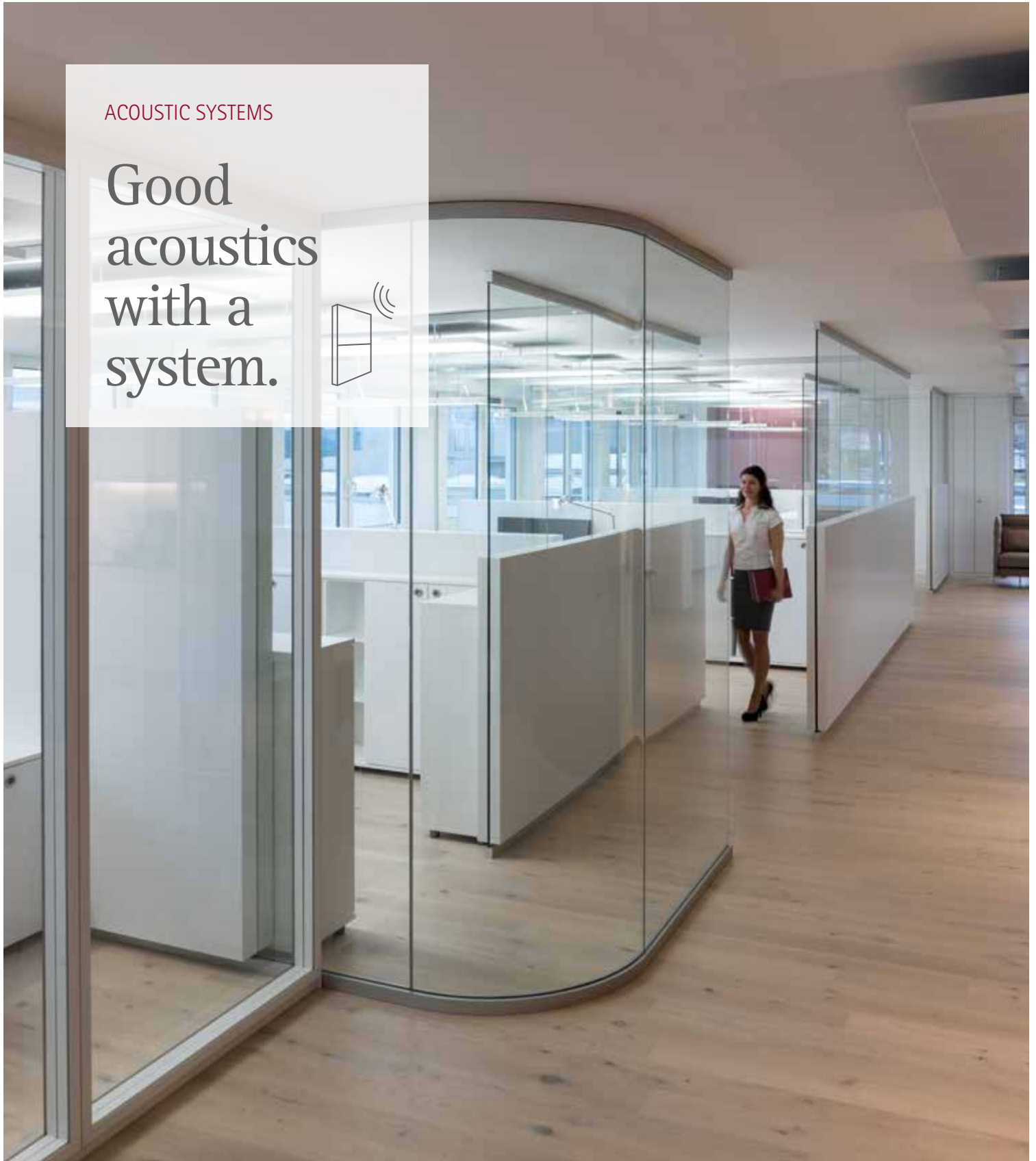


ACOUSTIC SYSTEMS

Good  
acoustics  
with a  
system.



**Strähle**  
Raum-Systeme

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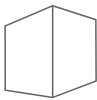
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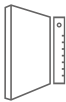


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## Good acoustics, good room solutions.

Strähle is the specialist for partition wall, room-in-room and acoustic systems. We know that a good working environment means the right combination of acoustics, climate, light and organisation. Our modular systems fulfil the highest demands of these criteria. In a tailor-made combination, they enable holistic room solutions. Also, the sustainability concept is firmly rooted in our products and our philosophy: with an intelligent structure and manufactured using high-quality materials, all our system solutions have a long life.

### Acoustic room optimisation

Noise disturbs. Particularly modern office buildings with large offices and hard, echoing surfaces are a particular challenge for pleasant room acoustics. That is why acoustic room optimisation is such a crucial criterion for modern office concepts.

Our acoustic solutions are worth listening to. We provide a wide range of acoustic systems which have a positive effect on room acoustics. Absorption and soundproofing methods considerably reduce reverberation times and direct noise. The absorber elements can be applied flexibly and combine high functionality with high aesthetic standards. Communication zone, meeting room, quiet thinking retreat: we create an audibly good solution for each application.

Whether it's one wall or forty storeys, Strähle has been caring for projects of all different sizes for many years. As a holistic partner, we provide architects, planners and customers with comprehensive advice and planning, acoustic optimisation and reliable implementation of tailor-made solutions.



A wide-angle photograph of a modern office interior. The space is characterized by glass-walled workstations and white partitions. A central hallway with light wood flooring leads into the distance, where a person in a white top and red skirt is walking. The ceiling features a grid of acoustic panels and recessed lighting. Large windows on the left side provide natural light and a view of the outdoors.

## New Work!

Multispace working environments are varied, flexible and communicative. Their challenge is the balance between communication and concentration, between transparency and privacy, between efficient use of areas and quality of work. Acoustics play a central role for well-being and a working atmosphere conducive to concentration. Our newly developed glass acoustic wall combines transparent rooms with quiet working. Thanks to the room-height glass elements with wall absorbers, System 7400 provides zones that are acoustically separate from each other while retaining the open-space atmosphere.

## The healthy office.

We would like to show you a piece of future of interior design, in the form of our newly designed offices. Strähle was the first company in Germany to be awarded the DGNB Certificate for interiors, for the office and exhibition area at the Strähle headquarters in Waiblingen. This award combines all relevant aspects of sustainable development of interiors, including the building materials used and indoor furnishings.



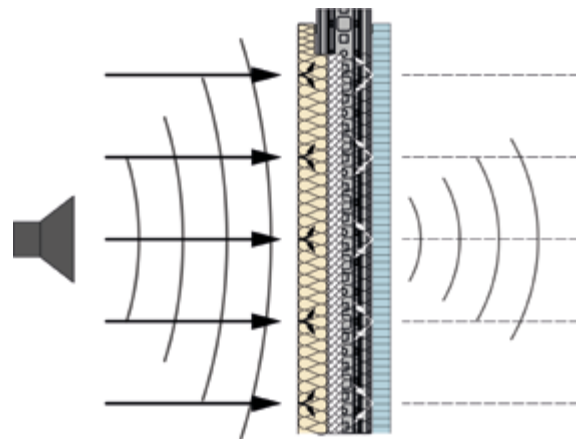
# Integrated acoustics solutions.

As an intermediary between the building structure and the interior, Strähle room solutions optimise both the building acoustics and the room acoustics. This is based on our competence in partition walls and our experience with acoustically effective materials.

Building acoustics focus on sound insulation. Partition wall systems reduce sound transmission between rooms. Depending on the requirements, our partition walls can be fitted in two wall thicknesses.

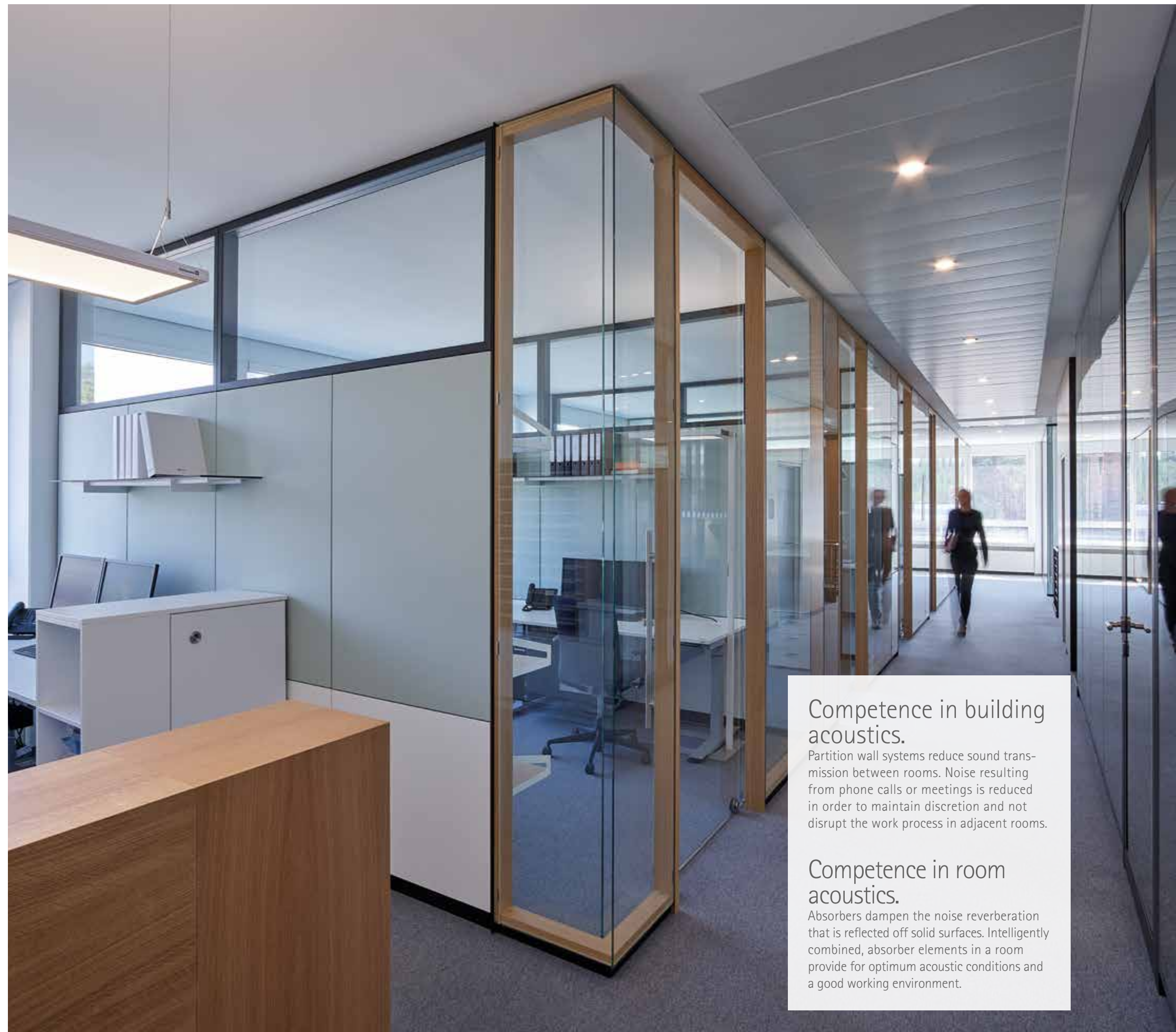
Room acoustics focus on sound absorption. People find vocal noise particularly distracting. So for absorbing vocal noise, we concentrate on acoustic optimisation in the frequencies that are relevant for spoken language.

