

UNIVERSAL

ACOUSTICALLY HIGH
AND BROADBAND ABSORBING

PANEL



AKUPAN®

www.akupan.cz

PRODUCT CHARACTERISTICS



AKUPAN® is a universal acoustically high and broadband absorbing panel in a metal perforated design, with the possibility of solitary mounting.

AKUPAN® panels are designed to control the room acoustics in interiors. They serve to eliminate the internal noise of ordinary and very noisy spaces and to achieve acoustic requirements for spaces intended for verbal or musical expression, from small rooms and halls to large halls.

The basic feature of the panel is the range of maximum absorption towards low frequencies at low depth of the panel and a very wide range of absorption. Used materials and constructions ensure excellent acoustic properties, considerable mechanical resistance, durability, excellent fire and hygiene properties, and freedom in placing the panel on the walls or ceiling. The advantage is easy and direct installation on the base surface by contact attachment or hanging in the space. Panels can be placed in a continuous area or better placed solitary which is acoustically most effective.

The variability of surface finishes and shapes creates conditions for creative work with the design of panels and the treated space. With these features, the product line of AKUPAN® panels becomes a highly effective tool for truly high-quality acoustics without compromise.

USAGE

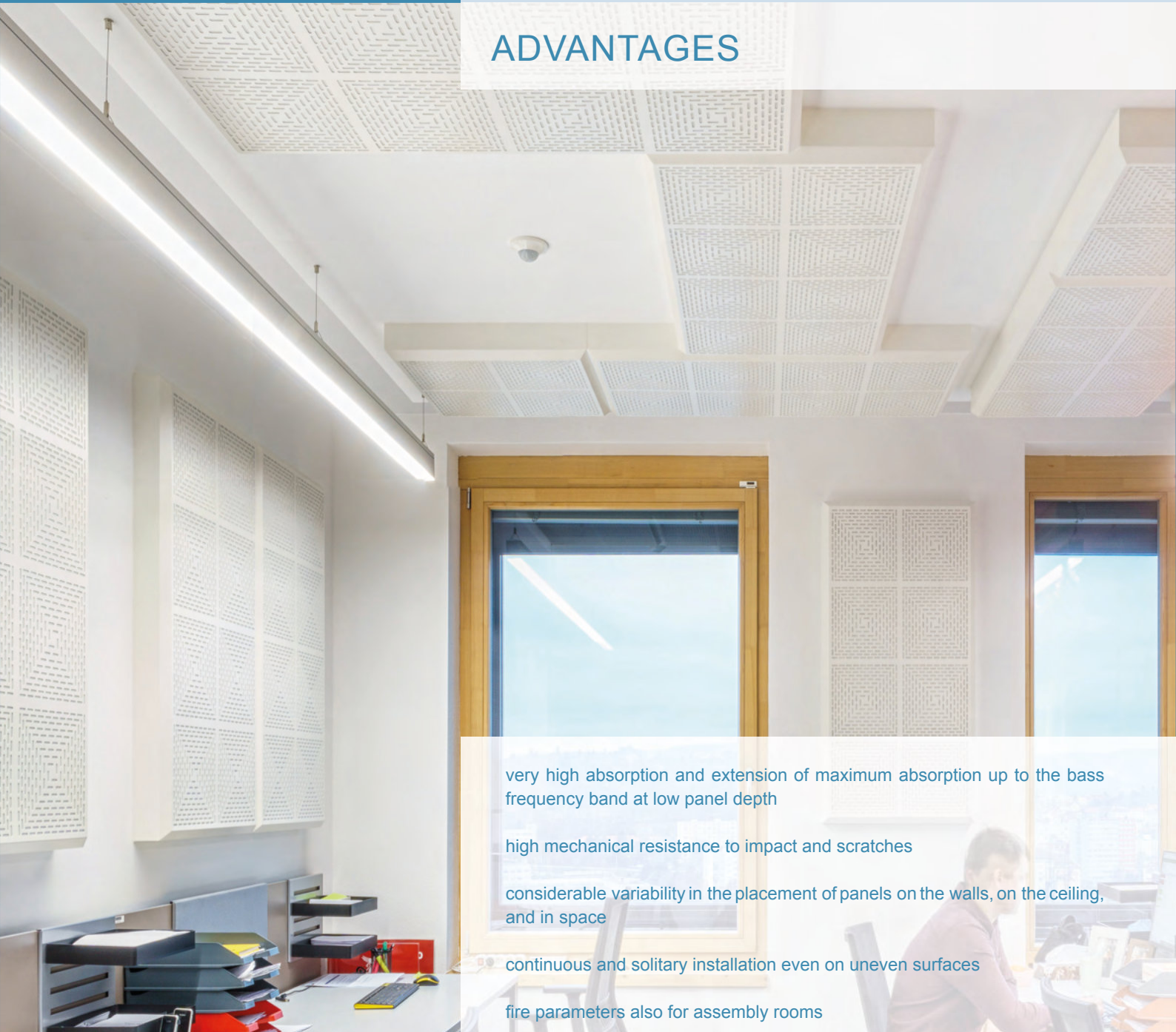


AKUPAN® panels are a quality tool for acoustic treatment of new and existing buildings of all types, from timeless to historic interiors, buildings for culture, spaces for work with sound, teaching spaces, lecture halls and school buildings, sports facilities, and soundproofing of industrial and administrative premises.

