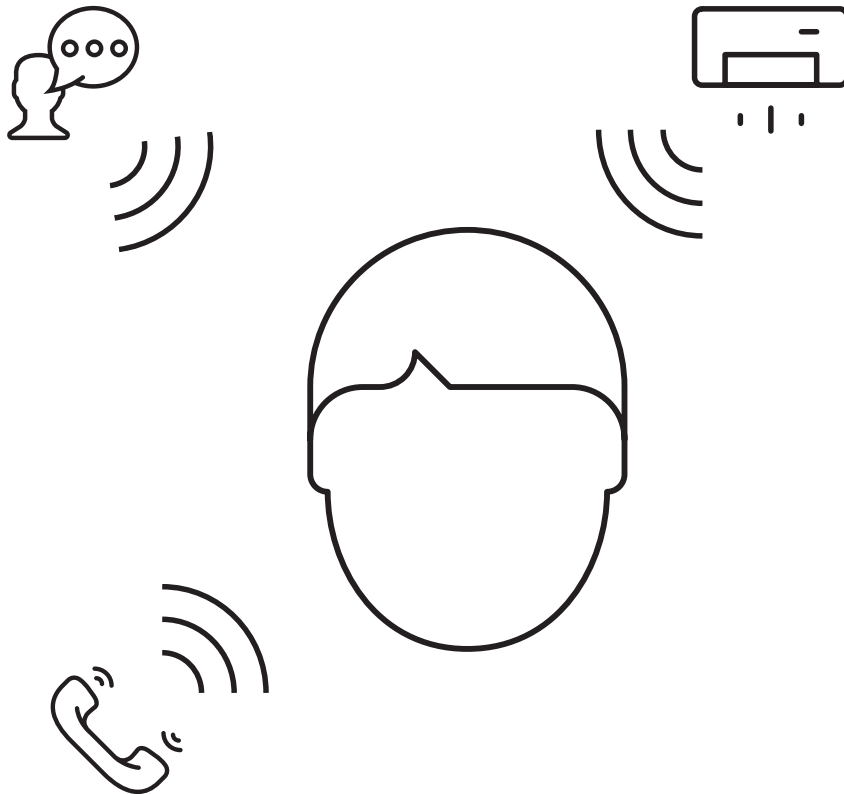
# PETfelt innovative & ecological

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- PETfelt is an expression of concern for our planet and the nearest environment - it is made from recycled PET bottles and is suitable for both recycling and upcycling
- 80 cm x 80 cm panel is as many as 20 processed PET bottles
- Visual attractiveness – in the thermoforming process, you can give the non-woven fabric a 3D shape, which is definitely more difficult to achieve with other components
- It has excellent acoustic properties – absorbs sounds well, reducing the risk of reverberation
- It is light, which means that it does not weight the ceiling too much
- UV resistant
- It works well in the trend of domestication of office spaces - it is a cheaper, ecological equivalent of wool felt
- Non-woven fabric is completely safe for environment, does not emit any toxic substances

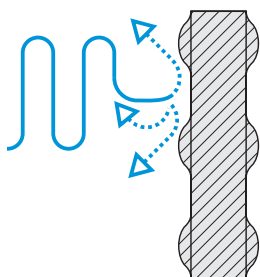
# acoustics — problems



- Harmless noise level is only **50 dB**
- An increase in noise to **70 dB** leads to changes in the body, and above **130 dB** causes physical pain
- **35-40 dB** - noise level allowing you to focus attention
- High noise levels (55-75 dB) in the workplace reduce employee productivity by nearly **66%**
- In a situation where we are distracted by an overheard conversation or sudden noise, we need **as much as 20 minutes** for concentration to return to its original state.
- A study of 158 white-collar workers revealed a positive association between temperature, lighting, acoustics and job satisfaction, as well as physical and mental well-being.

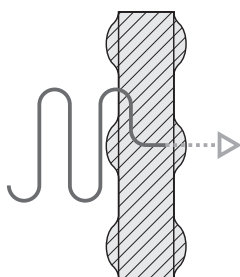
**When the sound level (SPL) increases by 3 dB, the sound will become twice as loud!**

# acoustics — and solutions



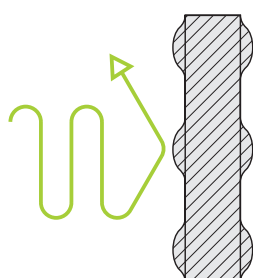
## DISPERSION

The thermoformed surface of the Haloo panel has a specially designed wavy shape, causing sound to be reflected in different directions. The effect is called diffusion (scattering). By combining the diffusion method with absorption, we create a harmonious soundscape.



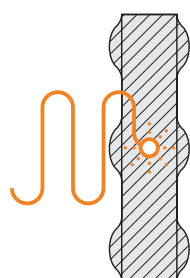
## WEAKENING

The ability to reduce sound penetrating through an obstacle – e.g. an acoustic panel. The noise level decreases and the acoustic wave is weakened (pressure decreases)



## REFLECTION

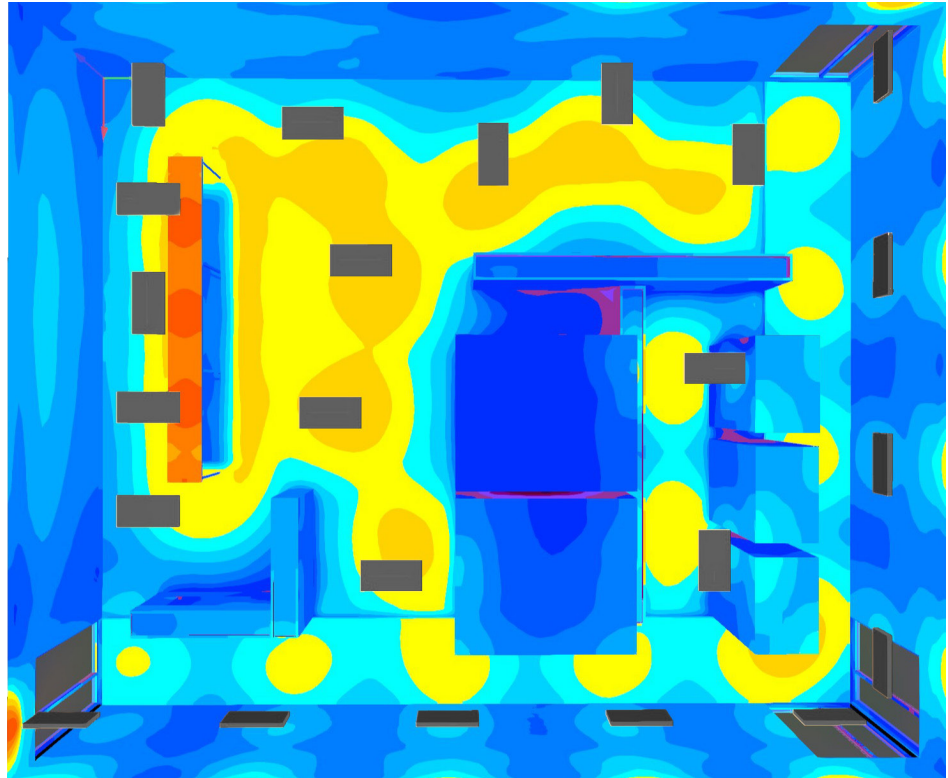
The soft and locally flattened structures of the Haloo panel minimize sound reflections, thus eliminating reverberation in the room and increasing acoustic comfort.



## ABSORPTION

The fibres from which PETfelt is made have excellent acoustic properties thanks to their structure. Sound waves are absorbed by the surface and converted into thermal energy. The absorption efficiency is increased by the air void, which in the case of the Haloo panel is 4 cm.

# case study — social space 120m<sup>2</sup>



### base conditions (before)

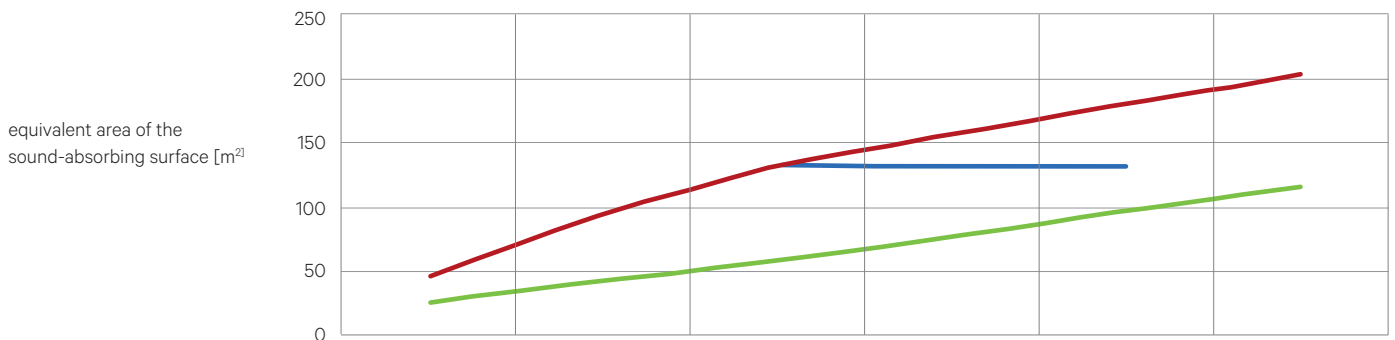
- Social space 120m<sup>2</sup>
- Glass wall - 12m lenght
- Rest of the walls made of plasterboard

