

# Acoustic diffusion wall panel system

## Product Description

DATA DRIVEN ACOUSTIC DESIGN	Acoustic panels that are spatially shaped by data to enhance the soundscape of a room. This benefits the intelligibility of a speaker while removing or reducing echo's and hard specular reflections and thus creates a pleasant acoustic working and living climate while maintaining the "liveliness" and spacious of the space. The panels are site specifically shaped by algorithms developed by research of Gramazio Kohler Research, ETH.
PURPOSE	To bring acoustic comfort to commercial buildings such as hotel lobbies, libraries, offices, and shopping malls, but also for smaller private rooms a tailored soundscape can be created based on the exact spatial design.
100% CIRCULAR	DESIGN → PRINT → ENJOY → SHRED → DESIGN → PRINT → ENJOY → SHRED → We take back your products after use, shred and reprint them into new products. You receive a 30% discount on your new purchase.

## Material

BIO MATERIAL	3D printed Bio-PA based on renewable content (mostly rapeseed).
COLORS	Available in any RAL, Pantone or NCS color code
TEXTURE	Vertical or horizontal line of 2mm

## Technical

WEIGHT	23kg/m <sup>2</sup> av
SIZE / PANEL	Custom . Max size 5000 x 1200 mm
DEPTH	60 - 300 mm
FIRE CLASSIFICATION	Adjustable per project. Standard panels meet E. Upon request this can be upgraded to B-s1, d0
TEMPERATURE RESISTANCE	-15 till 65°C
TENSILE STRENGTH	11 N/mm <sup>2</sup>
INSTALLATION	Assembly is possible in two directions on any vertical surface. Can be adjusted and integrated to any modular wall system.

## Performance

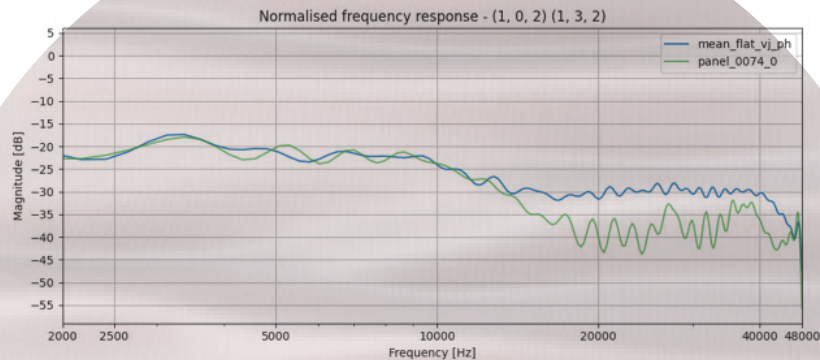
EFFECTIVE FREQUENCY	Mainly effective between 2kHz-5kHz but extends down to almost 1kHz
SOUND ABSORPTION	In the 2-5kHz range - average of 6dB energy reduction
DIFFUSION EFFECT	Similar along the X and Y axis
SOUND ABSORPTION COEFFICIENT	Min. 50% in various spectra. (250-5000 Hz)



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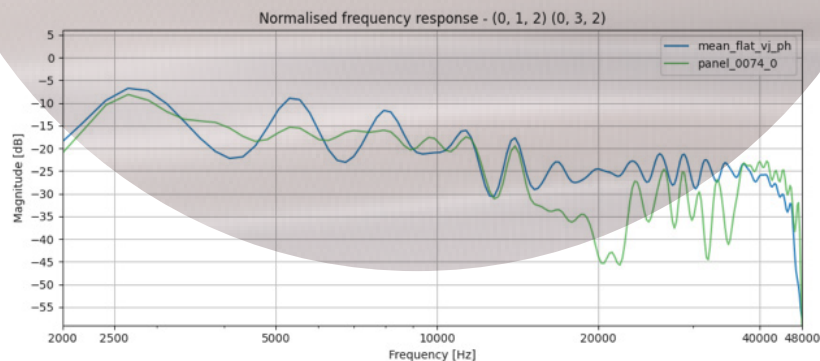
## Frequency response of the reflected sound for a specific source-receiver position in front of the diffuser:

The blue line represents the frequency response of a flat surface (no diffuser present).



The diffuser is mainly effective between 2kHz - 5kHz but extends down to almost 1kHz.

With diffusion comes also absorption: For the above frequency range this is an average of 6dB in energy reduction



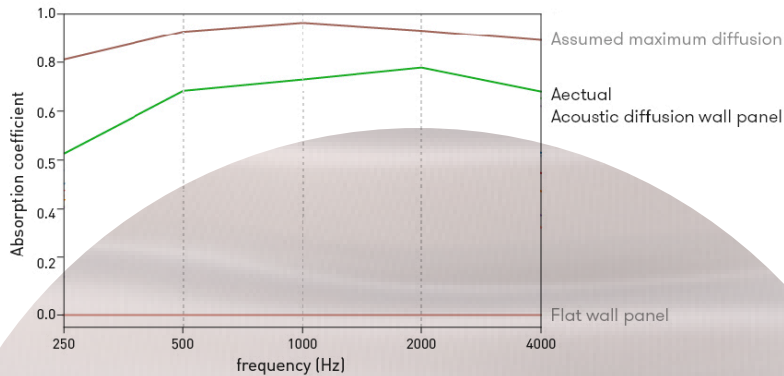
When the listening position is close to the diffuser it improves the low frequency response by flattening peaks and valleys.

The sound coloration\* is also reduced which provides a pleasant acoustic experience.

\* sound coloration = change in the frequency balance of the sound, with some frequencies being boosted while others are suppressed



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Absorption coefficient: The panels, absorb over no less than 50% of the reflected soundenergy in various spectra. (250-4000 Hz). After installation of the diffusers the impulse decays (dB) very densely and smoothly. No disturbing spatial artefacts can be measured or heard.

## Sustainability

BIO MATERIAL	<ul style="list-style-type: none"> <li>100% VOC-free</li> <li>100% Red List free</li> <li>Free from environmental or human health harmful elements</li> <li>44% ingredients from renewable content (mostly rapeseed)</li> <li>100% recyclable</li> </ul>
DIGITAL DESIGN	<ul style="list-style-type: none"> <li>Low and optimum material usage</li> <li>Low risk of failure in production (+ can be shredded and re-used)</li> <li>Production of elements that snap-fit → easy installation + zero waste</li> </ul>
ADDITIVE MANUFACTURING	<ul style="list-style-type: none"> <li>Zero waste</li> <li>Print on demand - no stock</li> <li>Low energy consumption</li> <li>Local production when possible</li> </ul>

## Durability

MAINTENANCE	Easy to clean
CHEMICAL RESISTANCE	High
WEAR RESISTANCE	High, group T
UV RESISTANCE	High, Xenon 1000 hours
LIFE EXPECTANCY	Over 40 years

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