By installing a specified number of AKUPAN® panels and placing them appropriately, the required equivalent sound absorption is delivered to the space especially in the tonally low and medium frequency range. Slightly reduced absorption in the higher frequency range is rather an advantage. Even distribution of AKUPAN® panels in the space and alternation of absorbing and reflective surfaces creates a very important scattering of the sound energy. Therefore, AKUPAN® panels eliminate very well unwanted and disturbing acoustic phenomena, such as echoes, fluttering echoes, spatial resonances, and booming manifestations of rooms.

Proper installation and distribution of panels in the room, especially in places that are optimal from the point of view of acoustics, achieves a balanced and homogeneous sound field, a balanced course of reverberation time and thus an emotionally undisturbed effect of the room on humans.

ADVANTAGES



very high absorption and extension of maximum absorption up to the bass frequency band at low panel depth

high mechanical resistance to impact and scratches

considerable variability in the placement of panels on the walls, on the ceiling, and in space

continuous and solitary installation even on uneven surfaces

fire parameters also for assembly rooms

the possibility of reducing the area of acoustic treatment compared to large-scale treatment

high design variability in the choice of colours and shapes

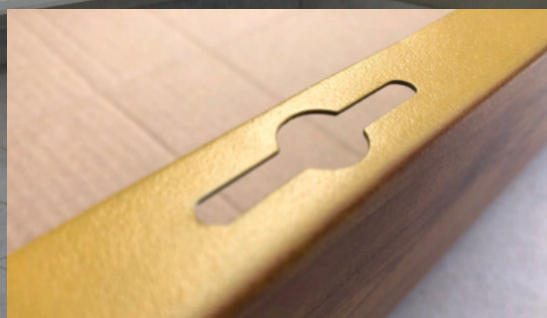
easier achievement of quality parameters of room acoustics and their easy correction when installing tiles

acoustic treatment of curved surfaces, treatment of complex shape areas, and interiors in a technical style

easy installation, repeated portability, and usability

the possibility of using the magnetic properties of the panel in wall installations, eg school premises (notice boards)

CONSTRUCTION AND INSTALLATION



**HIDDEN SHAPED LOCK
FOR PANEL FIXATION**

Hidden shape lock for easy hanging of the panel on pre-assembled hinges.