The individual acoustics concepts from Strähle take both building acoustics and room acoustics into account and guarantee optimised room design.



## OPERATING PRINCIPLE OF PARTITION WALL ABSORBERS

System 7000 combines both building and room acoustics in order to function as a broadband absorber. The combination of absorption and sound insulation provides economic efficiency whilst also allowing for creative freedom.



## Competence in building acoustics.

Partition wall systems reduce sound transmission between rooms. Noise resulting from phone calls or meetings is reduced in order to maintain discretion and not disrupt the work process in adjacent rooms.

## Competence in room acoustics.

Absorbers dampen the noise reverberation that is reflected off solid surfaces. Intelligently combined, absorber elements in a room provide for optimum acoustic conditions and a good working environment.



# Tailor-made concepts.

We implement optimum acoustics for every room situation. Different types of rooms arise from different uses. The requirements for acoustic optimisation vary accordingly. The Strähle acoustics specialists take care of each specific situation from the idea through to its completion. Typical scenarios for modern design range from single offices to open-space offices. We are experienced in product development and competent at planning, so we can adapt our systems individually for each project.

INFO

With Strähle high-performance absorbers it is possible to conform to indoor acoustic regulations (reverberation times or surface-to-volume ratios) of standards and legislation. The required absorption surface is determined depending on other room parameters.

	Room category	Reverberation time	Surface-to-volume ratio
ASR A3.7 (2018)	One- and two-person office	0,80 s	–
	Shared and open-plan office, call centre	0,60 s	–
		0,50 s	–
VDI 2569 (Entwurf 2016)	Single office class A	0,60 s	–
	Shared office class A	0,80 s	–
	Single office class B	0,70 s	–
DIN 18041 <sup>1)</sup> (2016)	Single office	0,80 s	$A/V \geq 0,15$
	Type of use B3 office space	0,65 s	$A/V \geq 0,20$
	Type of use B4 <sup>2)</sup> call centre	0,55 s	$A/V \geq 0,30$
	Type of use B 5		



- 1

**SINGLE OFFICE**  
Requirements:  
High absorption for concentration, good speech intelligibility for phone calls and dialogues
- 2

**SHARED OFFICE**  
Requirements:  
High absorption for concentration, good speech intelligibility for phone calls and team meetings

- 3

**OPEN AREA – ZONED WITH GLASS ACOUSTIC WALL**  
Requirements:  
Reduction of sound transmission and noise level, varying requirements regarding speech intelligibility, high absorption so a number of people can concentrate

- 4

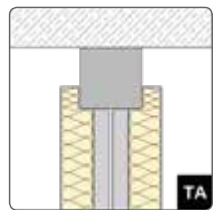
**OPEN OFFICE ZONE**  
Requirements:  
Reduction of sound transmission and noise level, varying requirements regarding speech intelligibility, high absorption so a number of people can concentrate

- 5

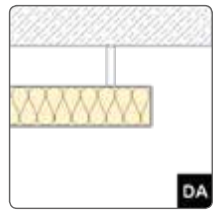
**CUBES**  
Requirements:  
Very high sound insulation, high absorption for concentration, good speech intelligibility for phone calls and dialogues
- 6

**CONFERENCE ROOM**  
Requirements:  
Reduction of reverberation time, reflection and sound transmission, prevention of fluttering echoes, high speech intelligibility

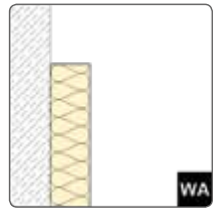
<sup>1)</sup> Variations depending on the room height possible . <sup>2)</sup> Reference to VDI 2569.



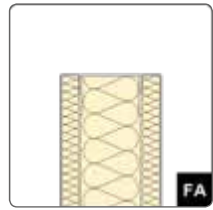
1 PARTITION WALL ABSORBERS  
SYSTEM 7000



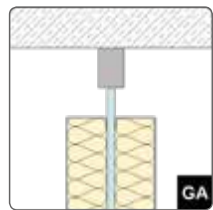
2 CEILING ABSORBERS  
SYSTEM 7300



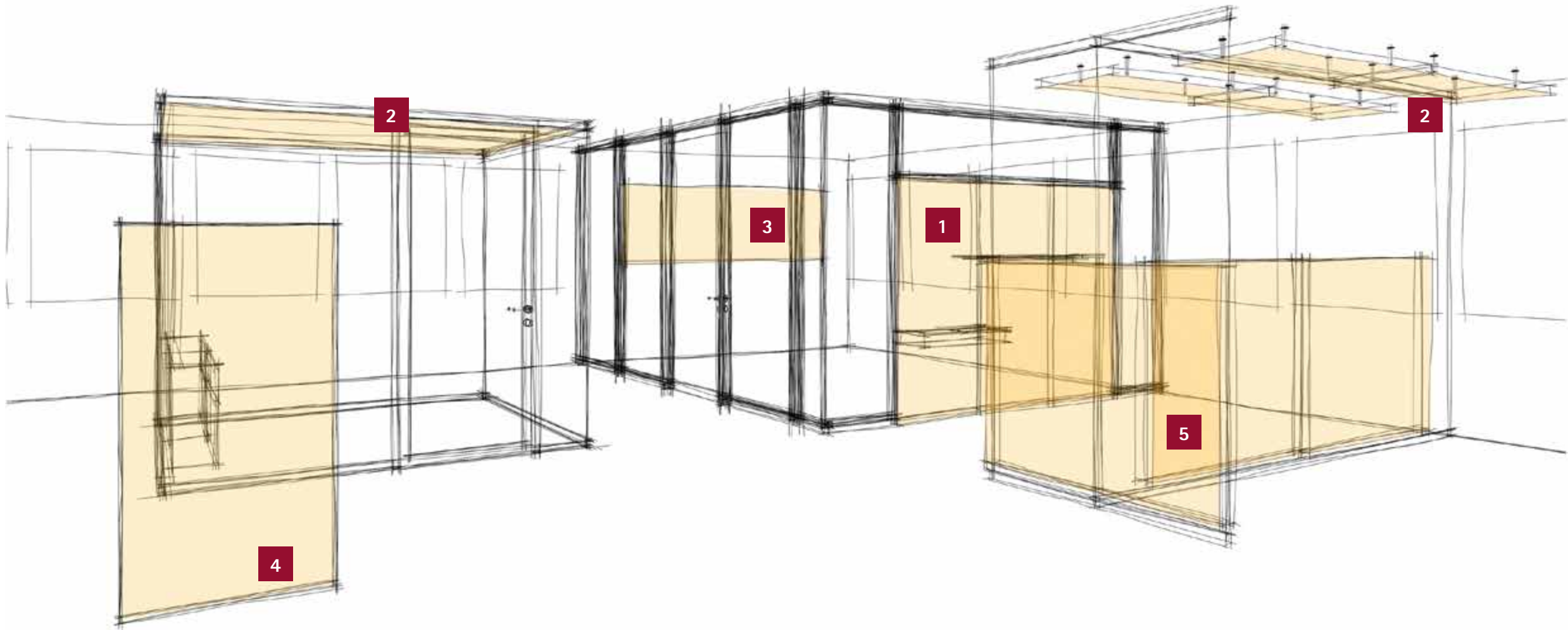
3 WALL ABSORBERS  
SYSTEM 7100



4 FREE-STANDING ABSORBERS  
SYSTEM 7200



5 GLASS WALL ABSORBERS  
SYSTEM 7400



# Your requirements, our solutions.

Sound protection starts with interior design: zoning of space, retreats and the number of meeting rooms are some of the criteria. Room-height zoning and sufficient sound-absorbing surfaces are important conditions when designing open office concepts in order to prevent stressful noise. The Strähle acoustics systems comprise different variants of partition walls and absorbers, which can be used as modules and provide the optimum solution for each application.

## HEALTHY PEACE AND QUIET

Strähle broadband absorbers reduce the noise, particularly in the frequencies of human speech. Prevention of disturbing speech noise enhances concentration and cognitive efficiency.

## INTELLIGIBLE SPEECH

The construction and the position determine the effect of absorbers in the room. For high and low frequencies, Strähle offers different absorbers, with a material mix that has been specially developed and tested. The combination ensures a balanced reverberation time in the entire frequency range for the desired speech intelligibility.

## SUITABLE DESIGN

Flush-fit integration into partition walls and a variety of surfaces such as metal, wood and fabric, and also the avoidance of optical interference that can arise from Moiré patterns, go together to provide a range of variants for visually appealing design.

## CALCULABLE PARAMETERS

All elements of our acoustic systems have been tested by independent institutes.

## EFFICIENT PLANNING

It is this combination of building and room acoustics as well as the optimisation of planning for the use of absorbers that makes Strähle a high-performance partner for the planning and implementation of acoustically fitted interiors.

## RELIABLE IMPLEMENTATION

Strähle acoustic systems are supplied as ready-made elements in consistent quality. They are easy and quick to fit. Absorbers for integrating into partition walls are supplied as pre-manufactured cassettes; their reverberant back walls form a two-layer finish for high sound insulation and at the same time for excellent absorption.





## Acoustic Workshop.

At the headquarters in Waiblingen near Stuttgart, Strähle has an extensive exhibition on show, with competences for high-performance partition wall and acoustic systems. The Acoustic Workshop is both a showroom and a training centre. It covers an area of over 400 square metres and presents an architecturally sophisticated office scene with single, shared and open-space offices as well as room-in-room solutions.

Thanks to the choice of different surfaces and wall constructions, combined with a wide range of simulation options, typical acoustic options can be authentically experienced.

