



# SOUND AND NOISE

## insulation



**25 years**

of successful noise  
elimination  
and acoustics  
improvement

**400**  
employees

**2 acoustic  
chambers**

that have  
no analogues  
in Russia and the CIS

**14 offices**

in Russia  
and the CIS,  
Europe

more than

**10 000**  
completed  
projects

approximately  
**20 patents**

for inventions  
and utility models

# Our partners:

Google

Yandex

ACCOR HOTELS  
Feel Welcome

Hilton

Discovery

YAMAHA

SAINT-GOBAIN

McDonald's

MARRIOTT

HYATT

getzner

Nestlé

RT

SBER

TINKOFF

pwc

GAZPROM

FIFA®

Avito

Skolkovo

Raiffeisen Bank

asona

BICCAD

MT  
C

NESPRESSO

BCG BOSTON  
CONSULTING  
GROUP

IKEA

Brunel


CISCO

Microsoft

ORACLE

SAP





THE ISSUES OF SOUND VIBRATION  
INSULATION CAN BE DIVIDED INTO  
THE FOLLOWING SUB-TASKS:

1

## IDENTIFY THE NOISE TYPE

### AIRBORNE NOISE

Noise that arises in the air.  
Barking dogs, switched on TV,  
speech, crying children and others.

### IMPACT NOISE

Noise from stomping, falling objects,  
hitting the surface.

### STRUCTURAL NOISE

Noise from a perforator, an elevator,  
and other engineering equipment,  
which is transmitted through the  
building's structural elements and  
utilities in the form of vibrations.

## 2 IDENTIFY THE NOISE INTENSITY

In conversations, two words that are close in meaning are often used: “sound” and “noise”. Sound is a physical phenomenon caused by the oscillatory motion of the particles of the medium. Sound oscillations have a certain amplitude and frequency. So, a human is able to hear sounds varying in amplitude by tens of millions of times.

As for noise, it is a chaotic, discordant mixture of sounds that negatively affects the nervous system.

The frequencies perceived by our ear range from 16 to 20,000 Hz. Nature has granted us with the ability to hear both thunder and the slightest whisper of leaves. To evaluate such different sounds, the sound intensity level indicator L and special units of measurement - decibels (dB) are adopted.









The physiological characteristic of sound is its loudness. A decrease in the sound intensity level L by 10 dB is subjectively felt as a decrease in volume by 2 times, and by 5 dB - as a decrease in volume by a third.

The human body reacts to noise of different levels and frequency composition differently.

The reaction is individual in the range of 35-60 dBA, (kind of “interferes - does not interfere”).

Noise of 70-90 dBA levels lead to nervous disorder in case prolonged exposure, and with L of more than 100 dBA - to a decrement in hearing acuity of various degrees of severity, up to the development of complete deafness.

### NOISE LEVELS

30 dB	Soft		The whisper, the ticking of the clock. Permissible maximum according to the standards for residential premises at night, from 11 p.m. to 7 a.m.
40 dB	Rather audible		Normal speech. Standard for residential premises during the day, from 7 a.m. to 11 p.m.
55 dB	Distinctively audible		Conversation at a distance of 1 m. Upper standard for Class A office space
65 dB	Loudly		Loud conversation at a distance of 1 m
75 dB	Loudly		Scream, children's laughter at a distance of 1 m
90 dB	Very loudly		Loud scream, home cinema
105 dB	Extremely loudly		Orchestra, thunder, nightclub
130 dB	Pain threshold		Airplane at the start

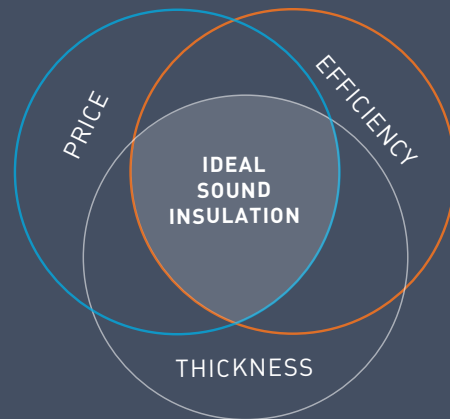
\*dBA - acoustic decibel. A unit of measurement of noise with respect to the perception of sound by a human.

### 3 IDENTIFY PRIORITY FACTORS

When dealing with noise, you need to remember that absolute soundproofing does not exist. Even after applying the most efficient and expensive soundproofing solutions, noise can remain.