### furniture

- 9pc - soft pouf (SITI Vank)
- 14pc - hoker (Grace MDD)
- 4pc - chair (Grace MDD)
- 2pc - acoustic booths (double) (Treehouse Bejot)
- 3pc - acoustic booths (single) (Treehouse Bejot)

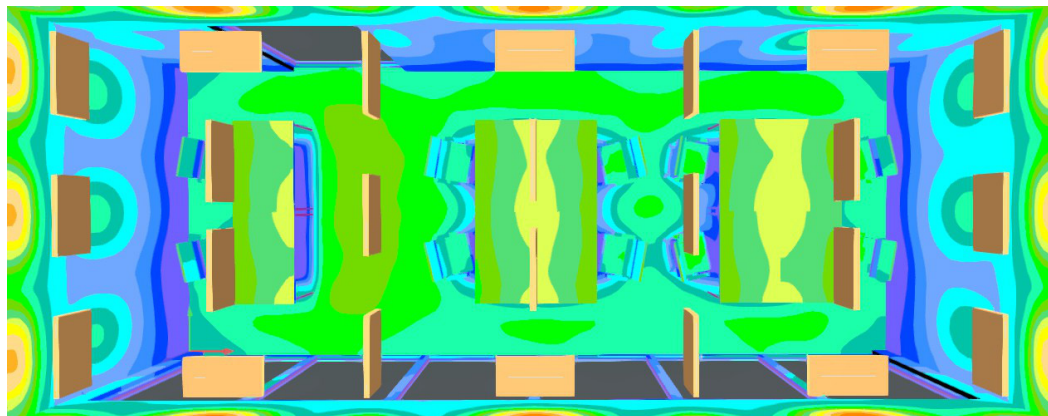
### acoustic adaptation

- 20pc - Haloo VE/HO 8.16 ZW
- 40pc - Haloo HO 8.8 ZW



Frequency [Hz]	125	250	500	1000	2000	4000
Required absorbency	132	132	132	132	132	132
After	46,3	95,8	132	156,6	180,7	203,2
Before	26,8	43,3	58,8	76,6	97,2	116,2

# case study — office room 40m<sup>2</sup>



### base conditions (before)

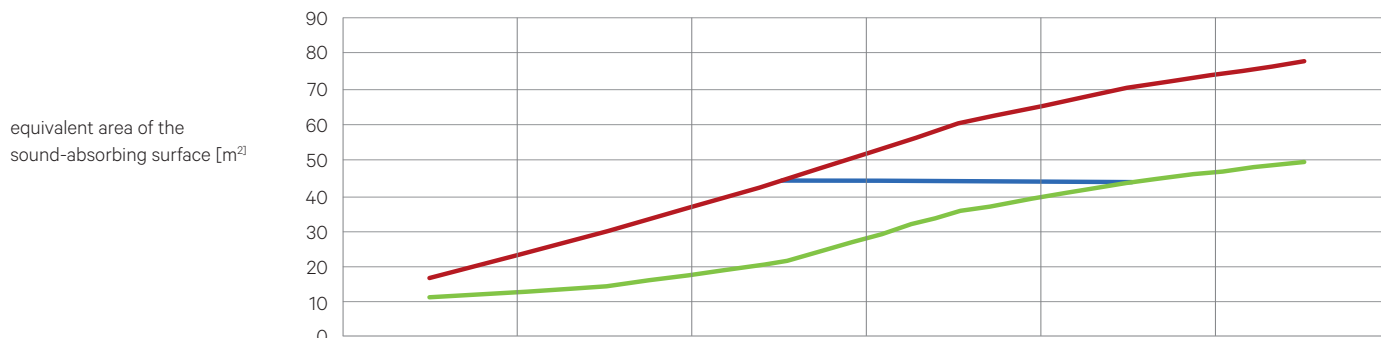
- Office space 40m<sup>2</sup>
- Glass wall - 10m lenght
- Rest of the walls made of plasterboard
- Floor made of soft carpet flooring

### furniture

- 7pc - panel (SELVA)
- 5pc - desk panel (SELVA)
- 12pc - office chair
- 12pc - office desk

### acoustic adaptation

- 12pc - Haloo VE/HO 4.16 ZW
- 14pc - Haloo HO Ambient 8.8 KN



Frequency [Hz]	125	250	500	1000	2000	4000
Required absorpency	44	44	44	44	44	44
After	17	29,9	44,3	60,1	70,2	77,5
Before	11,3	14,7	21,4	35,2	43,8	49,6









Reception

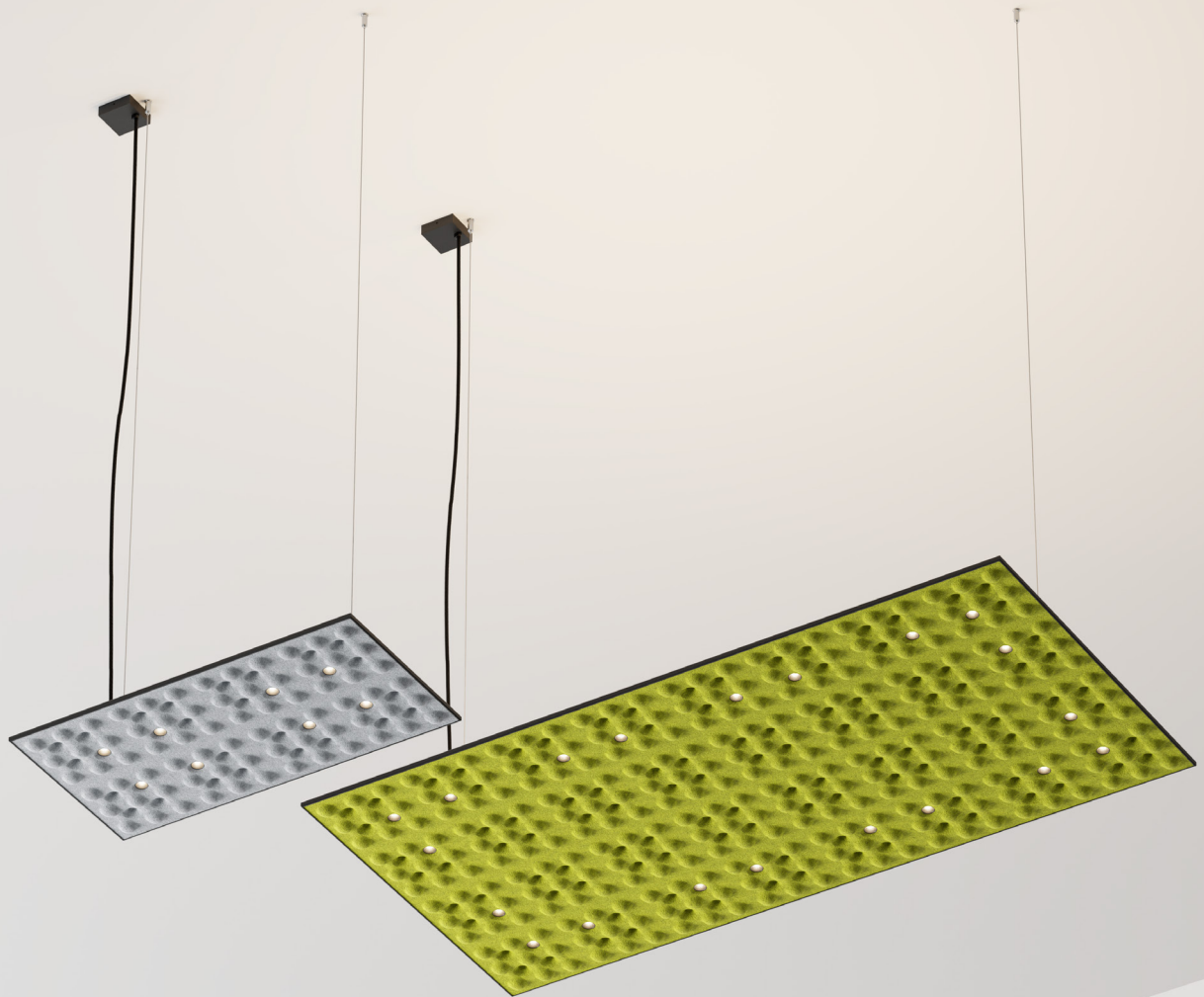
# suspended **horizontal**

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Optics	<b>48°</b>
Glare protection	<b>UGR &lt;19</b>
Voltage	<b>230V 50/60Hz</b>
Body material	<b>rPET core Texfel shell <sup>(B-s1)</sup></b>
Frame material	<b>Aluminium profile microtextured, powder coated</b>
Acoustic class	<b>A</b> <sup>(PN-EN ISO 354-2005)</sup>