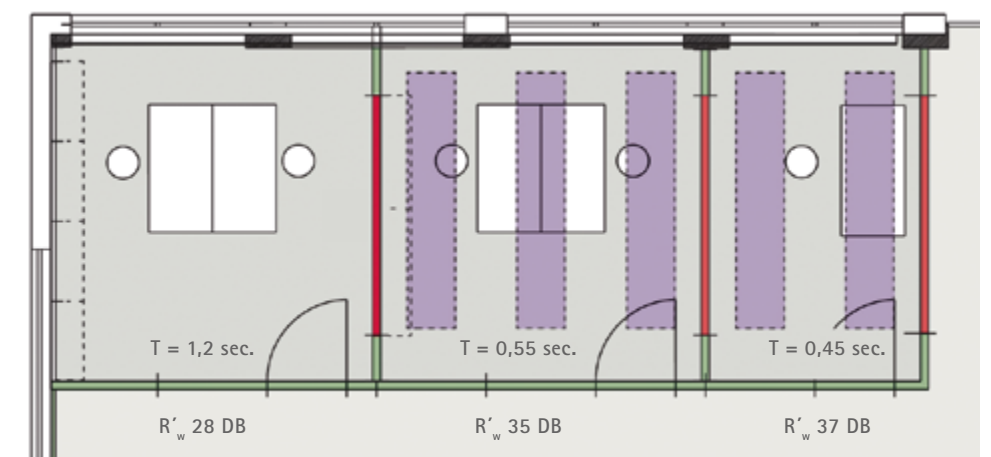
Loudspeakers simulate classic office sounds such as conversations between two or more people. In this way you can compare office and corridor walls with different types of glazing, such as single, double and insulating glass. You can thus compare offices with normal sound insulation and offices with higher soundproofing.





## Experience sound insulation and acoustics.

The effectiveness of absorbers is particularly noticeable if you compare acoustically optimised rooms with reverberation times of up to 0.55 seconds with rooms which have not been optimised, with reverberation times of up to 1.2 seconds. Here you can really grasp the effectiveness and combination options of acoustic systems developed by Strähle.







# Acoustic systems.

Optimum acoustics for every room situation

## Partition wall absorbers

System 7000

Flush-fit integration into a system partition wall

## Wall absorbers

System 7100

Can be applied to an existing wall

## Free-standing absorber

System 7200

For creating zones in open spaces

## Ceiling-mounted absorbers

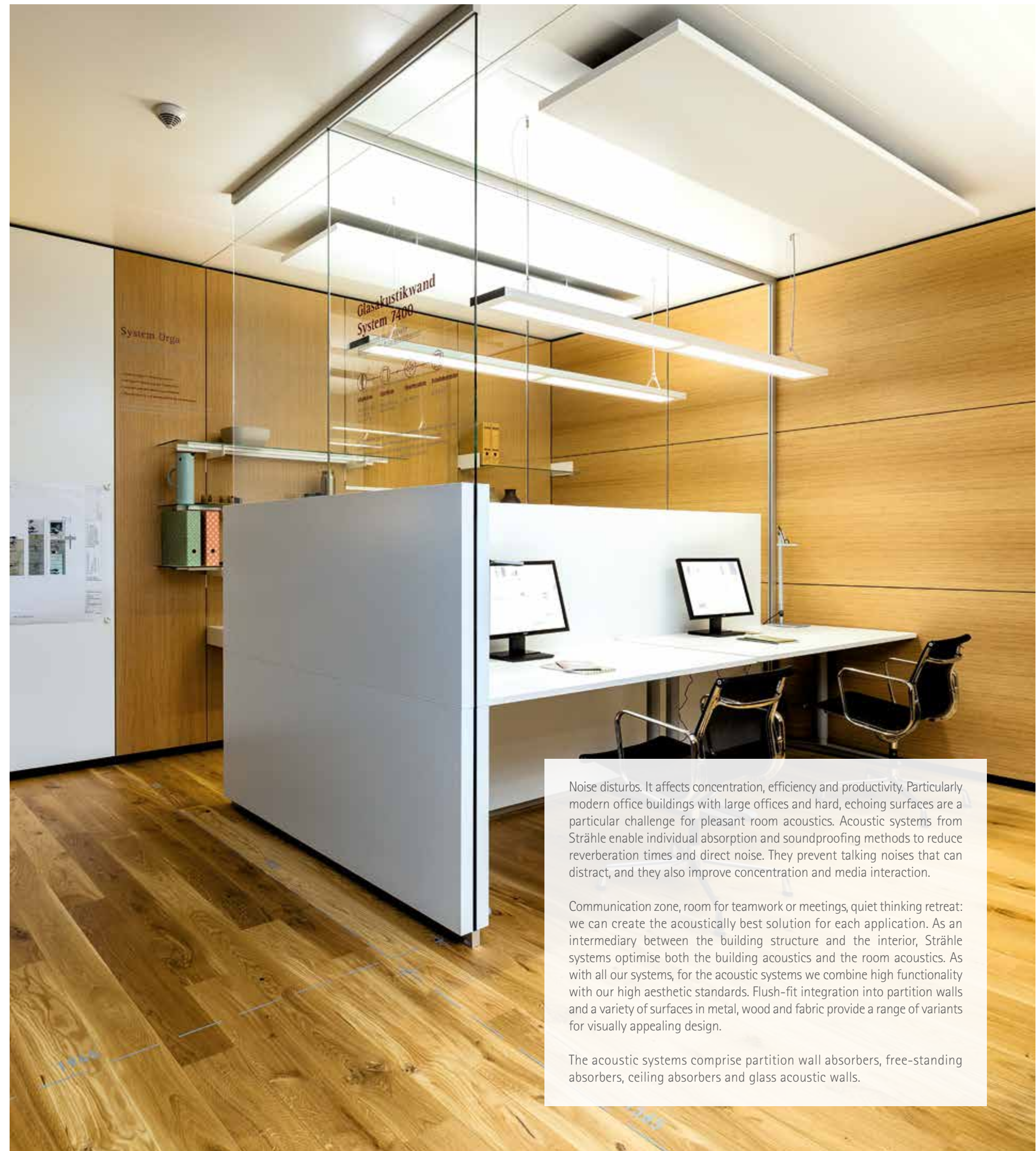
System 7300

As a sail, they can also be used in concrete core active ceilings

## Glass acoustic wall

System 7400

Room-high glass elements combined with wall and ceiling absorbers

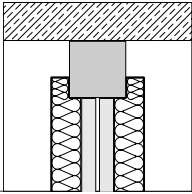
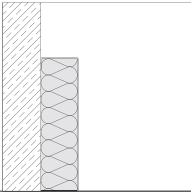




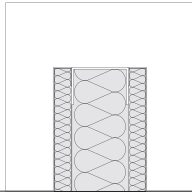
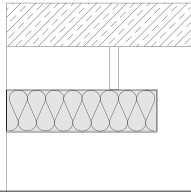
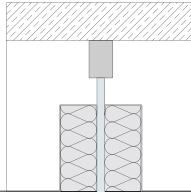



Noise disturbs. It affects concentration, efficiency and productivity. Particularly modern office buildings with large offices and hard, echoing surfaces are a particular challenge for pleasant room acoustics. Acoustic systems from Strähle enable individual absorption and soundproofing methods to reduce reverberation times and direct noise. They prevent talking noises that can distract, and they also improve concentration and media interaction.

Communication zone, room for teamwork or meetings, quiet thinking retreat: we can create the acoustically best solution for each application. As an intermediary between the building structure and the interior, Strähle systems optimise both the building acoustics and the room acoustics. As with all our systems, for the acoustic systems we combine high functionality with our high aesthetic standards. Flush-fit integration into partition walls and a variety of surfaces in metal, wood and fabric provide a range of variants for visually appealing design.

The acoustic systems comprise partition wall absorbers, free-standing absorbers, ceiling absorbers and glass acoustic walls.



Type	Partition wall absorbers	Wall absorbers
Acoustic system	System 7000	System 7100
Material	Wood, metal, fabric	Wood, metal, fabric
Description	Partition wall absorbers zur flächenbündigen Integration in eine Systemtrennwand	Wall absorbers for fixing an existing wall
Detail		
Photo		
Surface	High-pressure laminate, veneer, painted/ powder-coated and/or fabric covering	High-pressure laminate, veneer, painted/ powder-coated and/or fabric covering
Absorber thickness	50 and 60 mm	50, 80 and 100 mm
Fitting on one side in 100 mm wall	50 and 60 mm cassette	–
Fitting on both sides in 100 mm wall	50 mm cassette	–
Fitting on one side in 125 mm wall	50 and 60 mm cassette	–
Fitting on both sides in 125 mm wall	50 and 60 mm cassette	–
Fitting situation	Integrated flush into partition wall	As acoustically effective wall panelling/fronted on drywalls, concrete and masonry walls
Noise absorption	$\alpha_w$ up to 0,8/1,0	$\alpha_w$ up to 0,8/1,0
Sound insulation	one-sided $R_{w,p}$ up to 46/48 dB, both-sided 44 bis 46 dB	–

Free-standing absorbers	Ceiling absorbers	Glass acoustic wall
System 7200	System 7300	System 7400
Wood, fabric	Metal	Metal
Free-standing absorbers to create zones in open-plan areas	Ceiling absorbers as awning for use in core-activated concrete ceilings	Glass acoustic wall room-height glass elements with wall-mounted and ceiling-mounted absorbers
		
		
Painted/powder-coated and/or fabric covering	Painted/powder-coated	Aluminium profiles in E6 EV1 or powder-coated/fabric covering
100 mm	35 and 50 mm	50, 80 and 100 mm
–	–	–
–	–	–
–	–	–
–	–	–
Free-standing elements, bolted to the floor	Suspension height 125–160 mm	Adapted to glass partition wall (System 3400)
Equivalent noise absorption surface depending on the version	$\alpha_w$ up to 0.95 equivalent noise absorption surface depending on the version	$\alpha_w$ up to 1,0
–	–	Sound insulation up to 10 mm toughened safety glass (ESG): $R_{w,p}$ = 32 dB Standardised sound level difference up to $D_{n,T,w}$ = 27 dB



## System 7000

### Partition wall absorbers

#### PARTITION WALL ABSORBERS:

for flush-fit integration into  
a system partition wall

#### SURFACE:

Wood (high-pressure laminate, veneer, painted)  
metal (powder-coated)  
Fabric (Collection Camira Lucia)