Soundproofing should be considered as additional protection. The result will largely depend on the sound source volume level. The soundproofing structure can completely neutralize the sound at a certain volume, but the noise will reappear if the volume of the sound source is increased.

Therefore, when choosing materials and solutions, we recommend relying on 3 factors:



### 4 ADDITIONAL BENEFITS

#### 1 - THERMAL INSULATION

Some materials that make up soundproofing structures have a heat-insulating effect, for example, by installing the “Soundproofing floor using Shumanet-Thermo” structure in your apartment, you provide yourself with thermal insulation of the floor, and silence for your neighbors.

The most noticeable thermal insulation properties can be found in the following systems:

- ZIPS for frameless sound insulation of walls (especially ZIPS-Cinema)
- Cladding by ULTRAKUSTIK-System filled with mineral wool
- Soundproofing suspended ceilings filled with mineral wool
- Floating floors on mineral slabs SHUMOSTOP or SHUMOPLAST (ULTRAPLAST) 20/40mm
- ZIPS-FLOOR for a dry floating floor system

#### 2 - WATERPROOFING


The issue of waterproofing in the bathroom and WC is particularly topical, but waterproofing in other rooms also would do well. Moreover, our range of soundproofing materials includes Shumanet-100 Hydro and Combi. These are bitumen-based roll materials that work great against impact noise and provide reliable waterproofing. Provided simple installation rules are observed.

#### 3 - LEVELING OF WALLS/FLOOR/CEILING AND UTILITY LAYING

We have developed special solutions for uneven surfaces: ZIPS-Z4 for walls and ceilings, SHUMOPLAST (ULTRAPLAST) - for floors. Our materials allow to level small surface differences and perform installation without additional preparation, which significantly reduces the time of refurbishment work.

Soundproofing structures are ideal for laying utilities, but of course it is important to observe the main rule - utilities should not be rigidly fixed and touch elements of the structure.





airnoise  
up to **18** dB

# FRAMELESS SOUND INSULATION

## ZIPS-III-ULTRA panels

- the thinnest really working sound insulation
- additional protection against airborne noise up to 18 dB!
- simple and quick installation
- proven material
- manufacturer engineering support



### WHEN APPLIED?

**If you need maximum effect and smallest thickness simultaneously.**

— Frameless soundproofing structures are attached directly to the load-bearing surface without the use of any frame.

— They are installed very quickly and significantly reduce the likelihood of installation errors affecting noise protection characteristics.

