

StoSilent Distance C

Suspended, bonded acoustic system for level, seamless surfaces

Acoustics



Acoustic systems

The new StoSilent Distance C is an acoustic ceiling system for walls and ceilings with an innovative installation method: adhesive bonding instead of screws. It is ideal for designing the shape of a room to be seamless and sound-absorbing without any restrictions. Aesthetic appeal and function in perfect harmony.



The new StoSilent Distance C: seamless acoustics

How a room is perceived by its users is largely decided by its acoustics. We at Sto have been researching this topic for over 35 years, always with the same goal: to provide you with the best system solution to help you design acoustically perfect rooms.

Requirements on reverberation time, sound distribution, or speech intelligibility change depending on how a room is used. Acoustics are influenced by various factors: the composition of the flooring, walls, ceilings, the type of furniture, and the number of people in the room. Our many years of research, experience gained from many successful projects of almost all types, and our cooperation with leading architects, tradespeople, and acoustics experts have resulted in our new patented StoSilent Distance C.

The innovative suspended StoSilent Distance C acoustic system for even surfaces allows the seamless and sound-absorbing design of walls and ceilings which have to be suspended, for example to reduce the room height. The room concept is thus retained with good acoustics included.

The open, nonwoven fabric facing on both sides and the porous composition of the acoustic panels made from expanded glass granulate ensures high levels of sound absorption in a wide frequency range. The area of application for these acoustic systems is extremely broad and offers a high degree of design freedom.

Areas of application

- Commercial buildings
- Office
- Public buildings
- Cultural buildings
- Residential buildings
- Schools

Advice for every project phase

Comprehensive advice is a key component of our service portfolio. We have project managers for investors and planners and our acoustics specialists on hand to help you. We offer you expert advice quickly during every stage of the project – about planning, how to best coordinate different processes, how to apply our products correctly, right up to detailed questions about your project.

Advisors at the construction site

Our technical consultants come to your construction site directly to provide training on special material characteristics or working with special application methods. For example, they can show you the best way to use products and tools in order to optimise your productivity.

Cover photo:
Royal Opera House, London, UK
Planning: Stanton Williams, London, UK
Execution: Ceilings & Partitions, Mappleborough Green, UK
Sto expertise: StoSilent Distance C with StoSilent Decor M
Photo: Hufton+Crow, Hertford, UK

Image on right:
Haus der Bayerischen Geschichte, Regensburg, DE
Planning: wöner traxler richter planungsgesellschaft mbh, Frankfurt am Main, DE
Execution: Akustik-, Stuck- und Trockenbau Sommer GmbH, Kirchdorf, DE
Sto expertise: StoSilent Distance C with StoSilent Top Finish
Photo: Boris Storz, Munich, DE



System

System advantages

- Low weight
- Easy application due to homogeneous panel structure
- High degree of stiffness
- Low moisture-induced and thermal expansion
- Seamless installation possible across areas of up to 200m²
- Harmonious sound absorption across a wide frequency range
- Bonded panels

Fixing

- Metal sub-construction in accordance with EN 13964 with vernier hangers

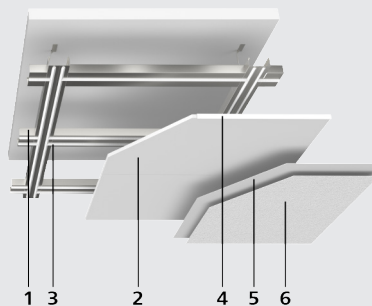
Reaction to fire

- Class A2-s1, d0 in accordance with EN 13501-1

Design options

- Acoustic plaster with smooth surface and fine graining with StoSilent Top Basic
- Acoustic plaster with smooth surface and finest possible graining with StoSilent Top Finish
- Acoustic spray plaster with textured surface and fine graining with StoSilent Decor M or StoSilent Decor MF

Structure



- 1 — Sub-construction
- 2 — Acoustic panel
- 3 — Bonding
- 4 — Edge finish
- 5 — Intermediate coat
- 6 — Finish



Adhesive bonding instead of screws

As far as seamless acoustics are concerned, suspended acoustic systems form the largest market. Thanks to our constant development work, we are able to offer you a new, optimised system variant for even surfaces.