#### ABSORBER THICKNESS:

50 and 60 mm

#### FITTING ON ONE SIDE IN 100 MM WALL:

50 and 60 mm cassette

#### FITTING ON BOTH SIDES IN 100 MM WALL:

50 mm cassette

#### FITTING ON ONE SIDE IN 125 MM WALL:

50 and 60 mm cassette

#### FITTING ON BOTH SIDES IN 125 MM WALL:

50 and 60 mm cassette

#### FITTING SITUATION:

flush-fit integrated

#### NOISE ABSORPTION:

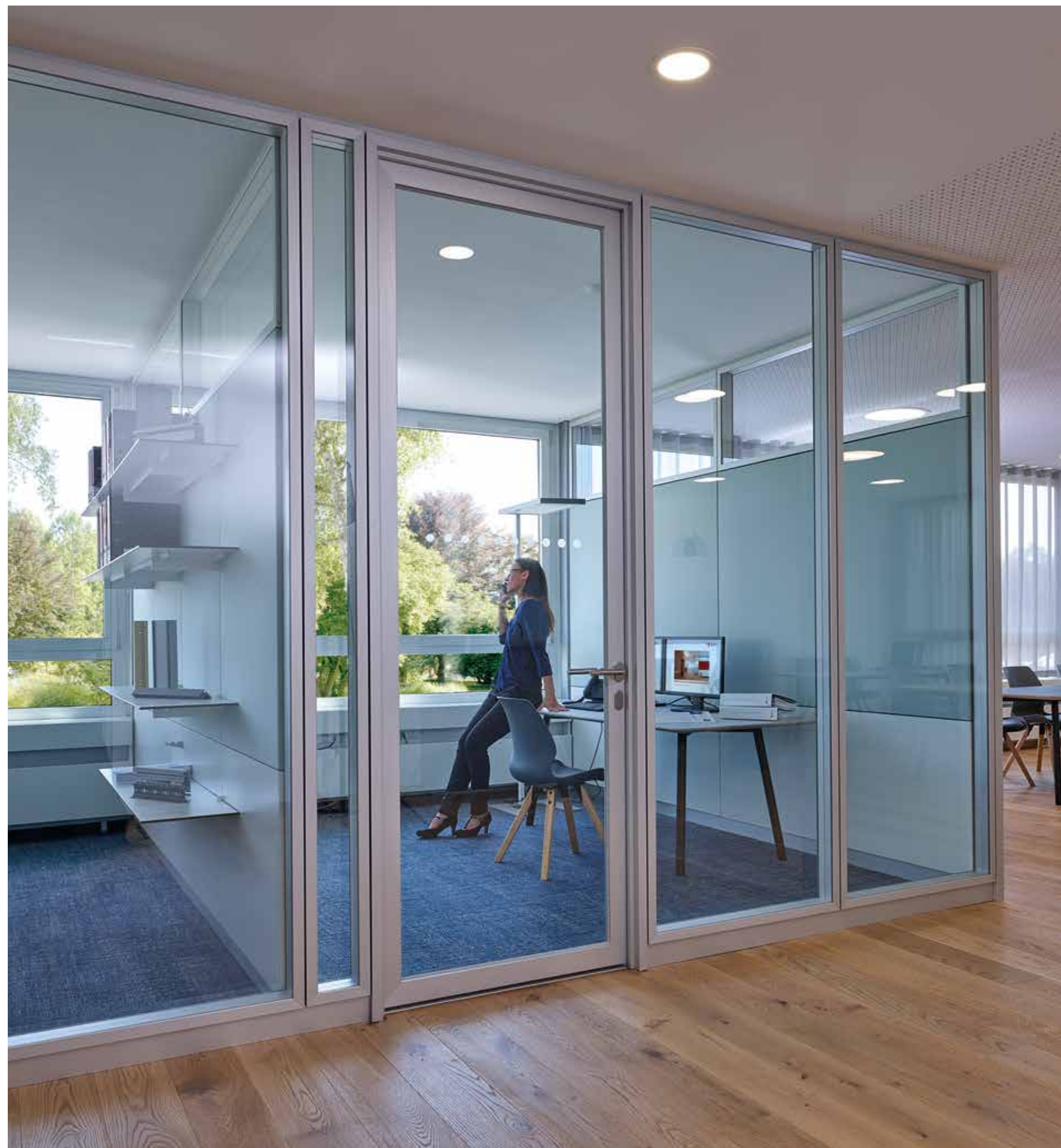
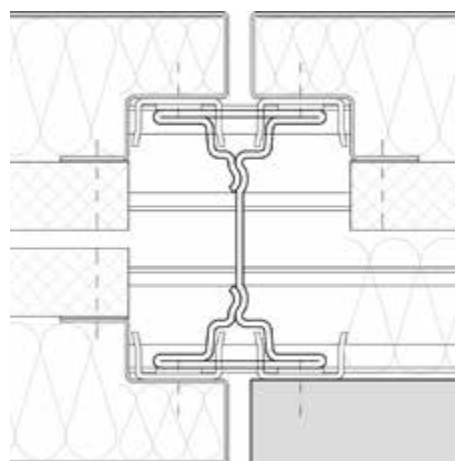
$\alpha_w$  to 1.0

#### SOUND INSULATION:

one side  $R_{w,p}$  up to 46 dB,  
on both sides from 44 to 46 dB

#### TEST CURVES:

see page 58





A wide-angle photograph of a modern office interior. A long hallway with light-colored wooden flooring is lined with glass partition walls. A man in a dark polo shirt and jeans is walking away from the camera down the hallway. The glass partitions are framed in silver and some have frosted lower sections. Through the glass, office desks, chairs, and shelves are visible. The ceiling has recessed circular lights. The overall atmosphere is bright and professional.

## Partition wall with added-value.

Our Acoustic System 7000 can be integrated flush into all Strähle partition wall systems. The size of the absorbing and reflecting material is calculated depending on the requirements. The fine coordination of absorption and sound insulation with balanced values for all room types means that you can plan the interior reliably and efficiently.

The design possibilities are extremely wide-ranging. The partition wall absorbers are available with metal, wooden and textile surfaces and can be realised with a wide variety of perforations, slits and veneer surfaces, as well as in all available colours. Metal and textile versions can be used as magnetic pin boards.



## System 7100

Wall absorbers

### WALL ABSORBERS:

to be applied to an existing wall

### SURFACE:

Wood (high-pressure laminate, veneer, painted)  
metal (powder-coated)  
fabric (Camira Lucia collection)

### ABSORBER THICKNESS:

50, 80 and 100 mm

### FITTING SITUATION:

Fronted on drywalls,  
concrete and masonry walls  
and glass wall

### NOISE ABSORPTION:

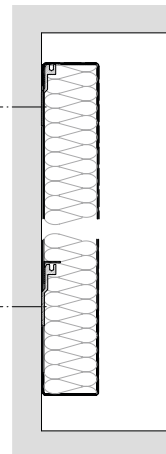
$\alpha_w$  up to 0.9 (wood)

$\alpha_w$  up to 1.0 (metal)

$\alpha_w$  up to 1.0 (fabric)

### TEST CURVES:

see page 58



Top-quality module solution. Absorber elements from Strähle can be used as wall-mounted or shell panels, or as an independent element affixed directly on glass, solid-built walls or drywalls.

Metal and textile cassette absorbers are also available which can be used with magnets or pins as presentation or working surfaces. The wall-mounted absorbers can be installed using metal suspension rails.





**Mobile noise absorber.**  
System 7200 is perfect for zoning in open space offices. When correctly positioned, the free-standing elements absorb the unwanted disturbance right at the source. Different working areas can thus be acoustically separated from one other. They can open or close room situations.

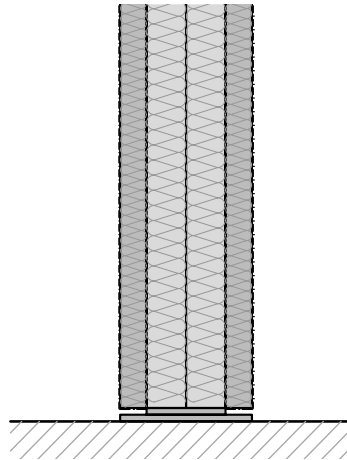
As with all our acoustic systems, the surface can be individually designed.



## System 7200

Free-standing absorbers

**FREE-STANDING ABSORBERS:**  
for creating zones in open spaces  
**SURFACE:**  
Metal (powder-coated)  
fabric (Camira Lucia collection)  
**ABSORBER THICKNESS:**  
100 mm  
**FITTING SITUATION:**  
Free-standing elements,  
bolted to the floor  
**NOISE ABSORPTION:**  
equivalent noise absorption surface  
depending on the version  
**TEST CURVES:**  
see page 59





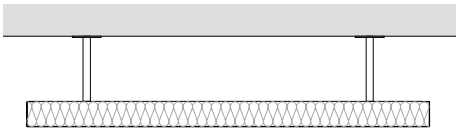
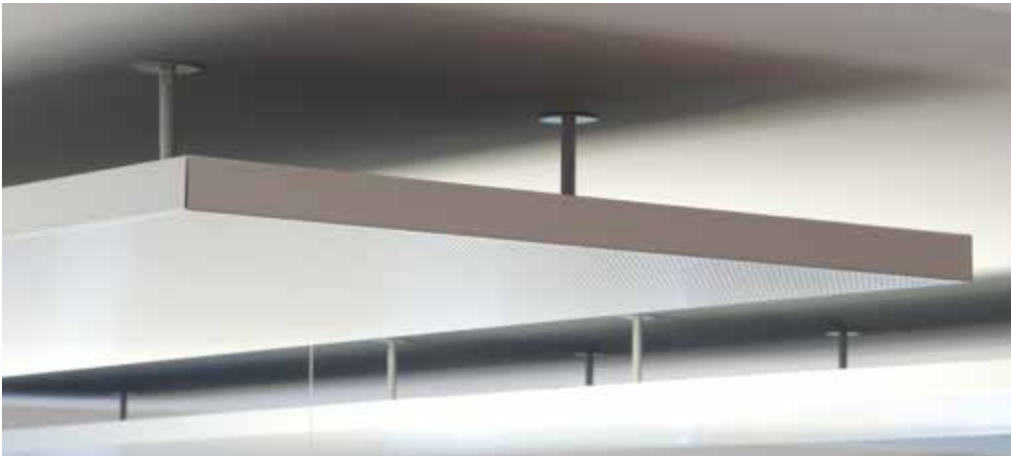


# System 7300

Ceiling-mounted absorber

For particularly high requirements for the level of sound absorption, ceiling-mounted absorbers are the ideal complement to wall absorbers. Reverberant surfaces and concrete core activated ceilings are made acoustically effective. They can be applied over a large area and thanks to their high sound absorption level they have a very large influence on the reverberation in the room. System 7300 can be combined with lighting and other building services functions.