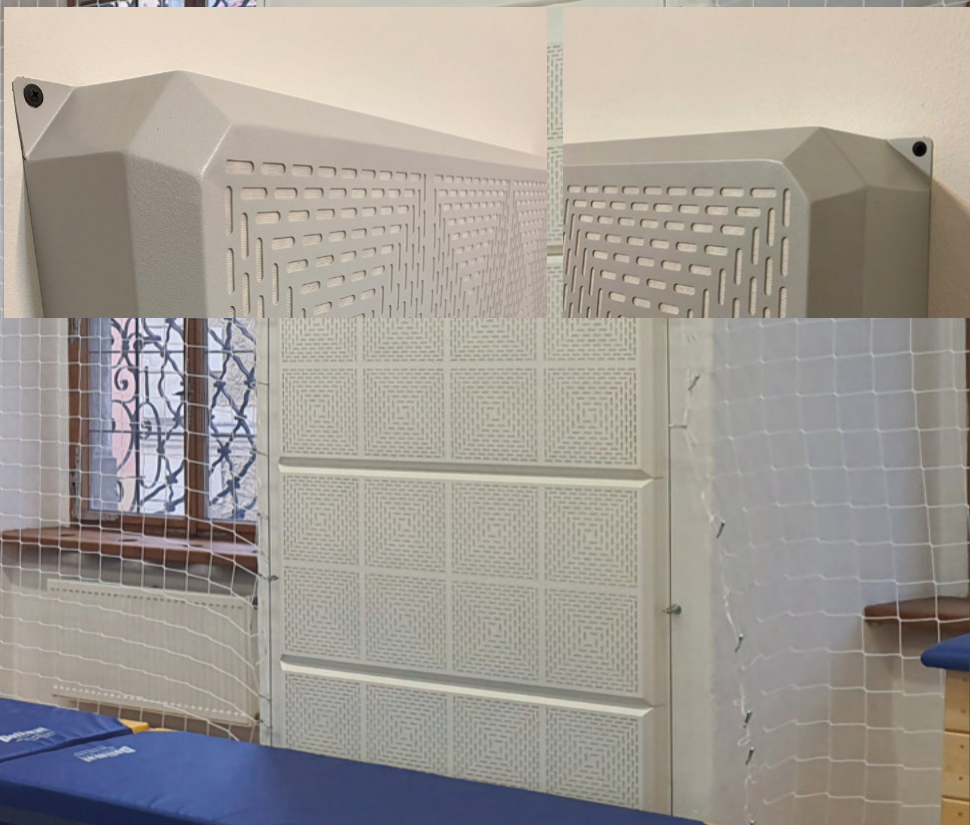
AKUPAN® panels are installed by placing them on the surface of a wall or ceiling, or a suspended ceiling, and fixing them by means of a hidden or visible four-point attachment, or possibly by free hanging.

The basis of the AKUPAN® panel is a sheet metal shell with a perforated front surface, a rear wall with anchoring elements and the interior of the panel with an internal acoustically active composition. The perforated surface is covered on the inside by lamination with a fiberglass fabric or a non-flammable fabric. The edge chamfer of the front wall of the panel allows continuous installation of the panels on an uneven surface and significantly increases contact safety. The surface of the shell is covered with a highly mechanically resistant thermoplastic paint.

Installation of AKUPAN® panels with visible mounting is advantageous, for example, for installations in aggressive environments. The anchoring technique is selected according to the type of substrate and according to the technical requirements. The gap between the panel and the substrate is filled airtight all around with elastic filler as required. The panel then optically becomes a mass part of the treated surface. The panels can also be mounted by hanging them freely in the room. The closed metal shell then ensures easy maintenance, especially of dust-contaminated parts, and the correct operation of the acoustic circuit.

PANEL WITH VISIBLE MOUNTING

The possibility of visible mounting is a design variant, or at the same time a technically advantageous way to visually control the suspension of panels in environments with higher chemical aggressiveness, eg in swimming pools, chemical plants, etc., or in places with higher handling risk, eg in industrial premises.