Application

Thanks to the sub-construction at the same level and the fact that the acoustic panels are bonded directly with the optimised adhesive StoColl HT, the acoustic panels can be laid precisely. As a result of the very narrow butt joints and the minimal height offset, there is no need to carry out costly screw connections or bonding followed by filling and levelling of the panel joints and subsequent sanding. This means you save time and money without compromising on quality.

Sound absorption

The StoSilent Board 105 C and 205 C acoustic panels are made of expanded glass granulate. As a result, the panels boast an acoustically balanced, porous structure. The open, nonwoven fabric facing on both sides of the panel core ensures high

levels of sound absorption in a wide frequency range in the overall structure. As a result of the special material properties and the construction type, the acoustic panels are extremely strong and give the entire construction stability.

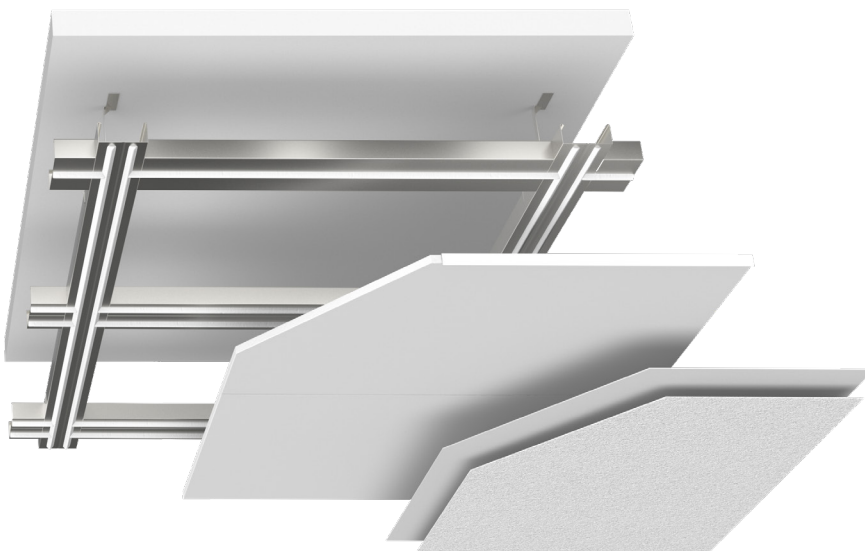
Sub-construction

Anchoring of the sub-construction in the ceiling substrate is dictated by the structural requirements of the construction situation on site. Anchors and screws must be selected in accordance with the material and substrate used as well as the loads to be expected.

The grid dimension of the sub-construction at the same level is to be based on a maximum of 600x800 mm for StoSilent Board 205 C and 600x625 mm for StoSilent Board 105 C.

Coating

The precisely bonded ceiling surface is coated with StoSilent Top Basic across the full surface. The well-established, tried-and-tested StoSilent Top and StoSilent Decor systems are used for the finish.



Benefits at a glance :

Performance

- Improve acoustic values in the low-frequency range
- Balance sound absorption across a wide frequency ranged

Design & Flexibility

- Seamless design up to 200m² without any expansion joint
- Design freedom thanks to StoSilent surface and colour selection

Health & Safety

- Very low VOC emission for better indoor air quality
- Acoustic panel with high recycling percentage content (up to 97%) for green environment
- Non fibrous material
- Reaction to fire : A2-s1,d0

Ease of Installation

- No filling and sanding required
- Reduced drying time on site
- Optimise installation time
- Quicker construction site completion



Adhesive application with the adhesive gun



Pressing the acoustic panel into place

Freedom of design

It's hard to imagine modern architecture without large, flat, white surfaces. The StoSilent Distance C system is perfect for this because it can be installed seamlessly over large areas as a suspended ceiling or wall covering with a cavity behind it.