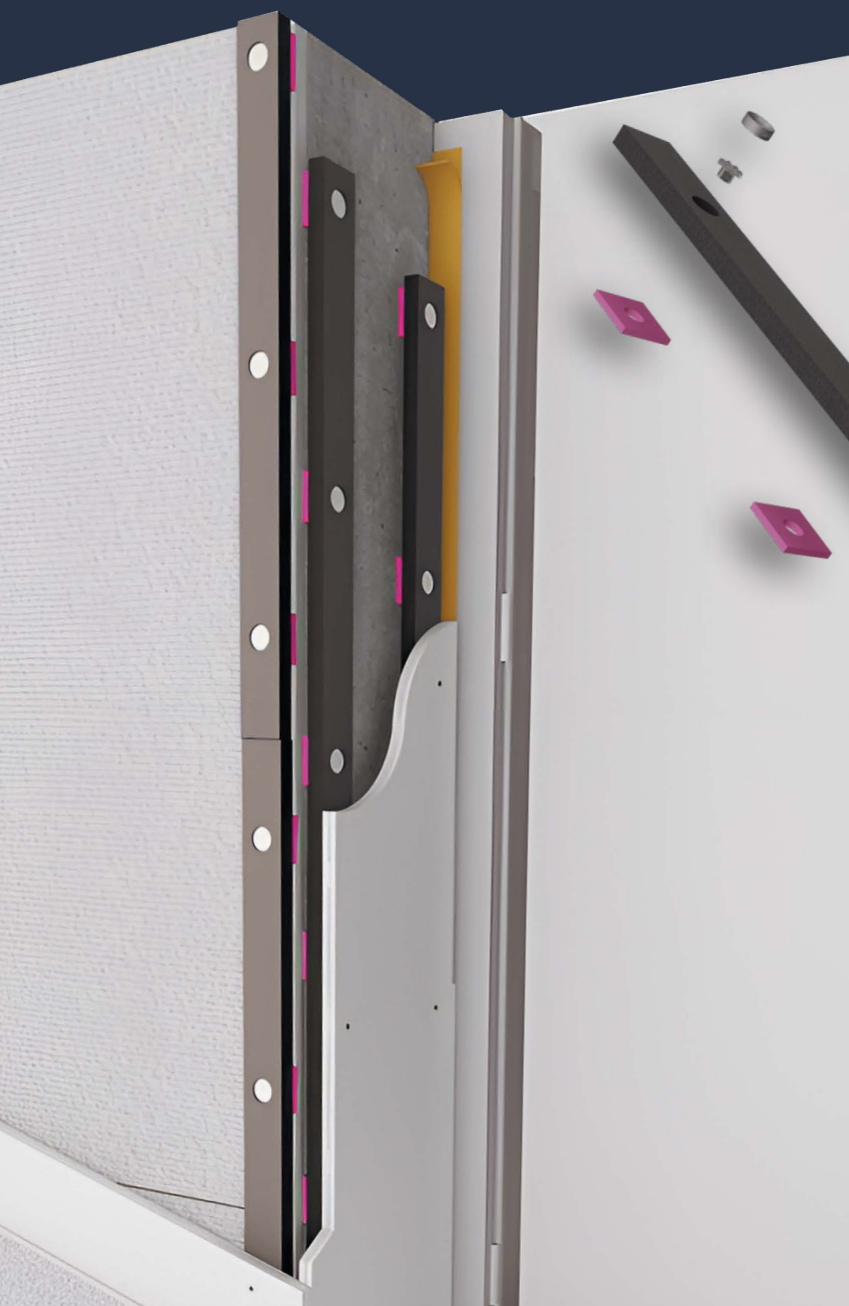
# ACCESSORIES

for sound insulation

The ULTRAKUSTIK accessories line makes it easy to assemble a structure with high sound insulation properties. Each material in the line can be used together with the others or separately, allowing you to get the claimed effect of noise reduction.