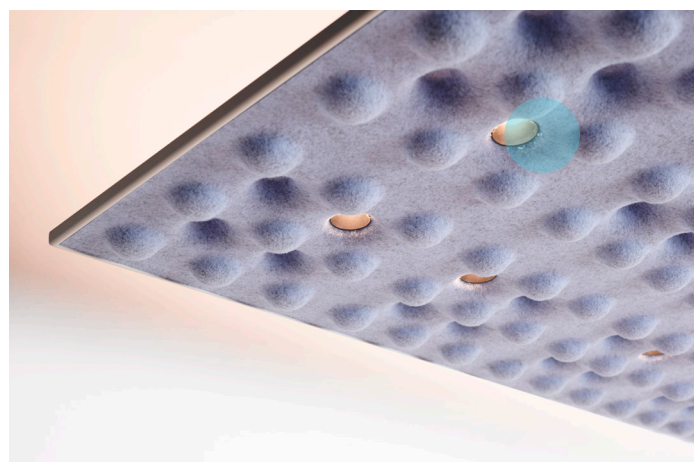
**HALOO Horizontal** perfectly fulfills acoustic functions thanks to the use of ecological PETfelt non-woven fabric. A specially designed aluminum profile allows you to get an airbag inside the luminaire to improve acoustic efficiency. The characteristic, concave-convex pattern of the HALOO panel hides efficient optics that provide protection against glare (UGR<19), the right angle of incidence of light and good color reproduction. HALOO acoustic luminaires offer the possibility of general lighting directed to the ceiling, and local lighting directed to the work station. The luminaire has the ability to control using the DALI system.

suspended **horizontal**



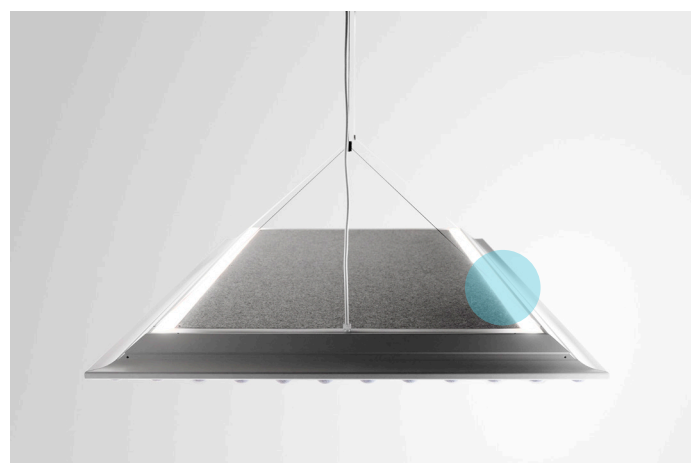
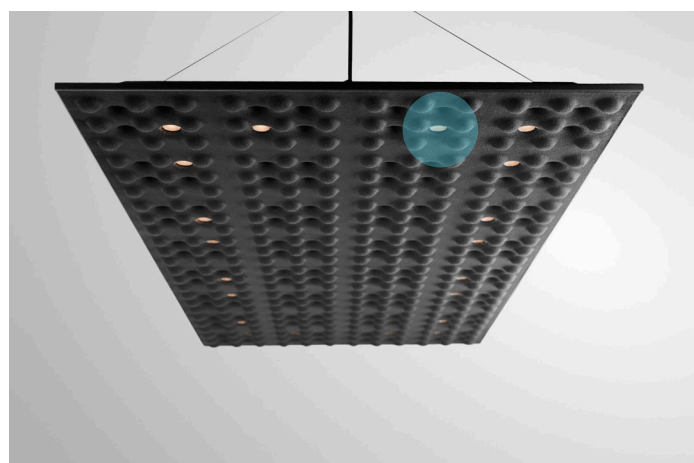
*right*

The unusual design of the aluminum profile makes it seem light despite its significant dimensions, and the silhouette of the luminaire does not overwhelm, while providing the right conditions for achieving high acoustic parameters. It also provides enough space for electronic components and efficient LED modules.



*left*

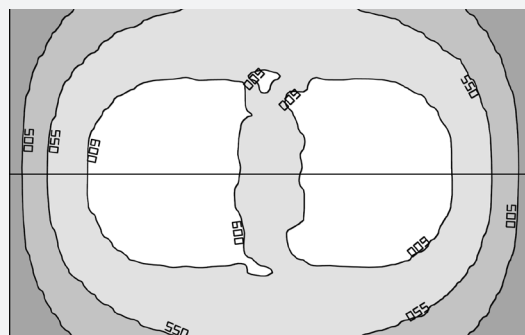
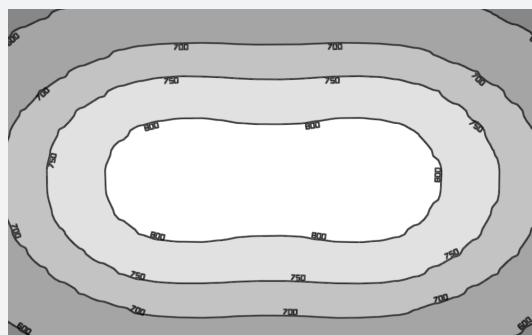
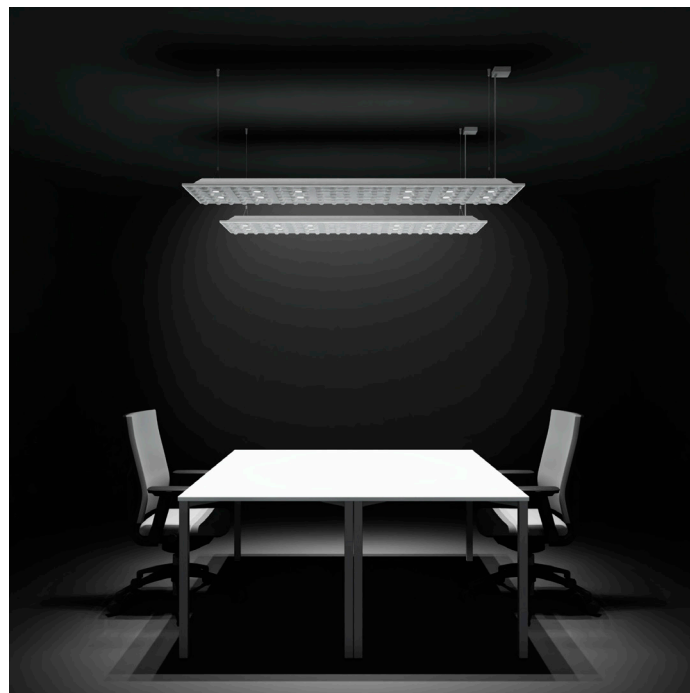
Special protective flanges specially designed for the Haloo series will provide an adequate degree of protection against glare  $UGR < 19$ . In the Horizontal version, they are hidden in the recesses of the PETfelt panel.



*up*

The structural profile has built-in chambers serving as a place for uplight modules – ensuring uniform illumination of the ceiling above the luminaire. The Up and Down modules are powered and controlled separately, thus giving great configuration possibilities.





- room dimensions 500x500cm / h 280cm
- office desk 80x160cm / h 75cm, 1x chair
- lamp **1x Haloo HO down 8.16 ZW 930**  
suspension height - 220cm from floor
- average intensity on the desk **532lx**
- uniformity **0,62**
- glare rating **UGR <19**  
UGR measurement height 120cm from floor

- room dimensions 500x500cm / h 280cm
- office double desk 160x160cm / h 75cm, 2x chairs
- lamp **2x Haloo HO down 4.16 ZW 930**  
suspension height - 220cm from floor
- average intensity on the desk **532lx**
- uniformity **0,62**
- glare rating **UGR <17**  
UGR measurement height 120cm from floor

suspended **horizontal**



Haloo VE 4.8 down ZW, Steel Graphite



Haloo VE 4.8 up.down ZW, Dark Orange



Haloo VE 4.16 down ZW, Light Blue



Haloo VE 4.16 up.down ZW, Deep Red



Haloo VE 8.8 down ZW, Curcumin



Haloo VE 8.8 up.down ZW, Deep Black



Haloo VE 8.16 down ZW, Fresh Lime

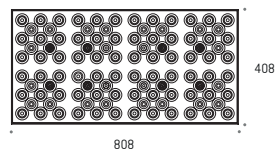
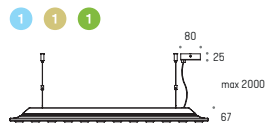