The high-quality StoSilent Top and StoSilent Decor coating build-ups have a proven track record and are able to satisfy the most stringent of demands – offering design freedom for all kinds of applications.

Surface design

- 1 StoSilent Top Basic: acoustic plaster with smooth surface and fine graining, limited tintability
- 2 StoSilent Top Finish: acoustic plaster with smooth surface and finest possible graining, limited tintability
- 3 StoSilent Decor M: acoustic spray plaster with textured surface and fine graining, limited tintability
- 4 StoSilent Decor MF: acoustic spray plaster with textured surface and fine graining, fully tintable

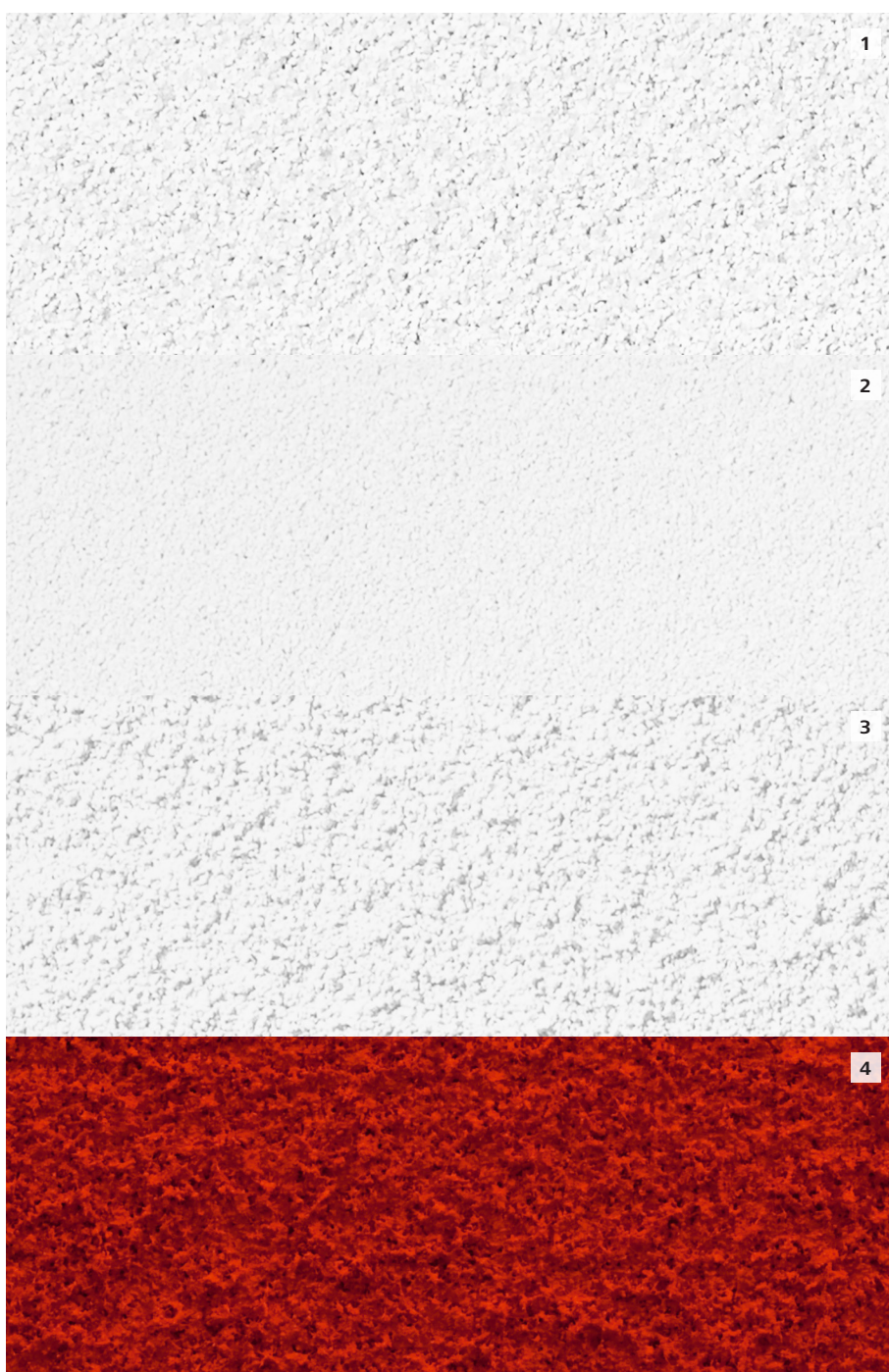


Image on right:

Vocational schools, Donaueschingen, DE

Planning: formgewand, Stühlingen, DE

Application: Stuckateurbetrieb Gemeinder,
Donaueschingen, DE

Sto expertise: StoSilent Distance C with StoSilent
Decor M

Photo: Martin Baitinger, Böblingen, DE



Our basis for highly efficient and sustainable acoustics

The base material of the StoSilent Board 105 C and 205 C acoustic panels is expanded glass granulate with a very high recycling percentage. In the patented method, the granulate is sintered as a core for StoSilent Board 105 C or offset with a binder. The acoustic panel provides the basis for exceptional acoustic performance.

The panel core has an isotropic structure. The coating build-ups, which are ideally tailored in terms of acoustics to the panels, the system is able to achieve sound absorption across an almost uniquely wide frequency range.

The acoustic panel is also lightweight, stable, recyclable, and resistant to moisture. Furthermore, the system achieves the A2-s1, d0 classification for its reaction to fire, which corresponds to non-combustible according to DIN 4102 in line with the national regulations in Germany.

Benefits of the building material