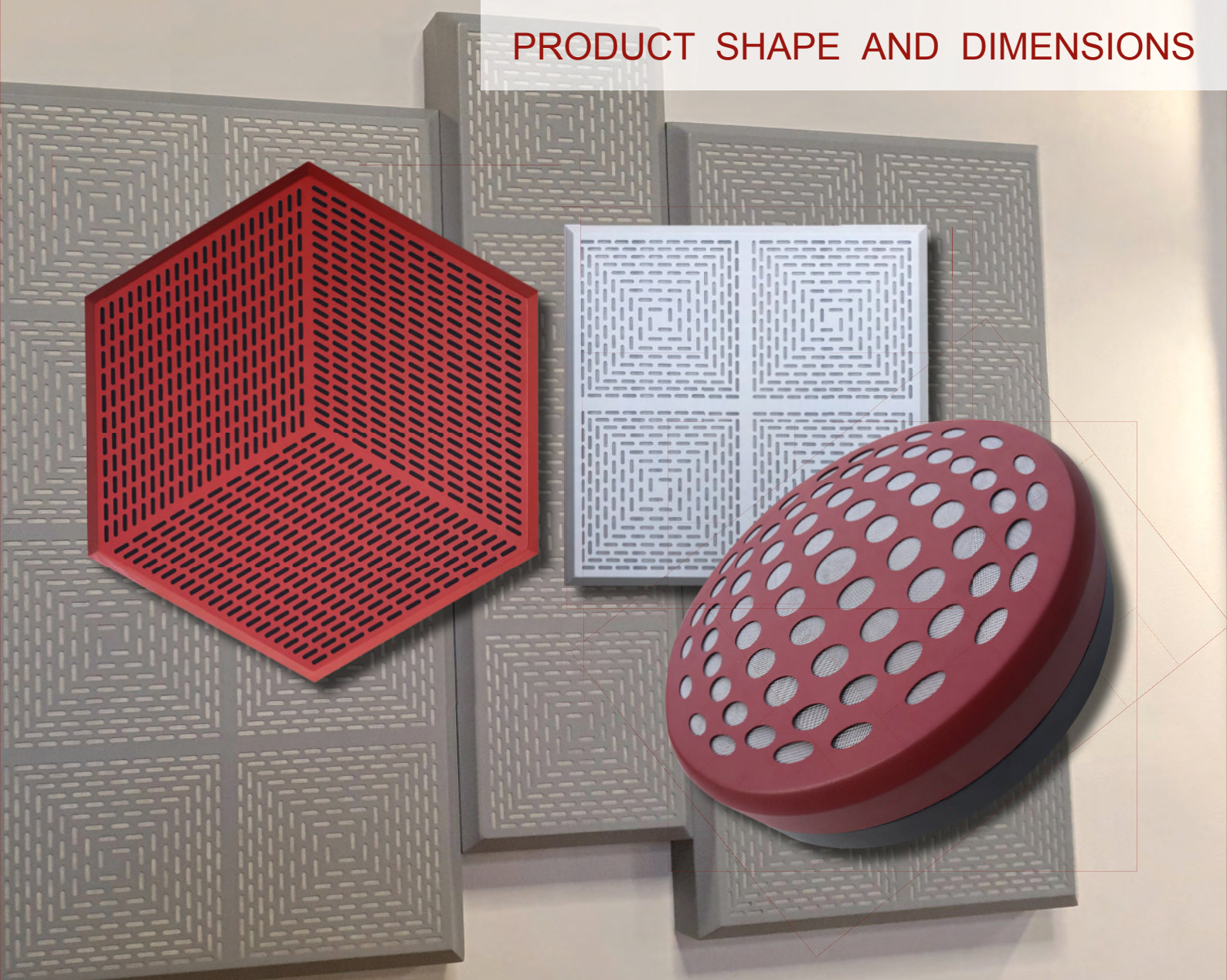


PANEL WITH FOOT

Skirting panel design for easy maintenance, increased security, and cleanliness.