- CEILING-MOUNTED ABSORBERS:** As a sail, they can also be used in concrete core active ceilings
- SURFACE:** Metal (powder-coated)
- ABSORBER THICKNESS:** 35 and 50 mm
- FITTING SITUATION:** Suspension height 125–160 mm
- NOISE ABSORPTION:**  $\alpha_w$  of a closed suspended ceiling up to 0.95; equivalent noise absorption surface depending on the version
- TEST CURVES:** see page 59

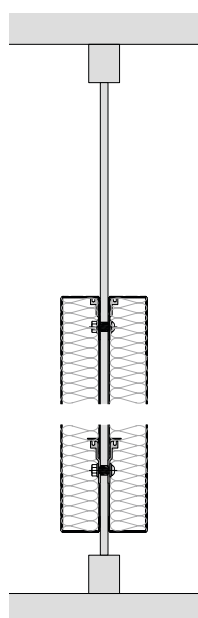






## System 7400

Glass acoustic wall for zoning with sound screening and sound absorption



### ALL-GLASS WALL:

System 3400 with 10 mm toughened glass

### SURFACE:

Aluminium profiles in E6/EV1 or powder-coated

### SOUND INSULATION:

With 10 mm toughened glass:  $R_{w,p} = 32$  dB

### NORM SOUND LEVEL DIFFERENCE:

Up to  $D_{n,T,w} = 27$  dB

### SURFACE GLASS WALL ABSORBERS:

Metal (powder-coated) various micro-perforations

### ABSORBER THICKNESS:

50, 80 and 100 mm

### NOISE ABSORPTION:

$\alpha_w$  up to 1.0 (metal)

### TEST CURVES:

see page 58

### Multifunction in one product

- Zoning the office space
- Acoustic and optical privacy and at the same time transparency and retention of the interior architecture
- Integration of installations
- Pin board function (magnets)
- Improved workplace quality due to reduction of acoustic and visual disturbance factors
- Enhanced motivation thanks to improved concentration and privacy
- Flexibility thanks to simple shifting of the glass acoustic wall, making adjustment to altered conditions possible at any time



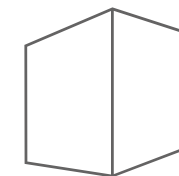
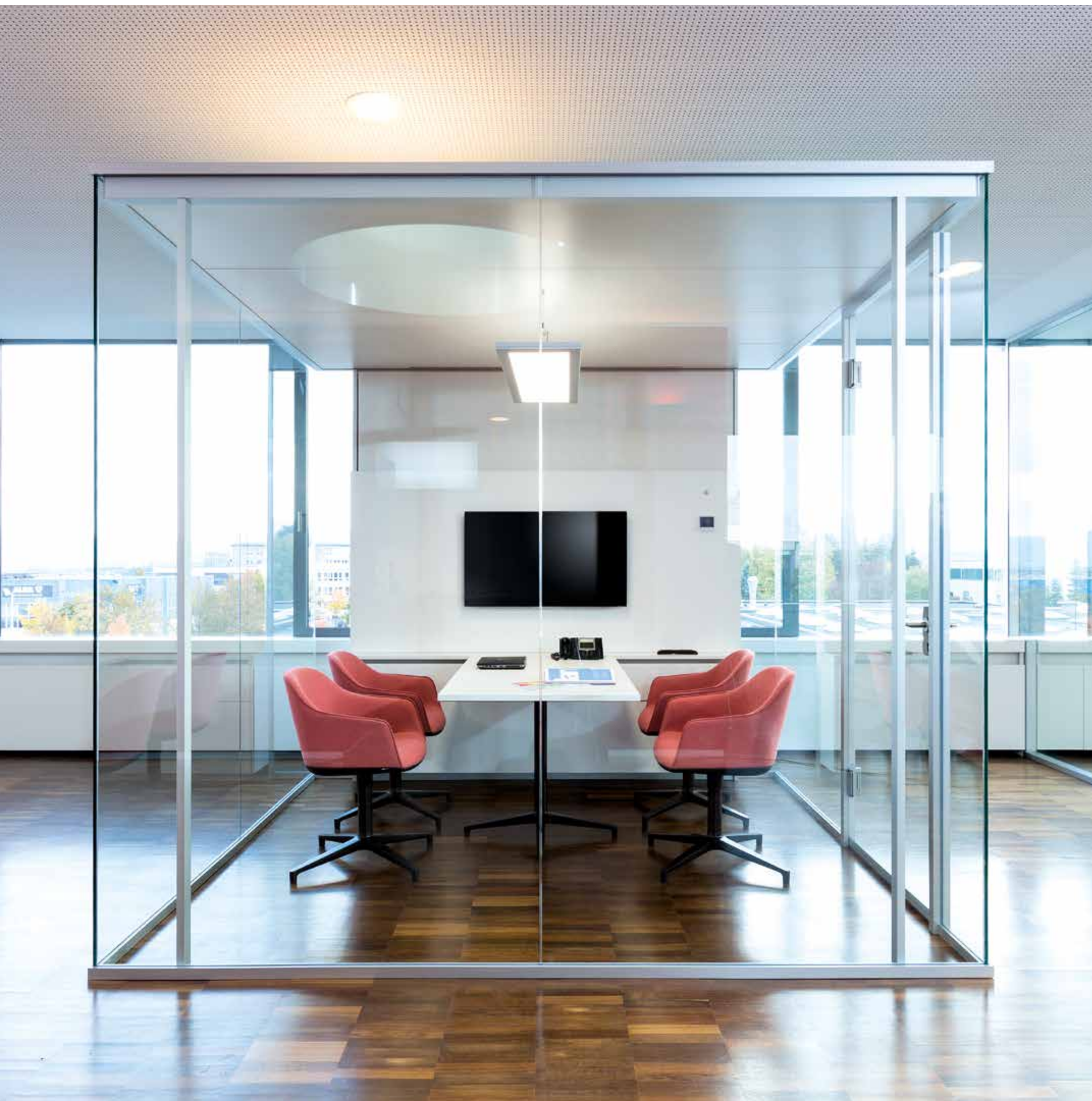
Communication and concentration. The transparent and acoustically highly effective glass acoustic wall System 7400 is used when planning open-space offices. It combines room-high glass elements with wall and ceiling absorbers.

Zones, separated from one another acoustically, are formed whilst at the same time the impression of an open space is maintained. The micro-perforated absorber elements are designed specifically for human speech and have a special layered structure. They cover a wide frequency range from 100 to 5000 Hz. This enables a reverberation time dependent on the task and the creation of confidential work areas. But acoustics in open space are more than just reverberation times. In addition, differences in level and speech intelligibility are also important criteria in acoustic planning.



Concentration  
glass acoustic  
communication wall





# Kubus.

**New rooms in open-plan offices –  
room-in-room solutions  
for modern office concepts.**

## Kubus I

The room-in-room system with single glazing offers transparent areas of retreat. Kubus I is equipped as a room for making phone calls and holding meetings with one, two or four participants.



## Kubus II

The room-in-room system with double glazing combines aesthetics and functionality. Excellent sound insulation values guarantee a concentrated working environment. Kubus II has been designed as a meeting room for up to six people.



Retreat,  
conference room,  
think tank.

Strähle room-in-room systems create new rooms in open spaces. They enhance modern, open-plan office concepts and contribute considerably to their acceptance. As they can be freely positioned within the space, they enable efficient use of space without detracting from the transparency. The cubes can be flexibly configured, are highly soundproofed and have extremely functional equipment. As an option, the room systems can also be equipped with a self-contained electrical cooling unit as a plug & play solution, independent of the existing technology used in the building. That is why the Strähle Kubus won the Innovation Award.