Haloo VE 8.16 up.down ZW, Light Grey

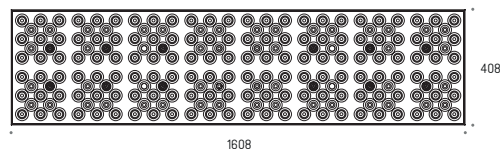


Model	On—Off	DALI2	Panel	body		main												additional			
				Black	White	Mixed	CR190 3000K	CR190 4000K	.RY	.LU	.HT	.CK	.GR	.YL	.OG	.ND	.CS	.02	.03	.33	.44
<b>Haloo Horizontal Up.Down ZW</b>																					
1	Up,Down 4.8 ZW	44W Down 1000lm / Up 2020lm	5.3694	5.3695																	
2	Up,Down 4.16 ZW	76W Down 1500lm / Up 4030lm	5.3696	5.3697																	
3	Up,Down 8.8 ZW	53W Down 1500lm / Up 2020lm	5.3698	5.3699																	
4	Up,Down 8.16 ZW	91W Down 2500lm / Up 4030lm	5.3700	5.3701																	
<b>Haloo Horizontal Down ZW</b>																					
1	Down 4.8 ZW	19W 1000lm	5.3702	5.3703																	
2	Down 4.16 ZW	28W 1500lm	5.3704	5.3705																	
3	Down 8.8 ZW	28W 1500lm	5.3706	5.3707																	
4	Down 8.16 ZW	43W 2500lm	5.3708	5.3709																	
<b>Haloo Horizontal Panel ZW</b> (no light)																					
1	Panel 4.8 ZW			5.3710																	
2	Panel 4.16 ZW			5.3711																	
3	Panel 8.8 ZW			5.3712																	
4	Panel 8.16 ZW			5.3713																	

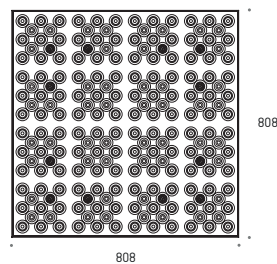
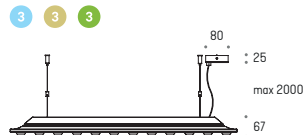
Haloo Horizontal 4.8 ZW



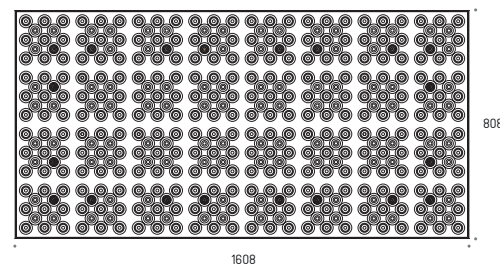
Haloo Horizontal 4.16 ZW



Haloo Horizontal 8.8 ZW



Haloo Horizontal 8.16 ZW



ZW Downlight & Uplight

ZW Downlight

ZW Panel (no light)



suspended **vertical**

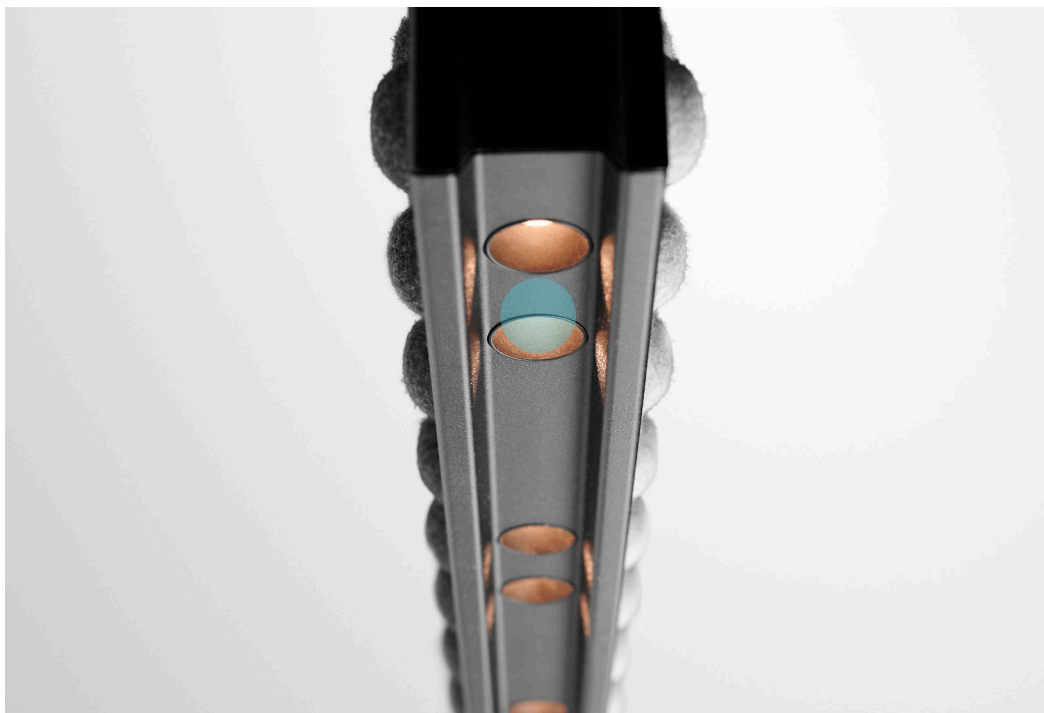

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Optics	<b>48°</b>
Glare protection	<b>UGR &lt;19</b>
Voltage	<b>230V 50/60Hz</b>
<hr/>	
Body material	<b>rPET core (80% rec.) Texfel shell <sup>(B-s1)</sup></b>
<hr/>	
Frame material	<b>Aluminium profile microtextured, powder coated</b>
<hr/>	
Acoustic class	<b>A</b> <sup>(PN-EN ISO 354-2005)</sup>

The HALOO luminaire combines acoustic and lighting functions, corresponding to office standards. The basic component of the lamp is PETfelt non-woven fabric made from recycled PET bottles. The aluminum profile constituting the lamp structure creates an acoustic airbag inside. Recessed optics do not cause an epiphany effect. The DALI system allows for flexible lighting control. HALOO Vertical is available in three versions – without light sources, with down lighting and in the up-down version, where the LED module additionally installed in the upper version of the profile provides diffused general light.

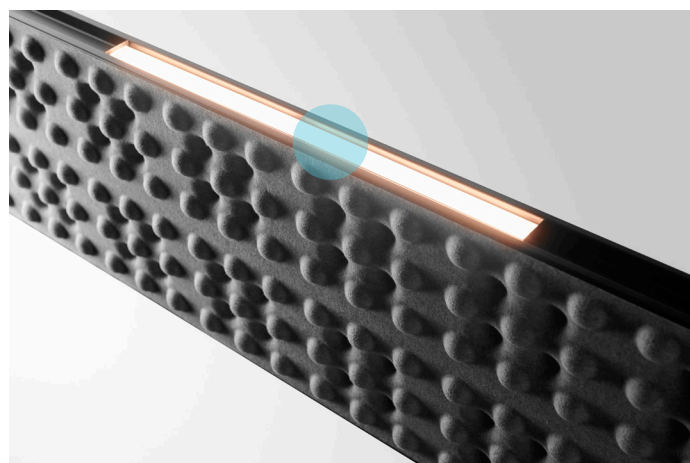
suspended **vertical**





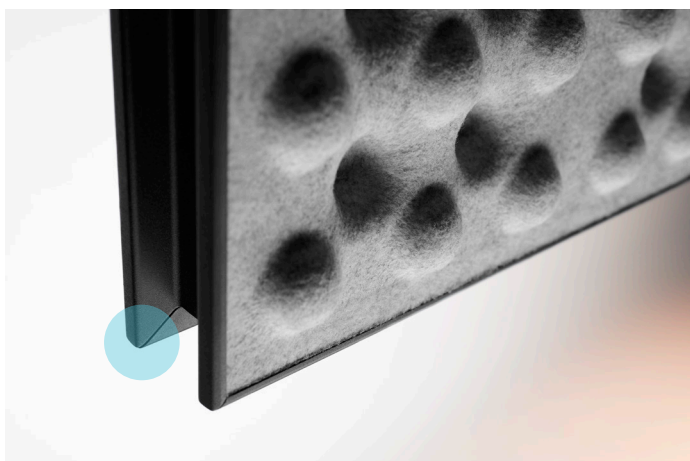
*left*

Deep hidden TIR (total inner reflection) lenses ensure that the downward light is perfectly directed and provides the right level of illumination on the work surface. Specially designed covers cut off the angle of incidence of light at such a level as to provide protection against glare at the level of UGR <19.