Thanks to their exceptional strength, the acoustic panels are ideal for boarding a ceiling. The low mass of the panels makes it possible to bond them to the sub-construction. This means that the fixing to the sub-construction can be adjusted in three dimensions, resulting in precisely laid panels with very narrow butt joints and a minimal height offset. This results in better quality compared to panels that are screwed into place. The bonding, filling, and levelling of the panel joints that would normally have to be carried out can be omitted in this case, saving time and money.

Extensive testing by test laboratories and application testing by tradespeople on the construction site confirm the outstanding possibilities and high quality offered by this system.

Image below:
The raw material:
expanded glass granulate



Balanced room acoustics thanks to harmonious sound absorbers

Acoustic requirements

StoSilent systems are used to adapt rooms with multiple uses to acoustic requirements. The primary parameters are the reverberation time and noise reduction. The relevant requirements arise from the application – from meeting rooms and offices to classrooms and living spaces. The planning and application are described in nationally applicable standards and guidelines, which specify the average reverberation time as well as the associated frequency response complete with tolerance range.

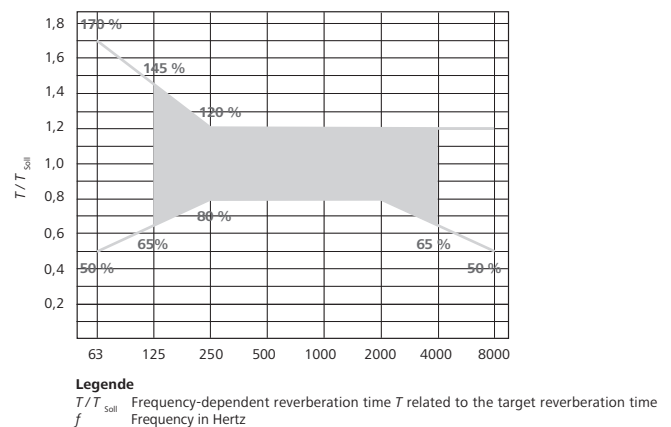
Harmony is required

As the required tolerance range for the reverberation time is very even and harmonious from low to high frequencies, the structural implementation is very easy if the building element that contributes significantly to the room damping effect – in this case the acoustic ceiling – demonstrates a suitably harmonious frequency response in terms of sound absorption. Particular benefits are provided by constructions which absorb a lot of sound at low frequencies rather than just at medium and high frequencies, as is generally the case with lightweight fibre material or perforated boards.