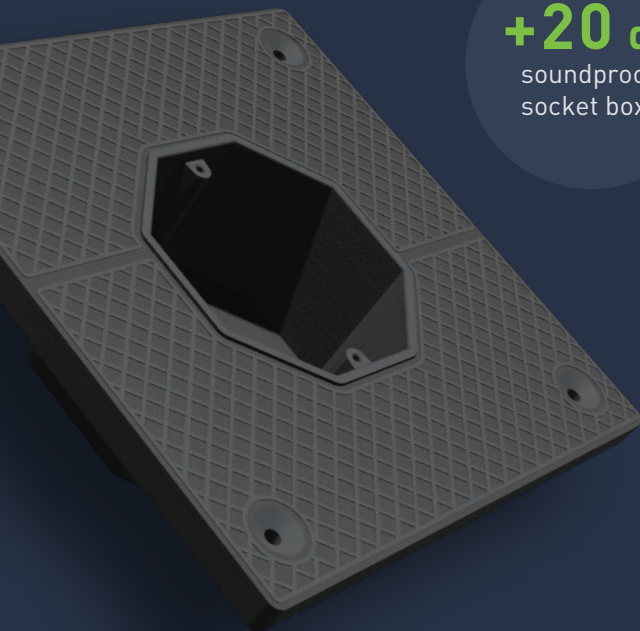
**+5 dB**

vibration insulation  
profile





**+20 dB**  
soundproofing  
socket box



## Other options:



sound insulation tape **+2 dB**



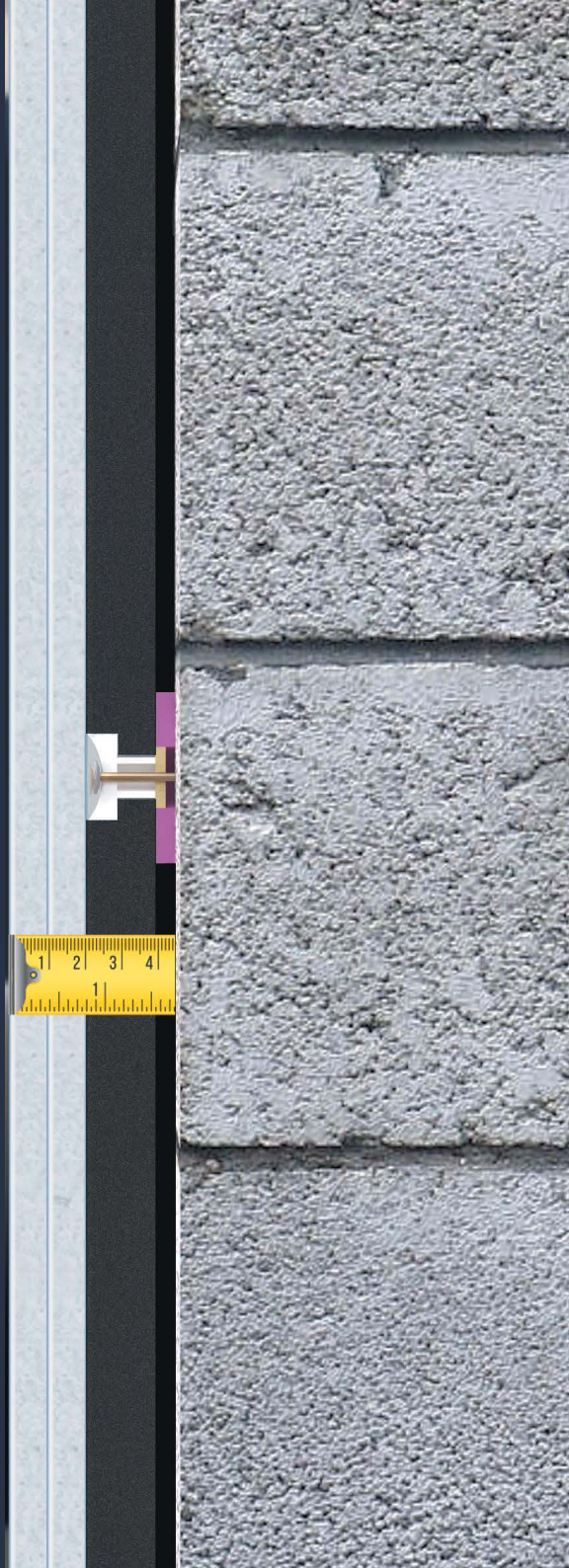
acoustic seam **+2 dB**



vibroacoustic sealant **+2 dB**



vibration insulation  
suspension **+2 dB**





# FLOOR SOUNDPROOFING

solutions for sound insulation of the floor

## SHUMANET 100COMBI®

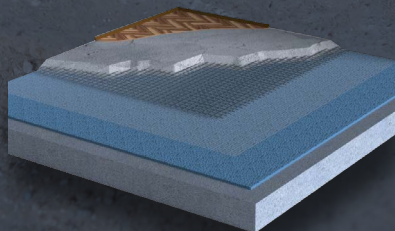
$\Delta L_{n,w} = 26 \text{ dB}^*$



### Other options:

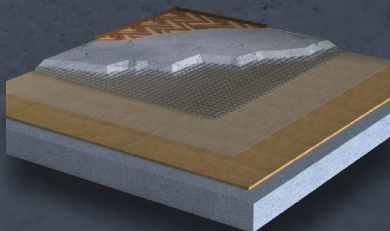
#### Shumoplast®

- $\Delta L_{n,w} = 28 \text{ dB}$
- $\Delta R_w = 7-9 \text{ dB}^*$



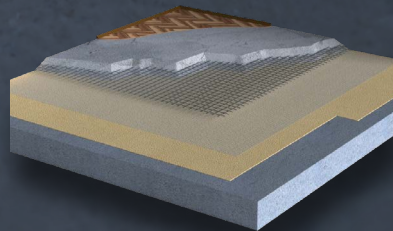
#### Akuflex®

- $\Delta L_{n,w} = 24 \text{ dB}^*$



#### Shumostop®

- $\Delta L_{n,w} = 38-43 \text{ dB}^*$
- $\Delta R_w = 8-13 \text{ dB}^*$



\*according to the different material thickness and final coating

# VIBRATION ISOLATION

the leading material for vibration isolation

## Isotop®

- quieter equipment thanks to efficient vibration isolation
- time and cost savings during design, procurement and installation
- possible spot mounting and control of spring condition
- polyurethane filler is protected by spring coils against damage
- high resistance to corrosion

## Sylomer®

- high elasticity, long service life
- very low amplitude dependence
- wide range for optimum system design
- ability to provide customer-specific modifications







info@acoustic-group.com  
acoustic-group.com