*up*

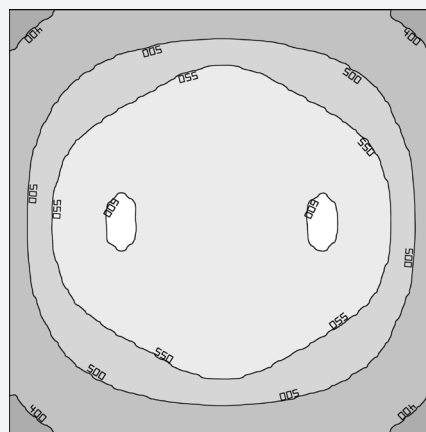
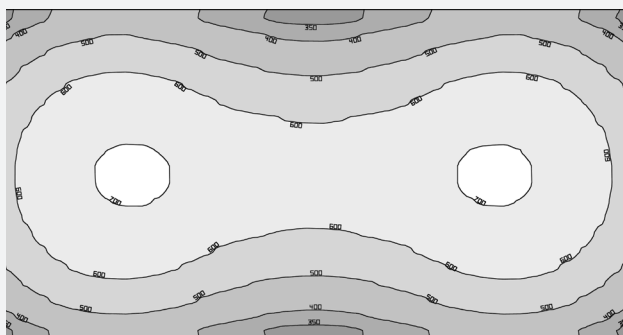
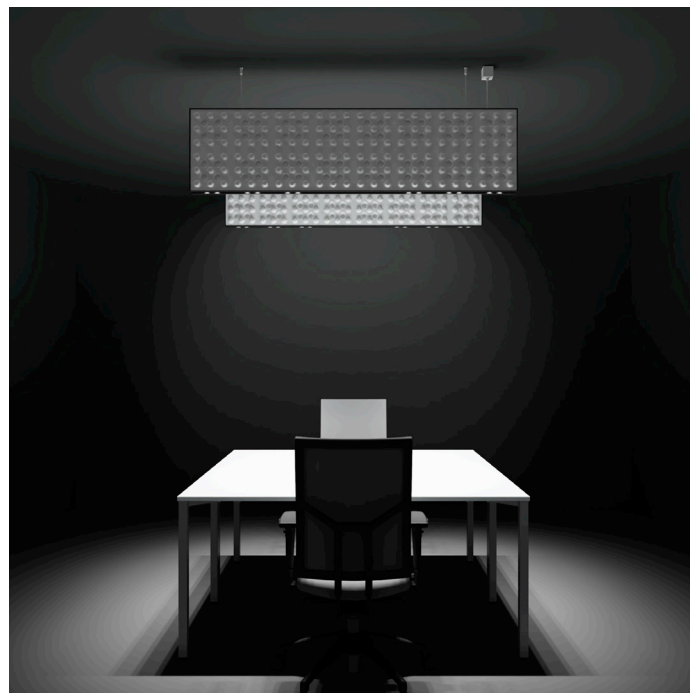
The upright module is equipped with efficient LEDs, which in combination with a linear lens ensure very high efficiency. The well-thought-out design of the lens makes the upper light scattered at a very large angle, evenly illuminating the ceiling.



*left*

A dedicated aluminum profile has been designed for the vertical luminaire. It performs the load-bearing function of the entire structure. It's appearance is reminiscent of steel structural H-type profiles, and together with the specific embossing of the PETfelt panel is a strong, industrial visual accent





- room dimensions 500x500cm / h 280cm
- office desk 80x160cm / h 75cm, 1x chair
- lamp **1x Haloo VE down 4.16 ZW 930**  
suspension height - 190cm  
from floor
- average intensity on the desk **562lx**
- uniformity **0,57**
- glare rating **UGR <19**  
UGR measurement height  
120cm from floor

- room dimensions 500x500cm / h 280cm
- office double desk 160x160cm / h 75cm, 2x chairs
- lamp **2x Haloo VE down 4.16 ZW 930**  
suspension height - 220cm  
from floor
- average intensity on the desk **525lx**
- uniformity **0,66**
- glare rating **UGR <19**  
UGR measurement height  
120cm from floor

suspended **vertical**



Haloo VE 4.8 down ZW, Light Grey



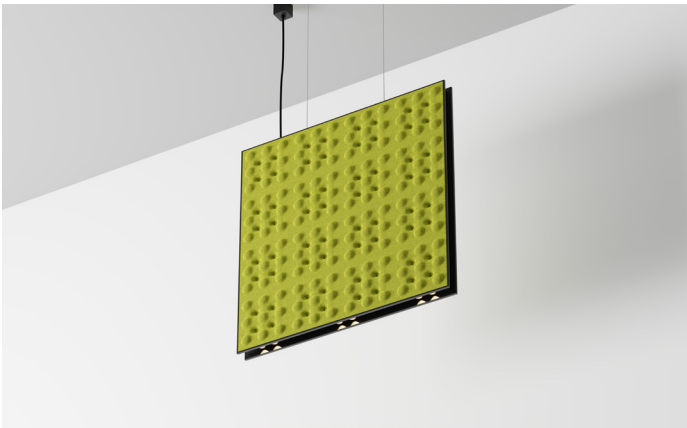
Haloo VE 4.8 up.down ZW, Deep Red



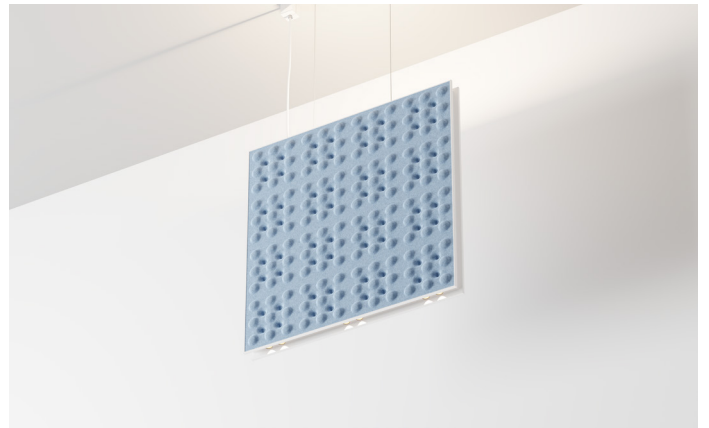
Haloo VE 4.16 down ZW, Deep Black



Haloo VE 4.16 up.down ZW, Curcumin



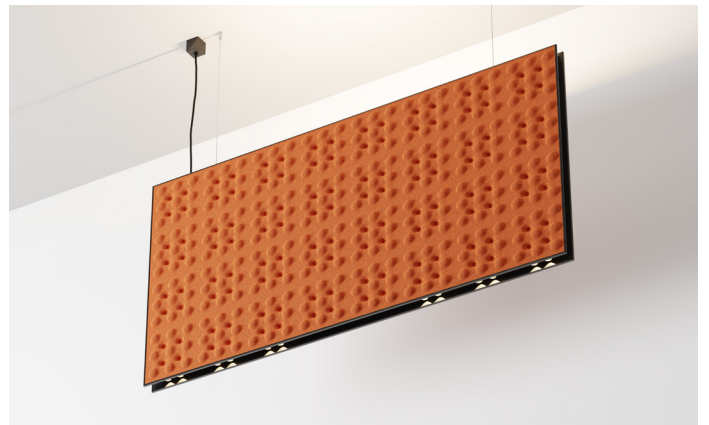
Haloo VE 8.8 down ZW, Fresh Lime



Haloo VE 8.8 up.down ZW, Light Blue



Haloo VE 8.16 down ZW, Steel Graphite

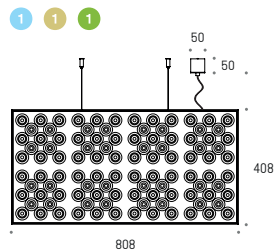


Haloo VE 8.16 up.down ZW, Dark Orange

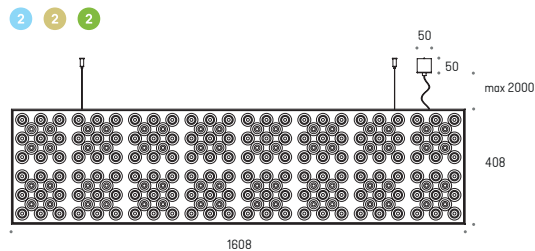


Model	On-Off	DALI2	Panel	body		main											additional			
				Black	White	Mixed	CR190 3000K	CR190 4000K	.RY	.LU	.HT	.CK	.GR	.YL	.OG	.ND	.CS	.02	.03	.33
<b>Haloo Vertical Down.Up ZW</b> ⊕																				
1	Up,Down 4.8 ZW	I 29W Down 750lm / Up 1390lm	5.3726	5.3727																
2	Up,Down 4.16 ZW	I 55W Down 1510lm / Up 2770lm	5.3728	5.3729																
3	Up,Down 8.8 ZW	I 29W Down 750lm / Up 1390lm	5.3730	5.3731																
4	Up,Down 8.16 ZW	I 55W Down 1510lm / Up 2770lm	5.3732	5.3733																
<b>Haloo Vertical Down ZW</b> ⊕																				
1	Down 4.8 ZW	I 15W 750lm	5.3734	5.3735																
2	Down 4.16 ZW	I 28W 1510lm	5.3736	5.3737																
3	Down 8.8 ZW	I 15W 750lm	5.3738	5.3739																
4	Down 8.16 ZW	I 28W 1510lm	5.3740	5.3741																
<b>Haloo Vertical Panel ZW</b> (no light)																				
1	Panel 4.8 ZW			5.3742																
2	Panel 4.16 ZW			5.3743																
3	Panel 8.8 ZW			5.3744																
4	Panel 8.16 ZW			5.3745																