Acoustic panel	Mineral wool	StoSilent Top Basic spray-applied	StoSilent Top Basic trowel application	StoSilent Top Basic trowel application2	StoSilent Top Basic trowel application3
Finish		StoSilent Decor M	StoSilent Decor M	StoSilent Top Basic white	StoSilent Top Finish
StoSilent Board 105 C	none	0.70	0.85	0.65	0.80
StoSilent Board 105 C	with	0.70 (L)	0.95	0.65 (L)	0.80
StoSilent Board 205 C	none	0.55 (L)	0.65 (L)	0.55	0.65
StoSilent Board 205 C	with	0.55 (L)	0.70 (L)	0.55	0.65 (L)

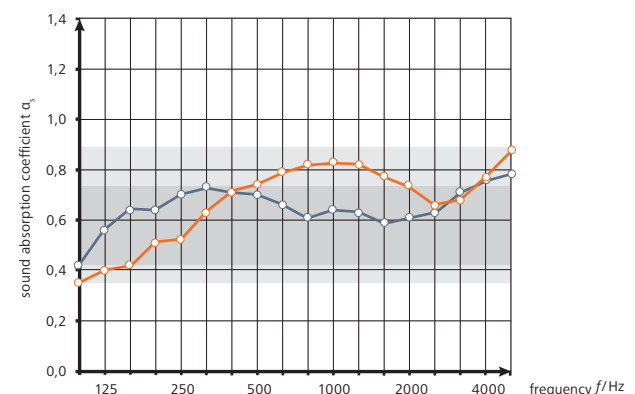
Table values: weighted sound absorption coefficient α_w and shape indicator in accordance with EN ISO 11654

The test structure on the following pages had a height of 200mm for all versions. The panels were given practice-oriented coatings. The structures were each tested with and without cavity damping consisting of 30mm of mineral wool.



Excerpt from DIN 18041

Tolerance range for reverberation time T , as a function of the frequency for the usage types A1 to A4



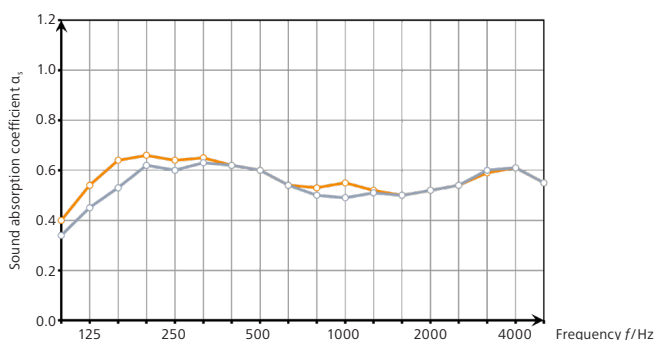
StoSilent Distance C in comparison

Value range and frequency response for sound absorption, both structures backed with 30mm of mineral wool

- Blue: StoSilent Distance C, StoSilent Board 205 C with StoSilent Top Finish
- Orange: Gypsum perforated board, round hole 12mm, hole grid 25mm with StoSilent Decor M

