INSPIRED LISTENING

TOP A)K)U)S)T)I)K)

ACOUSTIC PRODUCTS
BEAUTY MEETS PERFORMANCE

Every room engages and impacts our senses. The first impression we gain is visual: we take in the room’s design. Then, at a more subconscious level and after some delay, we become aware of its acoustics. TOPAKUSTIK and TOPPERFO will meet all your expectations in terms of design and acoustics: products that deliver inspired listening!

You’ll find all our products in this brochure: our tried and tested TOPAKUSTIK range with its characteristic grooving as well as TOPPERFO with even smaller perforations so the sound absorption function becomes virtually invisible. Almost fifty photographs from ten different countries show the convincing results of the successful use of our products.

TOPAKUSTIK is far more than a mere brand name. Nearly one hundred individuals work in our planning and production departments, and our team of experienced specialists are at your disposal for advisory services, sales and distribution.

We’re looking forward to working on your project!

Georg Hegglin, CEO

This ceiling, consisting entirely of triangular shapes, adds that special extra touch to the reception area at the headquarters of finance group “La Française” on Boulevard Raspail in Paris.

Over 30 different triangles were first produced in our factory and then the ready-to-install elements were quickly and easily mounted on site.
### THE REFINED ACOUSTIC SYSTEM

**TOPAKUSTIK®**

Available in planks with a tongue and groove connection (plank width = 128 mm*) for joint-free surface appearance or in panels (panel width = 300 – 1200 mm) for removable or fixed ceilings, walls or cabinet fronts.

### PERFORATION AS REQUIRED

**TOPPERFO®**

A wide range of perforations for wall and ceiling finishes. Conventional M-Perforation, discrete T-Perforation or micro perforations (Clou + Micro). Available in panels and planks.

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* 1 INCH = 25.4 mm ≈ 128 mm = 5.04"
The refined acoustic system for wall and ceiling finishes. Many different groove patterns are available. Narrow spaced grooves appear as a textured surface (4/2, 8/3, 12/4) – wider spaced grooves can be seen individually by the eyes (9/2, 13/3, 14/2, 19/2, 25/4). Thanks to the rear perforation pattern, the core panel remains structurally intact allowing for cutouts (programmed or field performed) to address penetrations required for lighting, HVAC and sprinkler systems.

TOPAKUSTIK / TOPPERFO sound absorption in the air cavity (e.g. only fleece, melamine or fiberglass). Cavity depths and other porous materials are set up as described above. Additionally, absorption coefficients with other wavelenath patterns are available. Narrow spaced grooves appear as a textured surface (4/2, 8/3, 12/4) – wider spaced grooves can be seen individually by the eyes (9/2, 13/3, 14/2, 19/2, 25/4). Thanks to the rear perforation pattern, the core panel remains structurally intact allowing for cutouts (programmed or field performed) to address penetrations required for lighting, HVAC and sprinkler systems.

The sound absorption of our products is measured in a reverberation room in accordance with DIN ISO 354:1985. This provides the so-called w-values which are the letters L, m and/or H to indicate if the sound absorption of the product is greater than 0.25 in a specific frequency range. L is for low or 250 Hz, m is for mid or 500 to 1000 Hz, and H is for high or 2000 or 4000 Hz.

The classification into Euroclasses A, B, C, D and E is calculated and derived from the so-called NRC (noise reduction coefficient) which is the value specified according to the US standard ASTM C423. Behind each so-called value are the letters L, M and/or H to indicate if the sound absorption of the product is greater than 0.25 in a specific frequency range. L is for low or 250 Hz, M is for mid or 500 to 1000 Hz, and H is for high or 2000 or 4000 Hz.

Panels

TOPAKUSTIK products can also be used as reflectors by eliminating the perforations on the front side of the grooves. The absorption figures are then equivalent to those of a standard reflecting panel.

Please note: Walls finished with lighter veneers (maple, birch) or lighter paint colors to minimize this effect.

Please note: Walls finished with lighter veneers (maple, birch) or darker paint colors to minimize this effect. Designs with 2 mm wide groove e.g. type 9/2 or 14/2 or 19/2 and/or interrupted grooves can have a visually disturbing effect (flickering-Moiré pattern) from the light to dark contrast from the face surface to a broad frequency band. Please note: Walls finished with lighter veneers (maple, birch) or darker paint colors to minimize this effect. Designs with 2 mm wide groove e.g. type 9/2 or 14/2 or 19/2 and/or interrupted grooves can have a visually disturbing effect (flickering-Moiré pattern) from the light to dark contrast from the face surface to a broad frequency band.
Type 6/2 M or T

This grooving is less "visible" as the interaction of light and shadow occurs regularly due to the close spacing of the grooves, thus creating a 2-dimensional effect. The narrow grooves require perfect assembly, as even the smallest differences in the surface are visible.