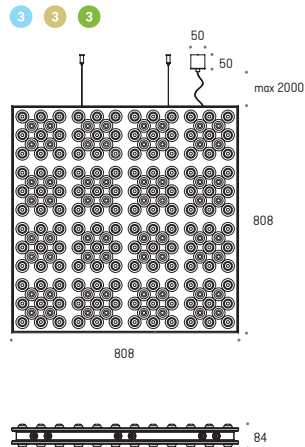
Haloo Vertical 4.8 ZW



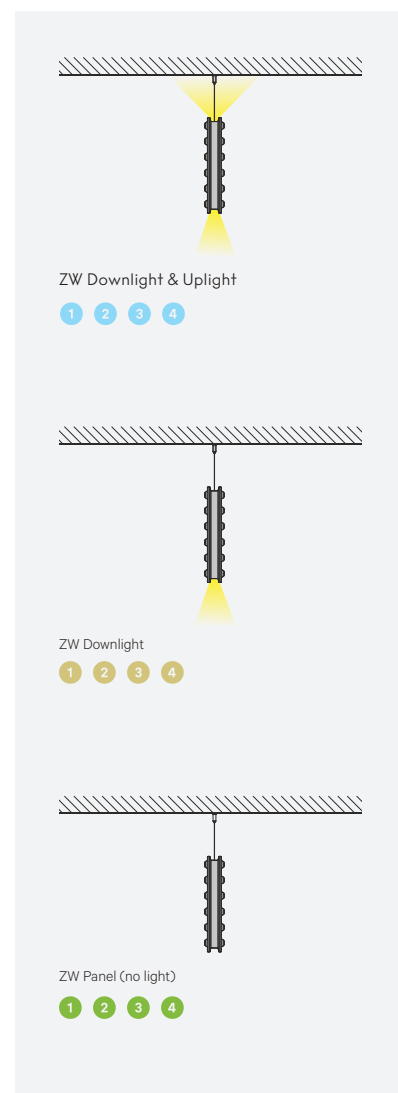
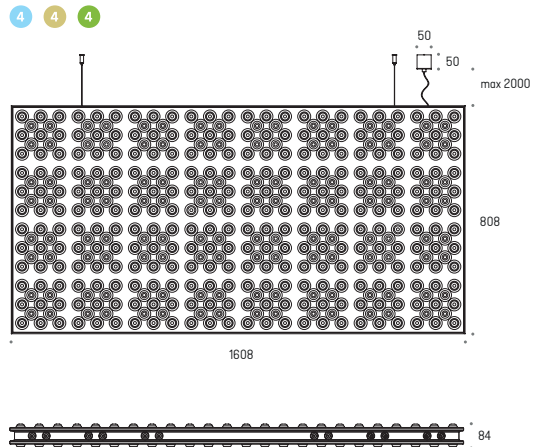
Haloo Vertical 4.16 ZW

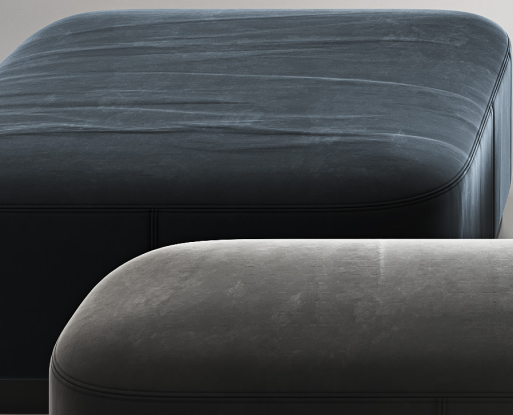
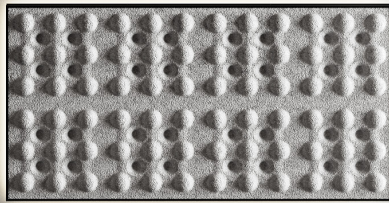
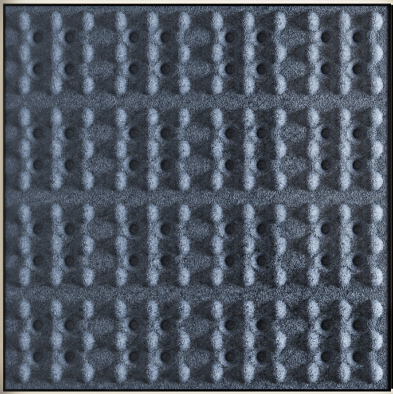
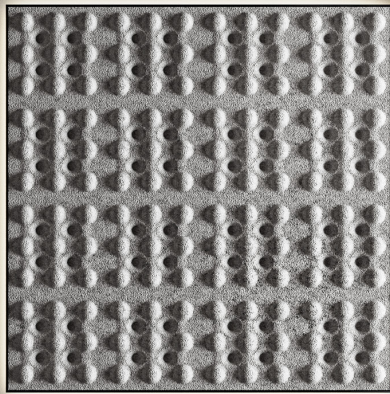
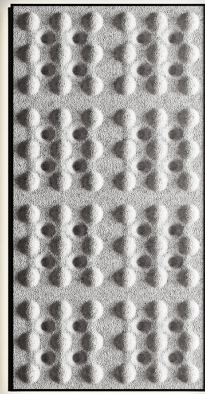
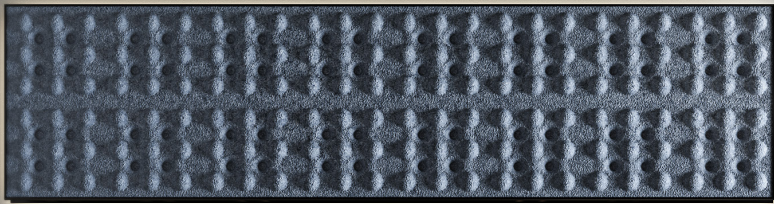


Haloo Vertical 8.8 ZW



Haloo Vertical 8.16 ZW





# surface **horizontal** (wall & ceiling)

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Optics	<b>48°</b>
Glare protection	<b>UGR &lt;19</b>
Voltage	<b>230V 50/60Hz</b>
<hr/>	
Body material	<b>rPET core</b> <b>Texfel shell <sup>(B-s1)</sup></b>
<hr/>	
Frame material	<b>Aluminium profile</b> <b>microtextured,</b> <b>powder coated</b>
<hr/>	
Acoustic class	<b>A</b> <sup>(PN-EN ISO 354-2005)</sup>

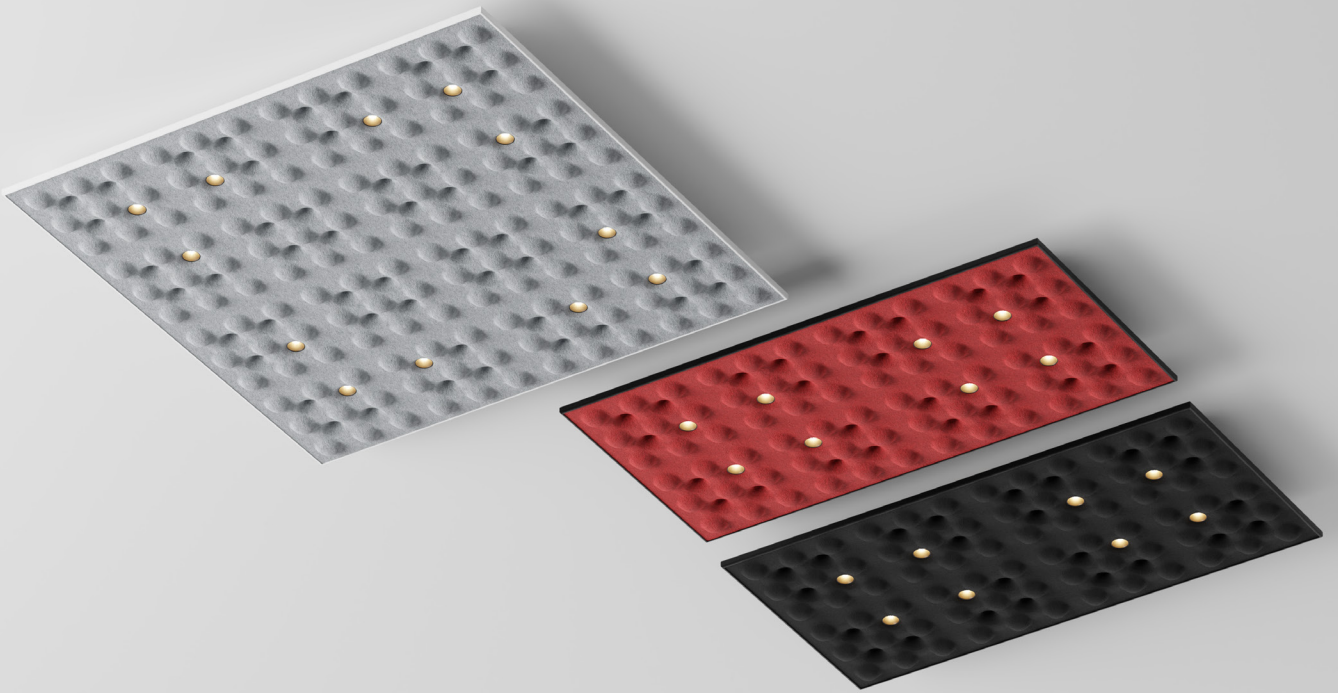
**HALOO** surface-mounted luminaires provide the best acoustic efficiency due to the adhesion of the luminaire surface to the ceiling. Such editing affects the excellent absorption of sounds and allows you to achieve an interesting visual effect, also thanks to ambient lighting. Thermoformed in a 3D pattern, HALOO panels are made of recycled PET bottles. In the recesses of the panel there are optics dedicated to office interiors, which illuminate the interior without glare, ensuring the right amount of light and excellent color reproduction. The HALOO surface-mounted luminaire is available in three versions – acoustic panel without a luminous module, luminaires with down lighting in on-off or DALI versions.