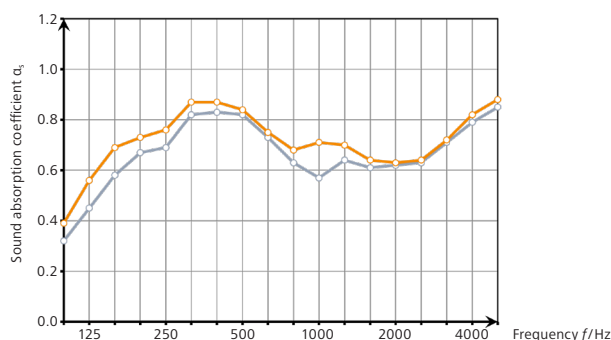


It's all about the right sound absorption



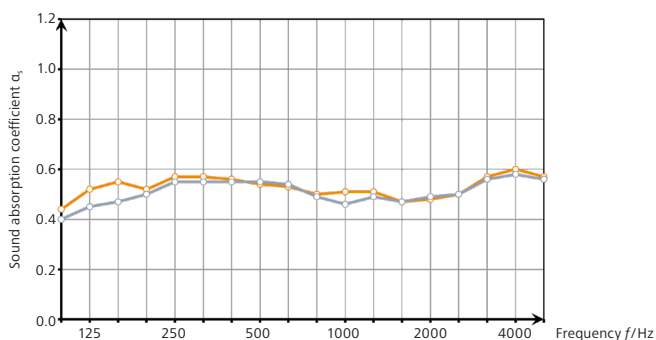
System:	StoSilent Distance C	Mineral wool	none	with
Acoustic panel:	StoSilent Board 205	EN ISO 11654		
Intermediate:	StoSilent Top Basic	α_w	0.55 (L)	0.55 (L)
coat:	Spray-applied	Absorber class	D	D
Type of application:		ASTM C-423		
Finish:	StoSilent Decor M	NRC	0.60	0.55
Structural height:	200mm			

Practical absorption coefficient α_p in accordance with EN ISO 11654						
Frequency f /Hz	125	250	500	1000	2000	4000
Without mineral wool	0.45	0.60	0.60	0.50	0.50	0.60
With mineral wool	0.55	0.65	0.60	0.55	0.50	0.60



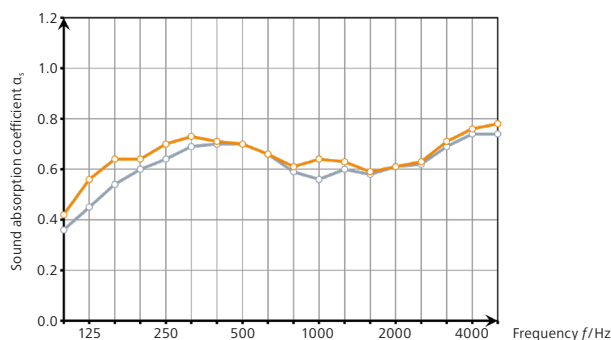
System:	StoSilent Distance C	Mineral wool	none	with
Acoustic panel:	StoSilent Board 205	EN ISO 11654		
Intermediate:	StoSilent Top Basic	α_w	0.65 (LH)	0.70 (L)
coat:	Bucket trowel	Absorber class	C	C
Type of application:		ASTM C-423		
Finish:	StoSilent Decor M	NRC	0.65	0.75
Structural height:	200mm			

Practical absorption coefficient α_p in accordance with EN ISO 11654						
Frequency f /Hz	125	250	500	1000	2000	4000
Without mineral wool	0.45	0.75	0.80	0.60	0.60	0.80
With mineral wool	0.55	0.80	0.80	0.70	0.65	0.80



System:	StoSilent Distance C	Mineral wool	none	with
Acoustic panel:	StoSilent Board 205	EN ISO 11654		
Intermediate:	StoSilent Top Basic	α_w	0.55	0.55
coat:	StoSilent Top Basic	Absorber class	D	D
Type of application:	Bucket trowel	ASTM C-423		
Finish:	StoSilent Top Basic	NRC	0.50	0.55
Structural height:	200mm			