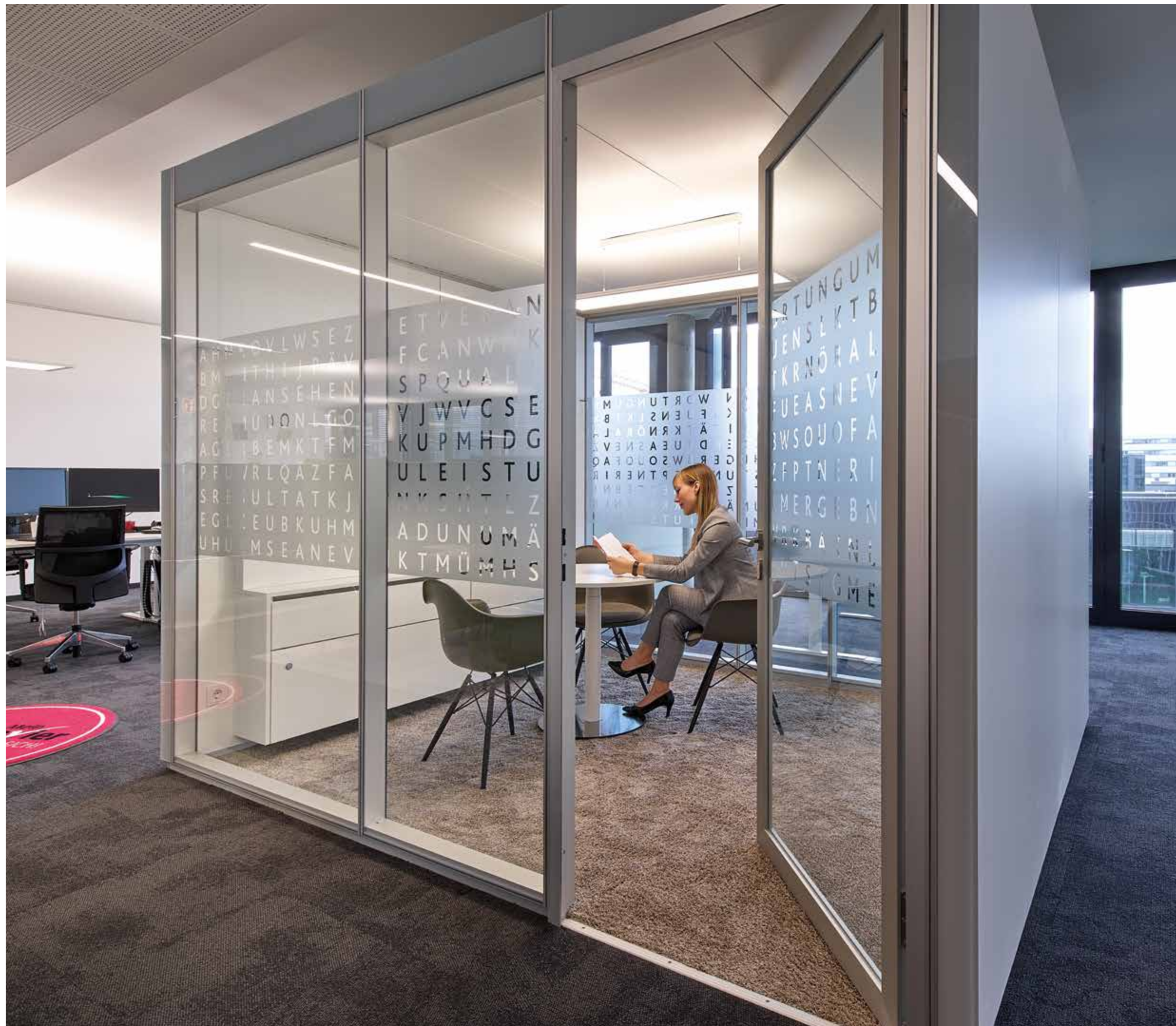
Design	Kubus I – Single glazing				Kubus II – Double glazing	
Type	Micro	Dialog	Team	Meeting	Team	Meeting
Description	A cosy micro space for phone calls or as a one-person space for undisturbed working. Its compact dimensions guarantee particularly efficient use of space in open-plan offices.	The room-in-room solution for two-person meetings or as a compact retreat area for working undisturbed. Thanks to the L-shape, it can be flexibly combined into groups of two or four.	High-quality conference space as a free-standing solution in the office. The system features high transparency and a multifunction wall. The team version can be used by up to four people.	High-quality conference space as a free-standing solution in the office. The system features high transparency and a multifunction wall. The meeting version can be used by up to six people.	The elegant design with slim visible widths, and flush-fit glazing on the outside, enables easy integration into a range of different office space concepts. Excellent sound insulation values and the integrated ventilation unit guarantee discretion and a high degree of working comfort. The team and meeting versions can be used by up to four and six people respectively.	
Layout						
Photo						
Persons	1	1 – 2	4	6	4	6
Dimensions	L: 1.500 mm W: 1.200 mm H: 2.300 mm	L: 2.200 mm W: 1.600 mm H: 2.300 mm	L: 2.706 mm (2 Modules) W: 2.774 mm H: 2.500 mm	L: 3.956 mm (3 Modules) W: 2.774 mm H: 2.500 mm	L: 2.684 mm (2 Modules) W: 2.750 mm H: 2.530 mm	L: 3.934 mm (3 Modules) W: 2.750 mm H: 2.530 mm
Glazing	Single glazing, 10 mm toughened glass		Single glazing, 10 mm toughened	glass/16 mm laminated glass	Double glazing, 6 and 8 mm ESG	
Doors	All-glass door 10 mm toughened glass		All-glass door 10 mm 40 mm aluminium frame door with	toughened glass or 12 mm SI laminated glass glazing	40 mm aluminium frame with 12 mm VSG-SI	
Sound isolation*	$D_{n,T,w}$ = approx. 28 dB (equivalent to $R'_w$ of approx. 34 dB)		10 mm toughened glass: $D_{n,T,w}$ = 28 dB 16 mm laminated glass: $D_{n,T,w}$ = 32 dB	(equivalent to $R'_w$ of approx. 34 dB) (equivalent to $R'_w$ of approx. 39 dB)	$D_{n,T,w}$ = 36 dB (equivalent to $R'_w$ of approx. 42 dB)	
Acoustics	micro-perforated, metal ceiling, optional wall panels with felt		Micro-perforated ceiling panels and micro-perforated wall absorbers, low reverberation times of < 0.5 s over the entire frequency range			
Ventilation	Air extraction device integrated into the system ceiling combined with flow duct, output in comfort mode 60 m³/h, max. output up to 120 m³/ h		Soundproofed ventilation system with stepless comfort mode up to 150 m³/h, intensive airing up to 210 m³/h			
Equipment	Optional wall elements with felt or optinal blinds for visual privacy	Wall element with fixing points for screens and power sockets	Wall panel for affixing screens, optional sideboard providing storage space with integrated power points			
Lighting	LED wall light and optional constant LED ambience lighting	Two swivel-mounted LED pendant lights	LED pendant light with direct and indirect light distribution			
Standard equipment			Type A: Lighting + ventilation.	On/off control via presence detector.		
Optional equipment	–		Type B: Lighting + ventilation. Type C: Lighting + ventilation + cooling for Type Plus: Lighting + ventilation +	On/off and ventilation control via touch display, automatic mode via presence detector. connection to the building's cold-water supply. On/off and ventilation control via touch display, automatic mode via presence detector. cooling with a self-contained electrical cooling unit as a plug-and-play solution. On/off and ventilation control via touch display, automatic mode via presence detector.		

Subject to technical modifications.

Design
Type
Description
Layout
Photo
Persons
Dimensions
Glazing
Doors
Sound isolation*
Acoustics
Ventilation
Equipment
Lighting
Standard equipment
Optional equipment

Subject to technical modifications.  
\*  $D_{n,T,w}$  in contrast to the sound insulation value, this does not define the transfer of noise across a component, rather the transfer of noise between two rooms





## FUNKE Mediengruppe, Essen

Varied and individual

### ARCHITECTURE:

AllesWirdGut, Vienna

### CLIENT:

Funke Mediengruppe  
GmbH & Co. KGaA

### PARTITION WALL SYSTEMS 2000

### ROOM-IN-ROOM-SYSTEMS

### KUBUS II

On an area of 37,000 square metres, the new corporate headquarters of the FUNKE MEDIENGRUPPE provides its roughly 1000 FUNKE staff with an atmosphere which promotes creativity and team work. The aim was to create a place which would promote communication and efficient working with its modern structures. Over sixty cubes from Strähle are distributed amongst the different departments, available for meetings and phone calls. Thanks to their double glazing, they fulfil the most stringent sound insulation regulations and are therefore ideally suited to the open-space concept. The Kubus II Dialog room-in-room system integrates ventilation, cooling, lighting and acoustic elements. Thanks to the modular design of the partition walls and room-in-room systems, the varying demands placed on modern workplaces can be met in the long term.



# Henze AG, Lauben

Transparent solution

## ARCHITECTURE:

Dobler GmbH & Co. KG  
Planungsbüro,  
Ingenieurbüro/Akustik Fuchs  
Raumingenieure GmbH

## CLIENT:

Henze BNP AG

## ACOUSTIC SYSTEMS

7400



With the high-quality 7400 glass acoustic wall it was possible to retain the transparent, communicative office concept and at the same time create an atmosphere conducive to concentrated work. Planning focussed on optimising the indoor acoustics. The open office premises were divided up with T-shaped sound screens which fitted into the structure of the building.

The indoor pillars form the node of the T-shaped sound screens. Thanks to the horizontal, half-height sound absorbers, the whole room is optically intact. At the same time, the work spaces are protected acoustically from each other and provide greater individuality. The micro-perforated absorber elements are designed specifically for human speech. With their special layered structure, they cover the broad frequency band from 100 to 5000 Hz.





## Pilz, Ostfildern

Open space work areas  
with glass acoustic walls

### ARCHITECTURE:

MPS Bauplanung GmbH,  
Stuttgart

### CLIENT:

Pilz GmbH & Co. KG.

### ACOUSTIC SYSTEMS

7400

The family firm of Pilz has favoured open space concepts at its head office for many years now. When converting an existing building into a research and development centre, the 7400 glass acoustic wall was used to zone the office and work areas. Closed corridor walls or doors were intentionally avoided.

The glass acoustic wall combines room-height glass elements with noise absorbers. This meant that the developer teams were able to have work areas that were acoustically separated, but without doors. Thanks to the discreet positioning of the highly effective absorbers, the feeling of space is visually retained and daylight can enter the rooms unhindered. Combined with the acoustically effective ceiling installed on the building, this provides for a pleasant working environment with low sound levels.



# Münzing Chemie, Abstatt

Concentrated laboratory work

**ARCHITECTURE:**

müller . architekten,  
Heilbronn

**CLIENT:**

Münzing Chemie GmbH

**ACOUSTIC SYSTEMS**

7000, 7300



Ceiling absorbers and absorbers integrated into the walls, with a high degree of sound absorption, ensure undisturbed, concentrated work in highly frequented lab areas. Together with partition wall system 2000/2300, the result is modern office environments for exchange and communication, but also for retreat and calm.





# Dürr Campus

Transparent and communicative

## ARCHITECTURE:

Planning group with  
SCHREINER Architekten  
BDA und WERKTEAM  
Freie Architekten

## CLIENT:

AIG Planungs- und Ingenieur-  
gesellschaft mbH

## ACOUSTIC SYSTEMS

7000, 7100, 7200, 7300

The requirements that Dürr specified for its office design were: conducive to communication, and flexible. The result was a modern, varied work space concept divided up into single, group and open space offices, and conference rooms.

The predominantly open room design meant high requirements regarding acoustic optimisation of the rooms, in particular reduced reverberation times.

These wishes were all fulfilled using the partition wall system 2000 and a variety of absorber elements from system family 7000. On the basis of structural calculations, an advance concept assessment was made for positioning and quantity of acoustically effective surfaces. The complete solution comprises partition wall systems with flush-fit integrated absorbers, free-standing metal absorber elements and ceiling absorbers.





# Expert acoustic planning

We are experts in acoustically optimised room design. We can find the right acoustic solution for every indoor situation by drawing on the wide range of combination options from our systems.

Our services:

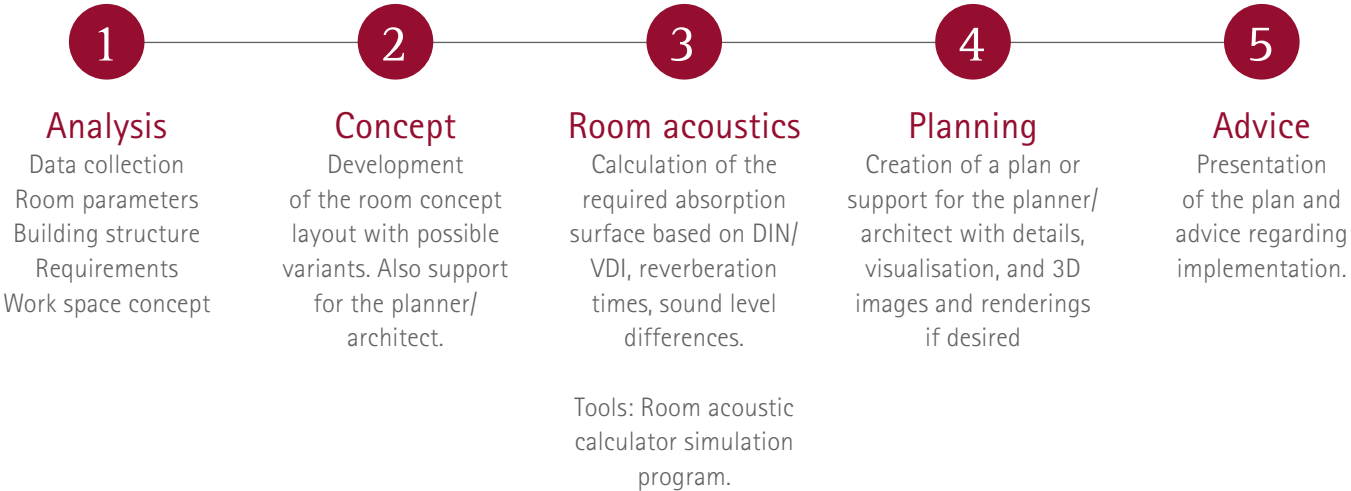
- Advice and analysis
- Planning support
- Design development and customer advice regarding noise protection and absorption
- Indoor acoustic calculations to quantify the required absorption surface and building acoustic calculations
- Measurement of reverberation time in compliance with DIN norms and sound level differences

For specific, more technically advanced tasks we work together with specialist engineering firms.