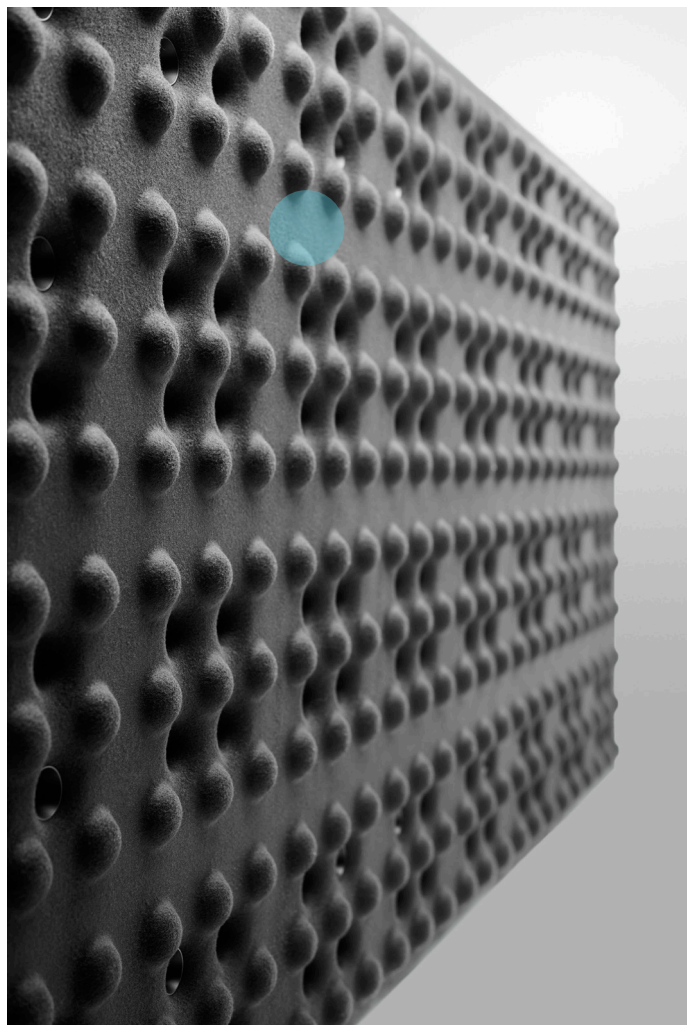
surface **horizontal** (wall & ceiling)





surface **horizontal** (wall & ceiling)



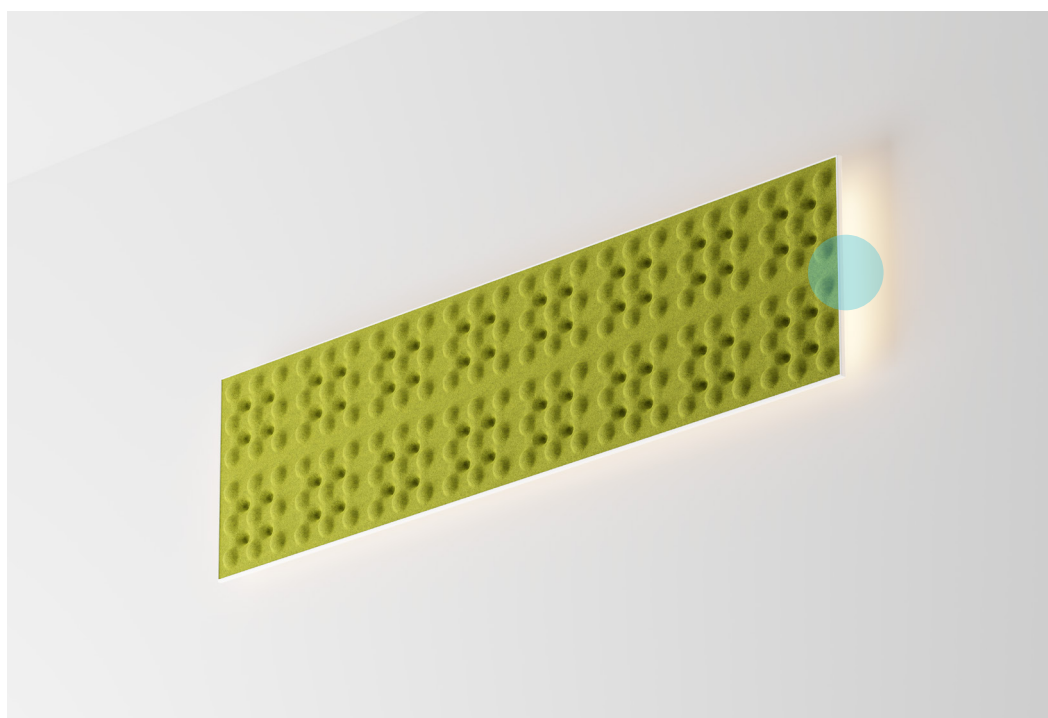


*left*

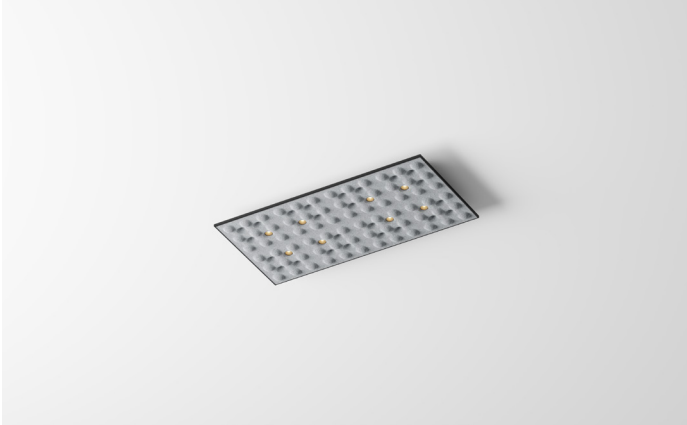
PETfelt panels are made of non-woven fabric from recycled PET bottles (80% recycled). In addition, all models are covered with an additional layer of material with increased fire resistance (B-s1). This material, very delicate in touch, has a positive effect on acoustic properties, also provides a wide range of colors (the PETfelt material itself is available only in shades of gray)

*right*

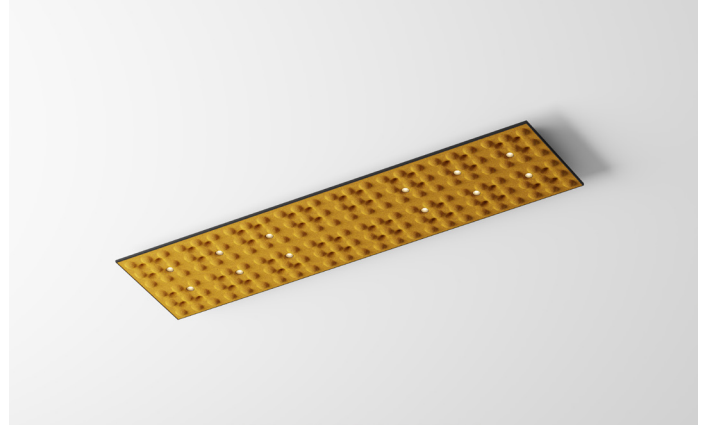
Wall luminaires are available in a version without lighting (Panel) or in a specially designed Ambient version. Low-power LED modules give a delicate backlight by gently illuminating the mounting surface of the luminaire, and they can be mounted on the wall or ceiling using special brackets. LED modules are surface-sealed to maintain a long service life in office conditions.



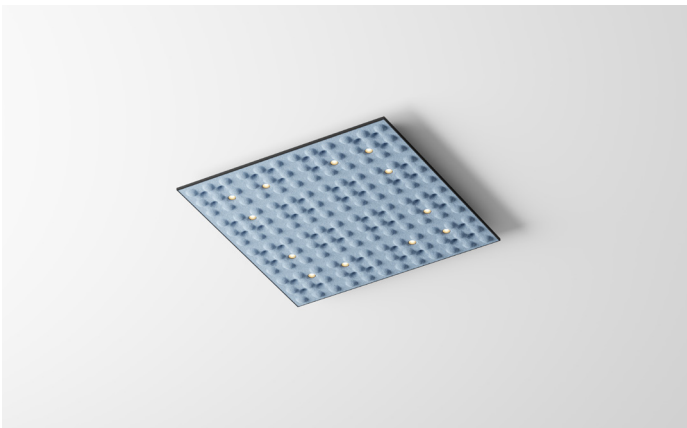
surface **horizontal** (wall & ceiling)