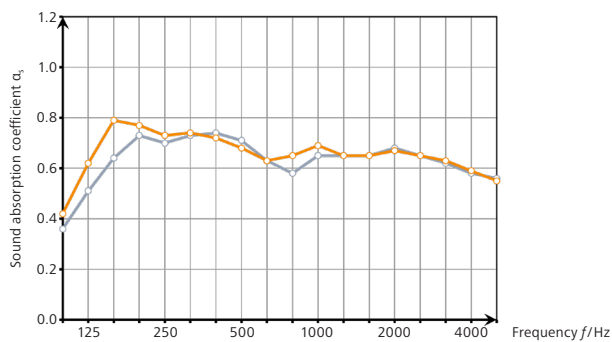
Practical absorption coefficient α_p in accordance with EN ISO 11654						
Frequency f /Hz	125	250	500	1000	2000	4000
Without mineral wool	0.45	0.55	0.55	0.50	0.50	0.55
With mineral wool	0.50	0.55	0.55	0.50	0.50	0.60



System:	StoSilent Distance C	Mineral wool	none	with
Acoustic panel:	StoSilent Board 205	EN ISO 11654		
Intermediate:	StoSilent Top Basic	α_w	0.65	0.65 (L)
coat:	Bucket trowel	Absorber class	C	C
Type of application:		ASTM C-423		
Finish:	StoSilent Top Finish	NRC	0.65	0.65
Structural height:	200mm			

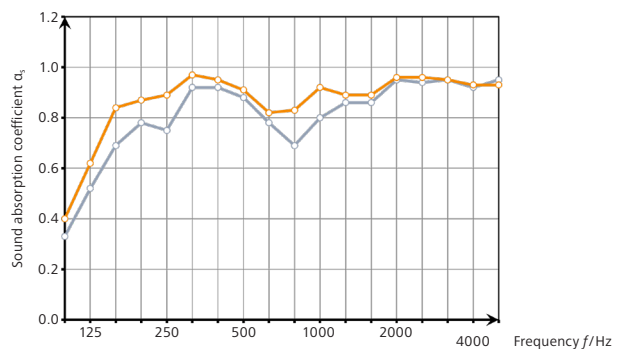
Practical absorption coefficient α_p in accordance with EN ISO 11654						
Frequency f /Hz	125	250	500	1000	2000	4000
Without mineral wool	0.45	0.65	0.70	0.60	0.60	0.70
With mineral wool	0.55	0.70	0.70	0.65	0.60	0.75

The technical benefits of the isotropically structured carrier boards made from expanded glass granulate result in a uniquely harmonious sound absorption frequency spectrum. Practice-oriented absorption is achieved across the entire frequency range, resulting in an exceptional solution for virtually any application in the field of room acoustics.



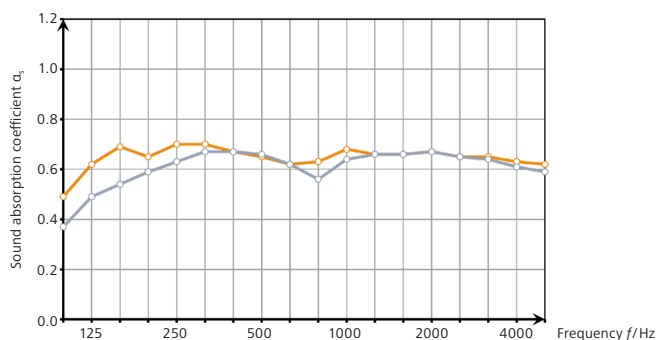
System:	StoSilent Distance C	Mineral wool	none	with
Acoustic panel:	StoSilent Board 105	EN ISO 11654		
Intermediate	StoSilent Top Basic	α_w	0.70	0.70 (L)
coat:		Absorber class	C	C
Type of application:	Spray-applied	ASTM C-423		
Finish:	StoSilent Decor M	NRC	0.70	0.70
Structural height:	200 mm			

Practical absorption coefficient α_p in accordance with EN ISO 11654						
Frequency f /Hz	125	250	500	1000	2000	4000
Without mineral wool	0.50	0.70	0.70	0.65	0.65	0.60
With mineral wool	0.60	0.75	0.70	0.65	0.65	0.60