With the aid of simulation programs, the anticipated sound level differences between the work areas can be assessed and presented in the planning phase.



Planning process.  
Five steps to your individual interior concept:







## Planning examples

Which acoustics does which room need?

Communication, lectures, conversation, concentration: As much as rooms vary, the requirements for acoustic design vary too. The Strähle acoustic specialists always implement the very best acoustics. Our systems can be integrated into new plans and also into existing structures when they are optimised.

In order to achieve an acoustically effective division of rooms, when planning the indoor acoustics our experts pay particular attention to:

- the geometry of the room (volume, indoor height, surfaces)
- materials and their noise absorption (e. g. acoustically effective or absorbent ceiling)
- furnishings and equipment
- number of work places, team formation, etc.
- tasks that need to be carried out (communication, concentration)
- possible sources of noise



By means of the positioning, workplaces have greater privacy and improved acoustic separation.





# Materials & surfaces

## Absorbers



**Metal:**  
**RAL 9016**  
(other RAL colours  
on request),  
powder-coated



**Fabric:**  
**Collection**  
**Camira**  
(other colours on  
request)



**High-pressure  
laminate: white**  
(similar to RAL 9016,  
other surfaces  
on request)



**High-pressure  
laminate:  
wood/veneer**  
(other veneers  
on request)

## Collection Camira Lucia/Racer

**COMPOSITION:**  
100 % Trevira CS  
flame-retardant polyester  
**WIDTH:**  
170 cm usable width  
**WEIGHT:**  
265 g/square metre  
± 5 % (440 g/linear metre ± 5 %)  
**FIRE PROTECTION:**  
DIN 4102 B1  
**LIGHT FASTNESS:**  
6 (ISO 105-B02:2014)  
**FRICTION RESISTANCE:**  
Wet: 4  
**CLEANING:**  
Vacuum regularly, wipe with  
a damp cloth or treat with special  
upholstery foam  
**COLOUR DEVIATIONS:**  
Subject to customary  
colour deviation

## Fabric selection

 OYSTER YB107	 RUM YB086	 ARUBA YB093	 SANDSTORM YB302
 TEQUILA YB038	 STEEL YB095	 CALYPSO YB106	 BRIDGETOWN YB102
 CAMPECHE YB301	 APPLE YB096	 BLUEBELL YB097	 BURU YB170
 SCUBA YB089	 BLIZZARD YB108	 OCEAN YB100	 PASEO YB019
 NU048 RACER DASH	 NU016 RACER PLUNGE	 NU022 RACER BOLT	 NU003 RACER BATON

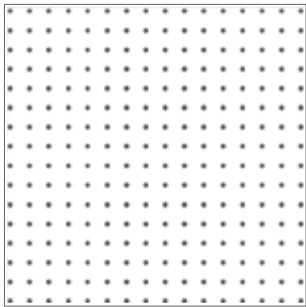




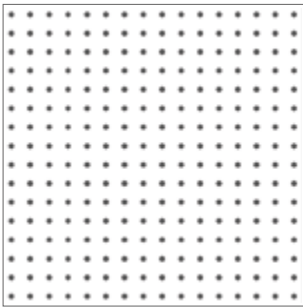


# Perforations

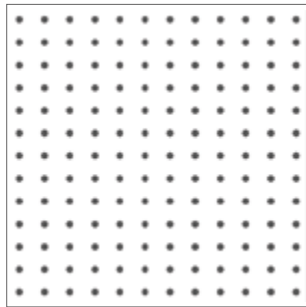
Metal and wood absorbers



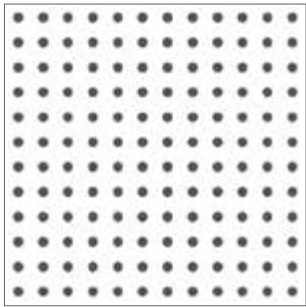
P02 metal: Rg 0.7 x 3.1  
open surface 4 %



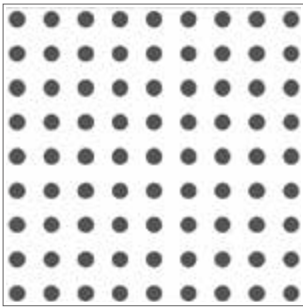
P17 metal: Rg 0.8 x 3.0  
open surface 6 %



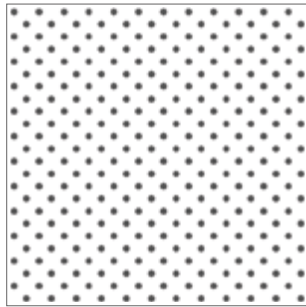
P13 metal: Rg 1.0 x 4.0  
open surface 6 %



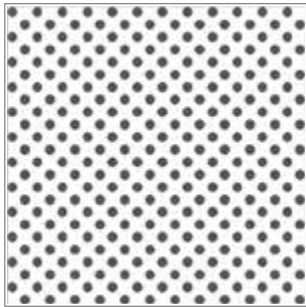
P03 metal: Rg 1.5 x 4.0  
open surface 11 %



P01 metal: Rg 2.5 x 2.5  
open surface 16 %



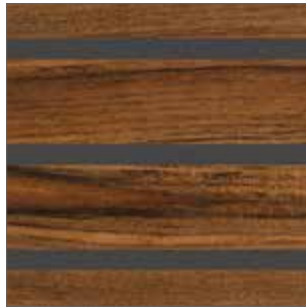
P15 metal: Rg 1.0 x 2.83  
open surface 2 %



P15 metal: Rg 1.5 x 2.83  
open surface 22 %



P14 wood: Rg 1.2 x 4.0  
open surface 7 %



S01 wood: 3.0 x 16.0

Perforation index for metallic absorbers

P01

P02

P03

P13, P17

P15

P16

Note

Perforation for ceiling absorbers and absorbers with fabric covering

Perforation in visible area (only possible with metal sheet thickness or 0.7 mm, dimensions limited)

Perforation for greater absorption requirements

Standard perforation for PWA, WA, GWA

Perforation for greater absorption requirements

Perforation for greater absorption requirements



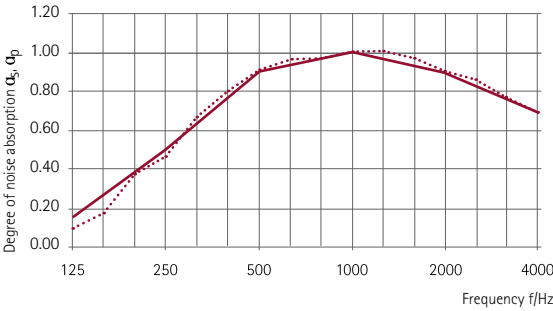
Strähle standard perforation features a fine all-round edge.

Depending on the requirements and room situation, the side surfaces can also be perforated. The perforations on the front and side surfaces then each have an all-round edge.

# System 7000

Partition wall absorbers

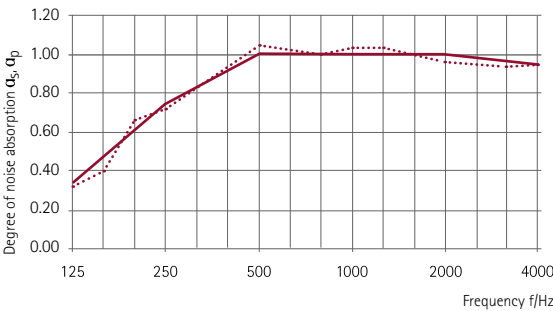
**Partition wall absorbers metal 50 mm**  
**Absorber type 7000-050-M1-P013**  
On one side and both sides in partition walls of 100 and 125 mm thickness  
Perforation: Rg 1.0 x 4.0 mm  
Sound insulation on one side: R<sub>wP</sub> up to 46 dB  
Sound insulation on both sides: R<sub>wP</sub> 44 to 46 dB



Frequency f/Hz	125	250	500	1000	2000	4000
$\alpha_p$	0.15	0.50	0.90	1.00	0.90	0.70

$\alpha_w$  **0.80**  
Absorber category **B**  
Test institute: TÜV Rheinland, Nürnberg

**Partition wall absorbers metal 60 mm**  
**Absorber type 7000-060-M1-P01**  
On one side in partition walls of 100 mm, both sides in partition walls of 125 mm  
Perforation: Rg 1.0 x 4.0 mm  
Sound insulation on one side: R<sub>wP</sub> up to 46 dB  
Sound insulation on both sides: up to 52 dB



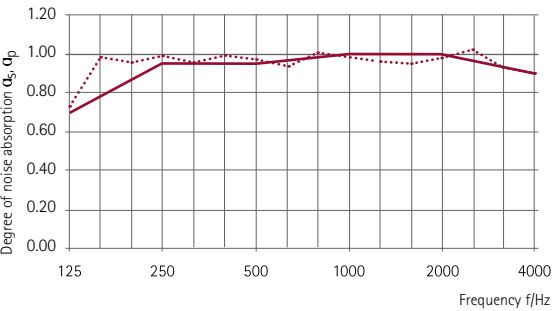
Frequency f/Hz	125	250	500	1000	2000	4000
$\alpha_p$	0.35	0.75	1.00	1.00	1.00	0.95

$\alpha_w$  **1.00**  
Absorber category **A**  
Test institute: tgm Staatliche Versuchsanstalt, Wien

# System 7100/7400

Wall absorbers

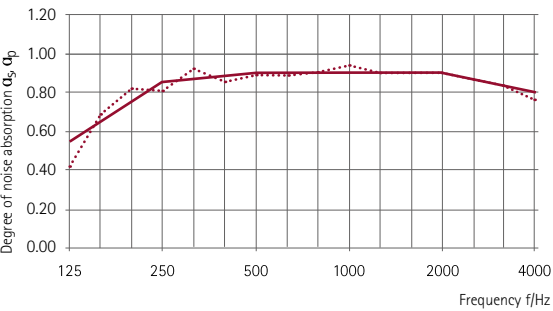
**Wall absorbers/Glass wall absorbers metal 100 mm**  
**Absorber type 7100/7400-100-M1-P03**  
Perforation: Rg 1.5 x 4.0 mm



Frequency f/Hz	125	250	500	1000	2000	4000
$\alpha_p$	0.70	0.95	0.95	1.00	1.00	0.90