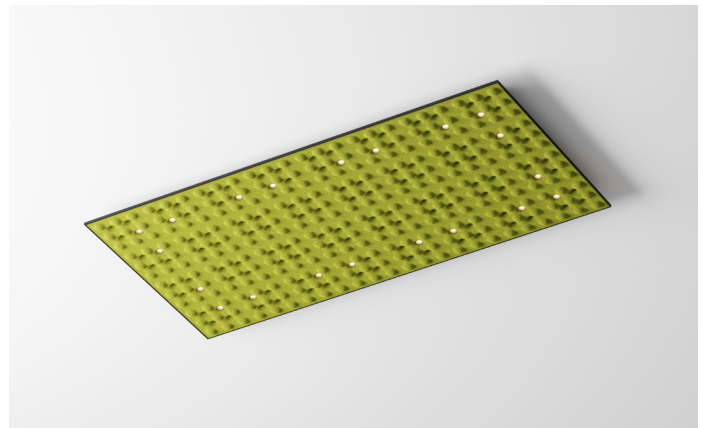
Haloo HO 4.8 down NT, Light Grey



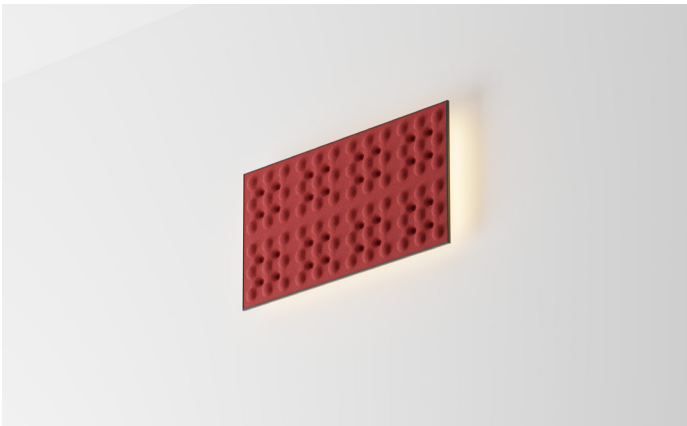
Haloo HO 4.16 down NT, Curcumin



Haloo HO 8.8 down NT, Light Blue



Haloo HO 8.16 down NT, Fresh Lime



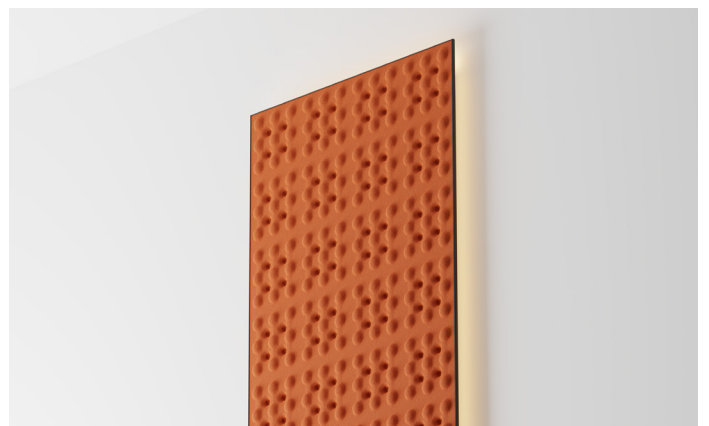
Haloo HO 4.8 ambient NT/KN, Deep Red



Haloo HO 4.16 ambient NT/KN, Steel Graphite



Haloo HO 8.8 ambient NT/KN, Deep Black



Haloo HO 8.16 ambient NT/KN, Dark Orange





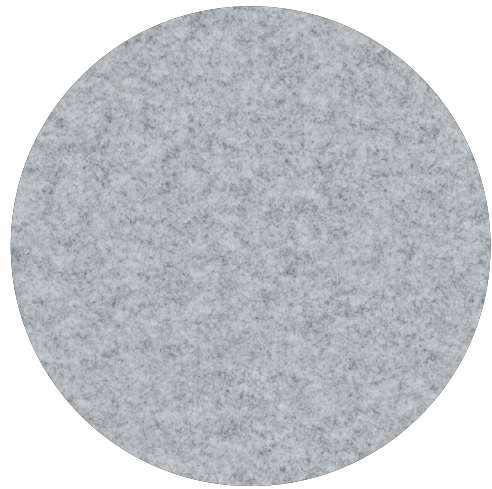




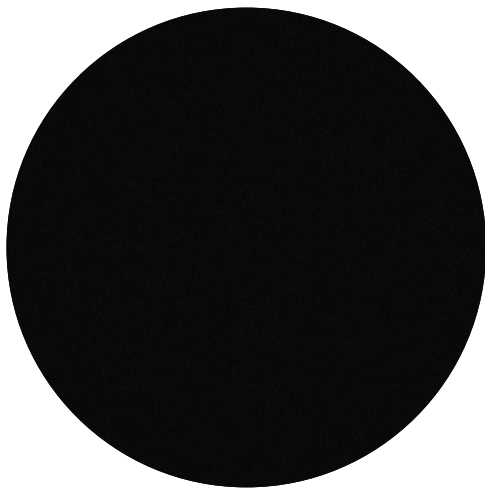
**.HT** Steel Graphite



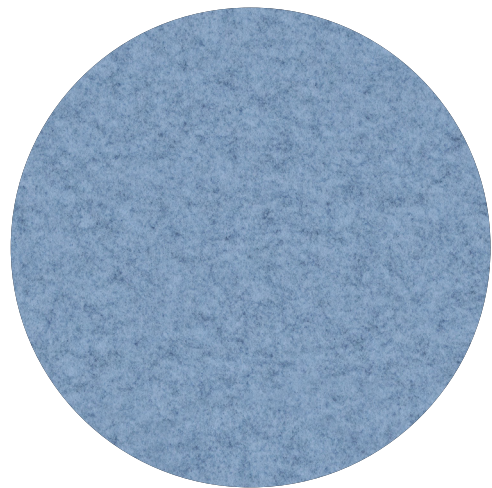
**.RY** Light Grey



**.CK** Deep Black



**.LU** Light Blue

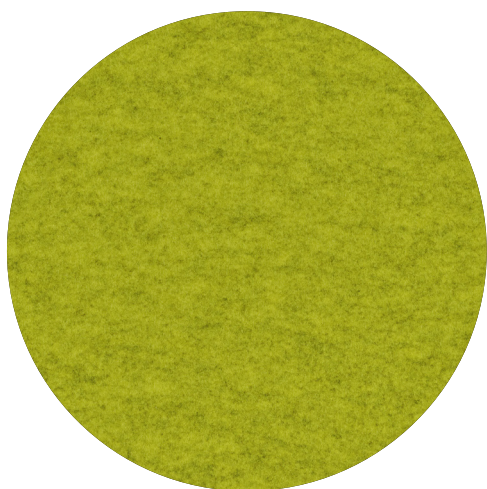


# adittional colors

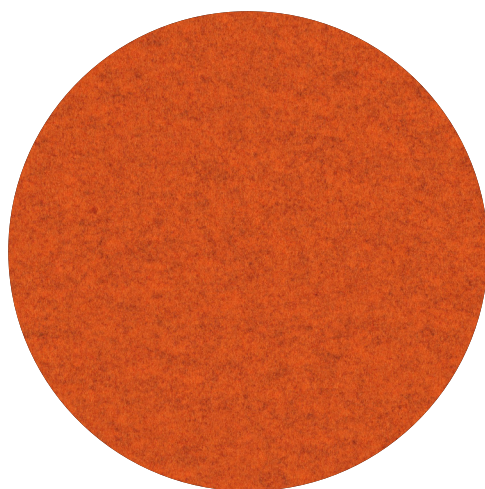
available from certain amount of luminaires — please consult sales representative

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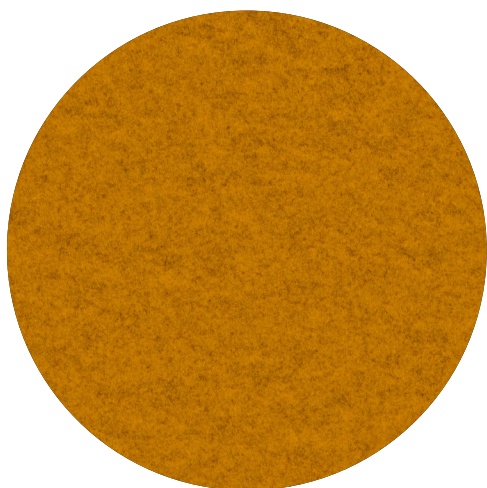
**.GR** Fresh Lime



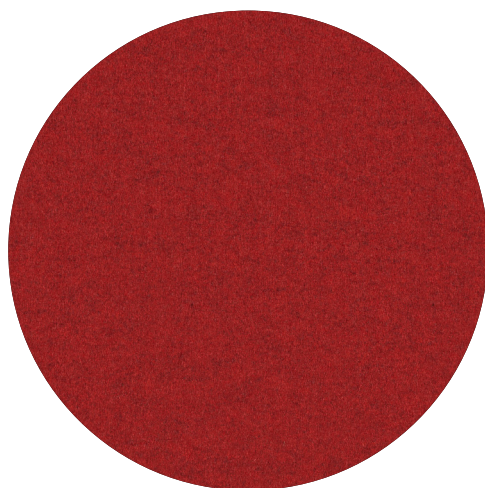
**.OG** Dark Orange



**.YL** Curcumin



**.ND** Deep Red







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light thinking

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