PRODUCT SHAPE AND DIMENSIONS



AKUPAN® acoustic panels are supplied in a basic range of shapes, dimensions, and their combinations.

The shape of the perforation, the pattern and the density of the perforations can be adjusted on request, in accordance with the required acoustic properties.

It is also possible to supply panels with a design function of perforations, including imitation portraits, logos, etc.

PARAMETERS

AKUPAN® SQUARE

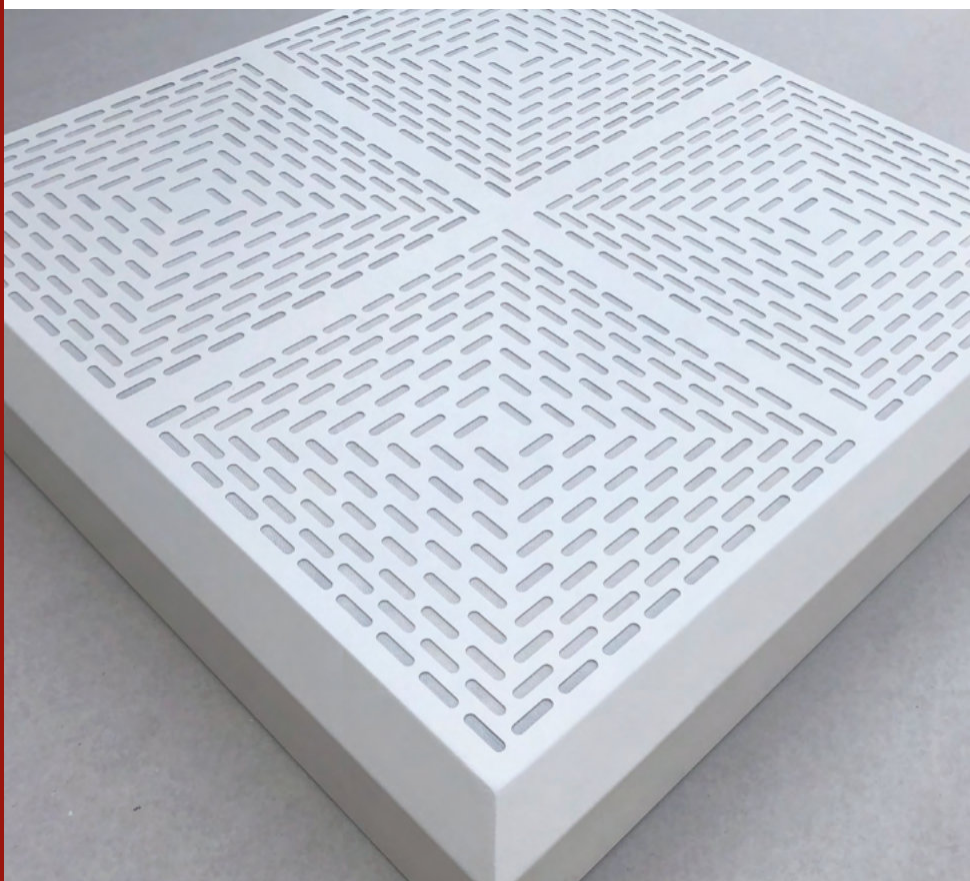
Length [mm]	1250	1250	950	950	650	650
Width [mm]	650	350	650	350	650	350
Depth [mm]	100, on request 40 to 150					