$\alpha_w$  **1.00**  
Absorber category **A**  
Test institute: Fraunhofer IBP, Stuttgart

**Wall absorbers/Glass wall absorbers metal 100 mm**  
**Absorber type 7100/7400-100-M1-P13**  
Perforation: Rg 1.0 x 4.0 mm



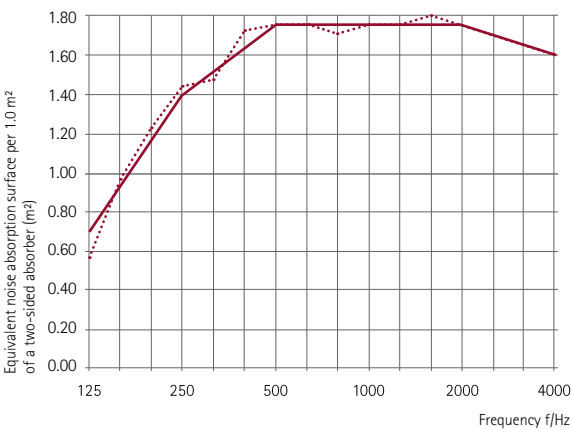
Frequency f/Hz	125	250	500	1000	2000	4000
$\alpha_p$	0.55	0.85	0.90	0.90	0.90	0.80

$\alpha_w$  **0.90**  
Absorber category **A**  
Test institute: TÜV Rheinland, Nürnberg

# System 7200

Free-standing absorbers

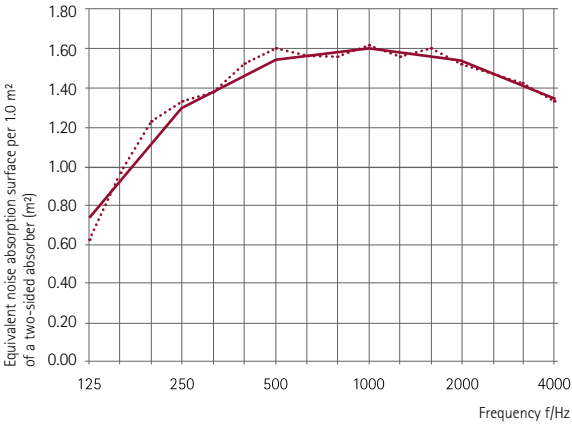
**Free-standing absorbers metal 100 mm**  
**Absorber type 7200-100-M2-P03**  
Perforation: Rg 1.5 x 4.0 mm



Frequency f/Hz	125	250	500	1000	2000	4000
$A_{eq}$	0.70	1.40	1.75	1.75	1.75	1.60

$A_{eq}$  Equivalent noise absorption surface per 1.0 m<sup>2</sup> of a **two-sided** absorber (m<sup>2</sup>)  
Test institute: TÜV Rheinland, Nürnberg

**Free-standing absorbers metal 100 mm**  
**Absorber type 7200-100-M2-P13**  
Perforation: Rg 1.0 x 4.0 mm



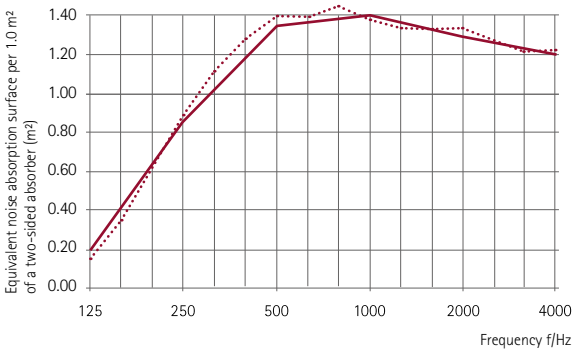
Frequency f/Hz	125	250	500	1000	2000	4000
$A_{eq}$	0.75	1.30	1.55	1.60	1.55	1.35

$A_{eq}$  Equivalent noise absorption surface per 1.0 m<sup>2</sup> of a **two-sided** absorber (m<sup>2</sup>)  
Test institute: TÜV Rheinland, Nürnberg

# System 7300

Ceiling absorbers

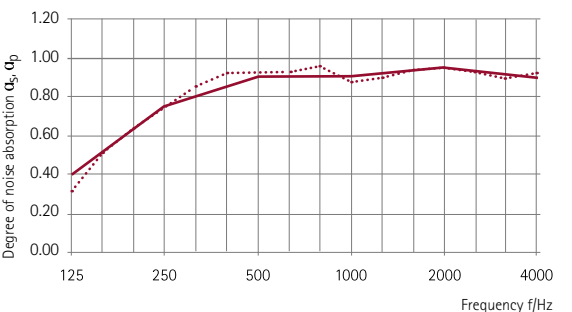
**Ceiling absorbers metal**  
**Absorber type 7300-035-M1-P01**  
Strähle Ceiling absorbers, suspension height 135mm  
Perforation: Rg 2.5 x 5.5 mm



Frequency f/Hz	125	250	500	1000	2000	4000
$A_{eq}$	0.20	0.85	1.35	1.40	1.30	1.20

$A_{eq}$  Equivalent noise absorption surface per 1.0 m<sup>2</sup> of ceiling panels (m<sup>2</sup>)  
Test institute: TÜV Rheinland, Nürnberg

**Ceiling absorbers metal**  
**Absorber type 7300-035-M1-P01**  
Ceiling as a closed ceiling  
Suspended metal acoustic ceiling, suspension height 135 mm  
Perforation: 2.5 x 5.5 mm



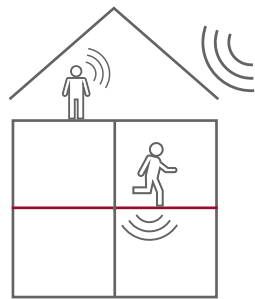
Frequency f/Hz	125	250	500	1000	2000	4000
$\alpha_p$	0.40	0.75	0.90	0.90	0.95	0.90

$\alpha_w$  **0.95**  
Absorber category **A**  
Test institute: TÜV Rheinland, Nürnberg



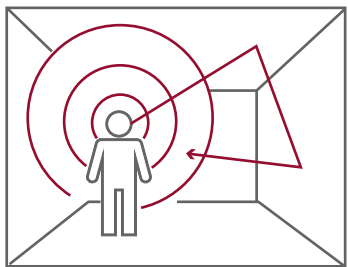


# Terms & parameters



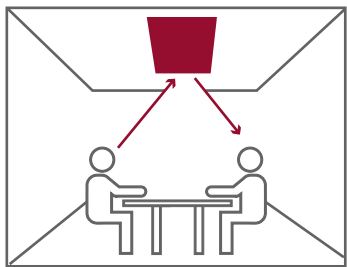
## Building acoustics

Deals with the effect of the building structure on sound distribution between the rooms and to the outside in sound insulation.



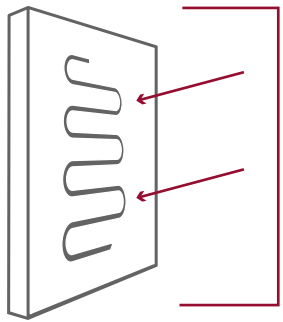
## Room acoustics

A decisive factor in the conditioning of a room is its reverberation. Hard surfaces predominantly reflect sound, while absorbers convert the sound energy. A smart combination of acoustic systems helps achieve the desired reverberation depending on how the room is used.



## Reverberation time

Is one of the relevant criteria of room acoustics. It defines the period of time until a sound event is inaudible in a quiet room. The length of time after a sound source is switched off until the sound level has dropped by 60 dB, is measured in seconds (s).



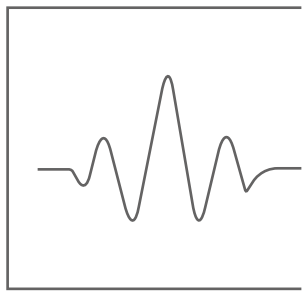
## Absorption

Denotes the capacity to convert sound energy into thermal energy. The sound absorption coefficient ranges between 0 for none and 1 for complete absorption.



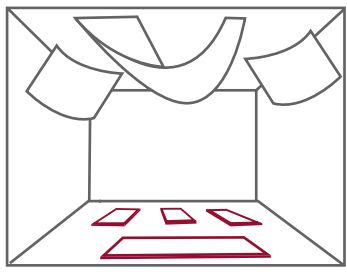
## Sound

Denotes the physical phenomenon of mechanical oscillations in elastic media such as air. Sound events are registered by the human ear as pleasant, such as music, or as unpleasant, as noise.



## Frequency

Denotes the number of oscillations per second in Hertz, Hz.



## Weighted sound absorption coefficient

$\alpha_w$  denotes the comparison between the frequency of materials and products with a reference curve. The absorption capacity is measured in the echo chamber of a licensed institute, following standardised methods. The standardised reference curve is used to calculate the weighted sound absorption coefficient as a single-figure value. This is read off at 500 Hz.



## Norm sound level difference

$D_{n,T,W}$  in contrast to the sound insulation value, this does not define the transfer of noise across a component, rather the transfer of noise between two rooms. This measure is advantageous for free-standing rooms, such as room-in-room systems and does not lead to unclear evidence as a result of the large number of limiting surfaces.



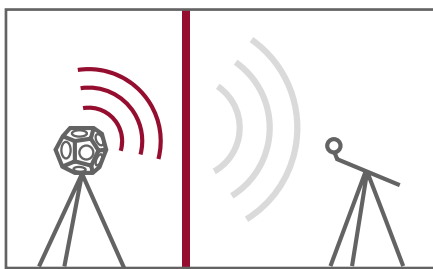
## Hearing quality

Denotes the suitability of a room for certain sound presentations based on DIN 18041, particularly for relevant spoken communication and musical performance, at the locations intended for the room's use. Mutual hearing and understanding, and also finding quiet, are particularly important.



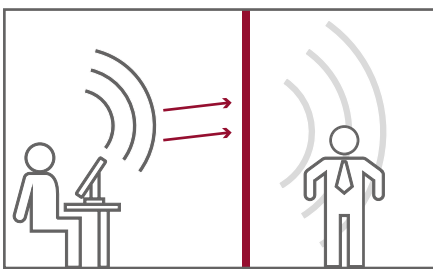
## Speech intelligibility

Depending on the situation, requirements of the quality of speech vary, STI (Speech Transmission Index). Meeting areas require higher STI values, call centres require lower ones.



## Laboratory sound insulation value

$R_{w,P}$  is a weighted measure for the sound protection value of a component without considering the adjoining elements, measured under laboratory conditions.



## Sound insulation value

$R'_w$  is a weighted measure for the sound protection value of a component when installed and includes the effect of adjacent elements and their edges.



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