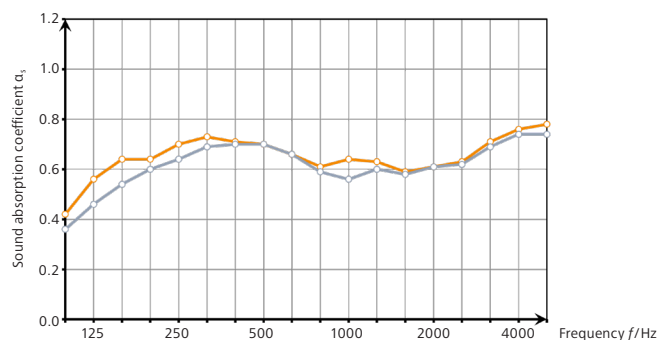
System:	StoSilent Distance C	Mineral wool	none	with
Acoustic panel:	StoSilent Board 105	EN ISO 11654		
Intermediate	StoSilent Top Basic	α_w	0.85	0.95
coat:	Bucket trowel	Absorber class	B	A
Type of application:		ASTM C-423		
Finish:	StoSilent Decor M	NRC	0.85	0.90
Structural height:	200 mm			

Practical absorption coefficient α_p in accordance with EN ISO 11654						
Frequency f /Hz	125	250	500	1000	2000	4000
Without mineral wool	0.50	0.80	0.85	0.80	0.90	0.95
With mineral wool	0.65	0.90	0.90	0.90	0.95	0.95



System:	StoSilent Distance C	Mineral wool	none	with
Acoustic panel:	StoSilent Board 105	EN ISO 11654		
Intermediate	StoSilent Top Basic	α_w	0.65	0.65 (L)
coat:		Absorber class	C	C
Type of application:	Bucket trowel	ASTM C-423		
Finish:	StoSilent Top Basic	NRC	0.65	0.60
Structural height:	200 mm			

Practical absorption coefficient α_p in accordance with EN ISO 11654						
Frequency f /Hz	125	250	500	1000	2000	4000
Without mineral wool	0.45	0.65	0.65	0.60	0.65	0.60
With mineral wool	0.70	0.65	0.65	0.65	0.65	0.65



System:	StoSilent Distance C	Mineral wool	none	with
Acoustic panel:	StoSilent Board 105	EN ISO 11654		
Intermediate		α_w	0.80	0.80
coat:	StoSilent Top Basic	Absorber class	B	B
Type of application:	Bucket trowel	ASTM C-423		
Finish:	StoSilent Top Finish	NRC	0.80	0.80
Structural height:	200 mm			

Practical absorption coefficient α_p in accordance with EN ISO 11654						
Frequency f /Hz	125	250	500	1000	2000	4000
Without mineral wool	0.50	0.75	0.80	0.75	0.80	0.80
With mineral wool	0.60	0.80	0.80	0.80	0.80	0.80

Headquarters

Sto SE & Co. KGaA

Ehrenbachstrasse 1
79780 Stühlingen
Germany
Phone +49 7744 57 1131
Fax +49 7744 57 2428

Info Service

Singapore (SEA HQ)

info.sg@sto.com
www.sto-sea.com

Malaysia

info.my@sto.com

Sto Southeast Asia

Sto SEA Pte Ltd

159 Sin Ming Road
#06-02 Amtech Building
Singapore 575625
Singapore
Phone +65 6453 30 80
Fax +65 6453 35 43

Sto SEA Pte Ltd

3656/49-52 Green Tower
16th Floor Rama IV Rd
Klongton, Klongtoei
10110 Bangkok, Thailand
Phone +66 2 1684 921 Ext.230
Fax +66 2 1684 999

Sto SEA Sdn Bhd

28, Jalan Rajawali 3,
Bandar Puchong Jaya,
47170 Selangor
Malaysia
Phone +60 3 8080 9066
Fax +60 3 8080 9255

Sto SEA Sdn Bhd

No. 8 Jalan Bukit 3 Kawasan
MIEL , Bandar Baru Sri Alam
81750 Masai, Johor
Malaysia
Phone +60 7 3880 939
Fax +60 7 3884 636