AKUPAN® CIRCLE

Circle diameter [mm]	400
Depth [mm]	100, on request 40 to 150

AKUPAN® HEXAGON

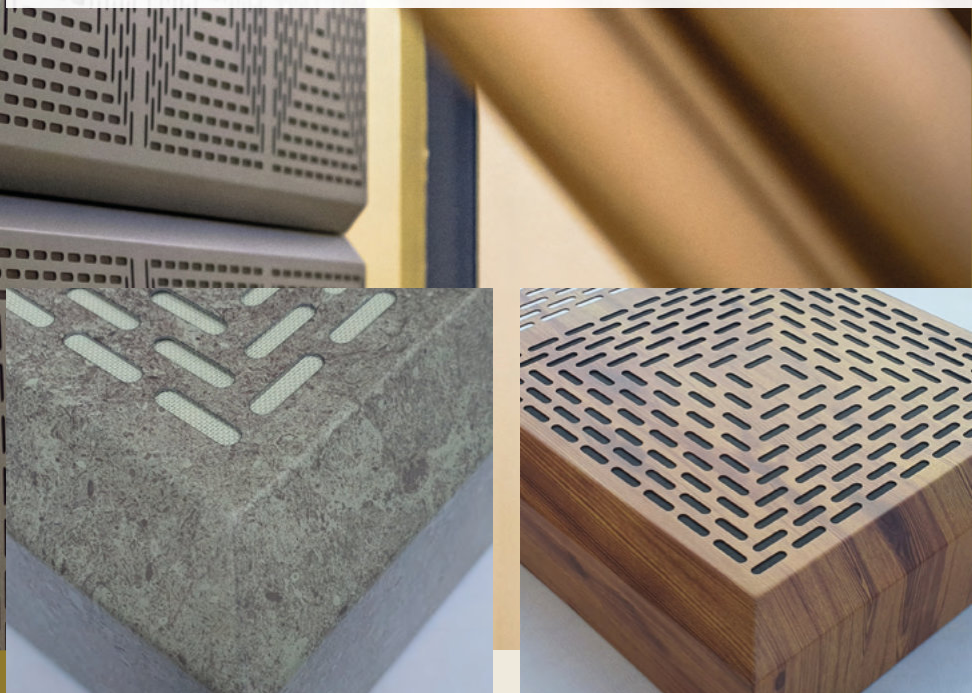
Width ratio [mm]	650/750	350/404	950/1097
Depth [mm]	100, on request 40 to 150		



COLOURS

The standard for surface treatment of AKUPAN® panels is thermoplastic paint in matt design - fine structure, in a colour according to the RAL colour sampler.

For use in corrosive environments class C1 - C4, the panels are supplied with further respective special surface treatment.



DECOR

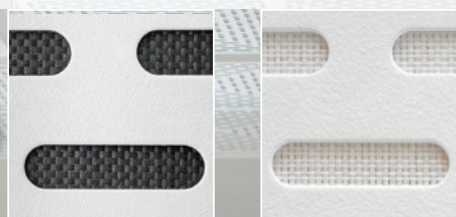
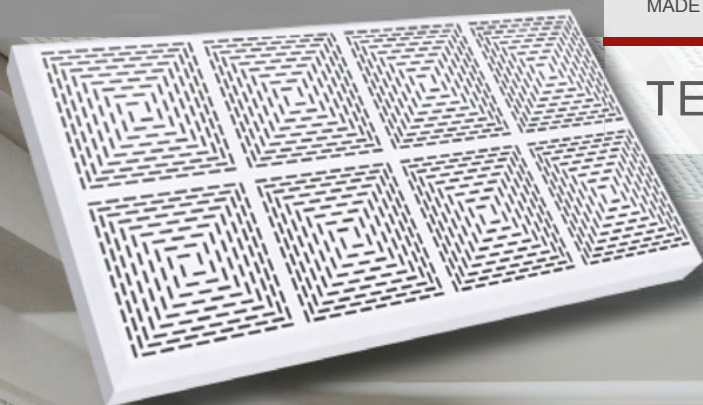
At the customer's request, the surface treatment can also be offered in a wide range of decors that imitate various materials such as wood, concrete, etc., while retaining the technical properties of the surface treatment.



TEXTILE TREATMENT

We also offer AKUPAN® panels in a textile design with a fire protection for use in assembly rooms.

TECHNICAL DATA


Black
perforation cover

White
perforation cover

Reaction to fire

- classification A2-s2, d0 (EN 13501-1+A1: 2010): Protocol No.17/440P380, CSI a.s. (Institute for testing and certification, Inc., CSI Division - Center for Civil Engineering Prague)

Thermal properties

- the panel shell and the back wall are thermally conductive

Moisture resistance

- the surface treatment is tested for basic resistance to condensation water according to EN ISO 6270-1: 2002: degree of blistering and rusting is 0th. (Protocol TZÚS Prague - No.010-039929)

Corrosion resistance

- on request - triplex anti-corrosion treatment of the entire surface of the perforated weldment for the degree of corrosive aggressiveness of the atmosphere C4 (according to EN ISO 12944-2), designed for indoor areas and environments such as swimming pools, chemical plants, shipyards and docks on the seashore, etc. (protocol TZÚS, s.p. no. T330 / 228)

Impact resistance

- high impact resistance: complies with utility category C.4 - surfaces intended for physical activities, eg dance halls, gyms, stages, etc., according to EN 1991-1-1, test according to EOTA TR 001 Determination of impact resistance of panels and panel assemblies: Protocol TZÚS Prague - No.010-039876

Hygienic properties

- very low permissible content of volatile organic compounds (VOC): Protocol TZÚS Prague - No.100-061900
- materials used do not create conditions for the growth and development of microorganisms.

Safety

- the panel is equipped with a safe perforation size
- the shape of the panel significantly increases contact safety
- the mounting method guarantees a secure anchorage.

Maintenance

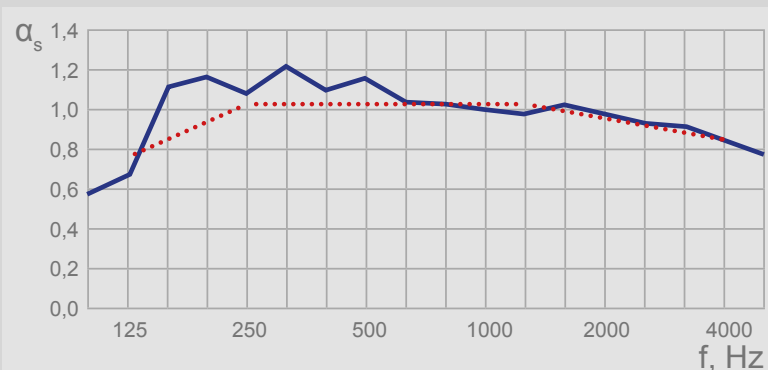
- easy maintenance by gently vacuuming the perforations and wet cleaning the metal shell – with squeezed sponge with water and a common detergent and then wiping it dry. As required.

Related documents

- Building technical certificate No.010-040028, TZÚS Prague (Technical and Test Institute for Construction Prague, SOE, with the Protocol on product certification No.204 / C5 / 2018 / 010-040050

Acoustic absorption

- AKUPAN® Klasik, 1250x650x100 mm, placed on the surface: Protocol TZÚS Prague - No.040-055267



■ The absorption factor α_s (Sabin) according to ISO 354

■ Values of practical absorption factor α_p :

125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz
0,75	1,00	1,00	1,00	0,95	0,85

- weighted absorption factor $\alpha_w=1$, absorption class A „very high absorption“ (EN ISO 11654).

BASIC PARAMETERS

Length [mm]	1250
Width [mm]	650
Depth [mm]	100
Weight [kg] from: /depending on equipment/	8

DELIVERY

Packaging	in pieces
Projected surface	0,8125 m ² /pc
Accessories	on request

APPEARANCE

Surface colour	RAL or metallic paint
Laminating colour	white or black fiberglass fabric, or non-flammable fabric in colour according to the swatch (on request)
Surface finish	matt - fine structure



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