See page 5 for dimensions and materials
See page 20/21 for surfaces

Type 8/3 M NEW!

Type 9/2 M

TOTAL THICKNESS
≈ 215 mm
≈ 55 mm
More information Page 4

Masse und Materialien siehe Seite 5
Oberflächen siehe Seite 20 / 21

1. LVM, Münster DE – Architekt: HPP Architekten, Düsseldorf DE – Foto: HGEsch / Hennef, Blankenberg DE
2. Pilatus Businesscenter, CH
3. AVM Computersysteme, Berlin DE – Architekt: Trucks Architekten, Berlin DE

1.4.2
Abhängehöhe 200 mm
Abhängehöhe 56 mm
9.50%
Seite 7

1.4.1
Abhängehöhe 200 mm
Abhängehöhe 56 mm
19%
Seite 7

Type 8/3 + 9/2:
Bei der Planung ist das Achsmass von 10.66 mm* zu berücksichtigen.
The most popular TOPAKUSTIK types. High sound absorption combined with easy assembly. The grooving is visible even from a long distance.

See page 5 for dimensions and materials
See page 20/21 for surfaces

More information Page 4
These grooves are the ideal solution for standard absorption requirements. As with all center-to-center distances, the wide grooving also comes with grooves of 2 mm, 3 mm and 4 mm.

See page 5 for dimensions and materials
See page 20/21 for surfaces
COMPOSING A MASTERPIECE

Should each element be a different shape, or do you prefer standardized solutions? We manufacture both. For products that are easier to use, such as our TOPAKUSTIK planks, you decide how the surface should look. You can choose any color or any wood, and many decorative melamine resins are also available. We'll be delighted to play our part in composing your masterpiece!

This auditorium is naturally dominated by the gigantic screen that extends across its entire front. But all the other walls are covered with TOPAKUSTIK planks to ensure that the acoustics are perfect! Another benefit: the warmth emanated by the genuine wood veneer provides a pleasant counterbalance to the otherwise cool interior.
**TOPAKUSTIK®**

**SPECIAL GROOVES**

 Would you like the grooving to be something special? How about our type Caro, or the type HR 9/2 M with its semicircular grooves? Many more variations are possible: for instance, the distance between the grooves can be widened to 48 or 64 mm. Absorption values are available.

<table>
<thead>
<tr>
<th>Caro 29/3 M</th>
<th>α</th>
<th>w</th>
<th>Euro</th>
<th>NRC</th>
</tr>
</thead>
<tbody>
<tr>
<td>215 mm</td>
<td>0.82</td>
<td>B</td>
<td>0.86</td>
<td></td>
</tr>
<tr>
<td>65 mm</td>
<td>0.80</td>
<td>M</td>
<td>0.85</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HR 9/2 M</th>
<th>α</th>
<th>w</th>
<th>Euro</th>
<th>NRC</th>
</tr>
</thead>
<tbody>
<tr>
<td>215 mm</td>
<td>0.75</td>
<td>C</td>
<td>0.82</td>
<td></td>
</tr>
<tr>
<td>65 mm</td>
<td>0.73</td>
<td>M</td>
<td>0.83</td>
<td></td>
</tr>
</tbody>
</table>

The irregular grooving of our type R gives it a charm all of its own. The panel repeats occur every 336 mm or even every 592 mm, so they are invisible to the naked eye. The plank repeats are visible because the system requires a width of 128 mm, but this does not detract from the charming effect created by the irregular pattern.

**Comparison values regarding sound absorption:**
- Grooving 3 mm = 28/4 M – 7.5% – page 11
- Grooving 4 mm = 8/3 M – 9.5% – page 7

**Surface:**
- **Caro 29/3 M**: (only paint)
- **HR 9/2 M**: (only paint)

**Fire category core panel**: DIN/CH/EN
- Caro 29/3 M: B2 + B1/4.3 + 5.3/s1,d0 + B2,s1,d0
- HR 9/2 M: B2 + B1/4.3 + 5.3/s1,d0 + B2,s1,d0

**Formats / Dimensions:**
- Panels max. 3640 × 1250 mm
- Panels max. 3680 × 1298 mm
- Planks max. 3800 × 128 mm

**Open area:**
- Grooving
  - 3 mm: 7.4% 8.5%
  - 4 mm: 9.4% 10.7%
- Comparison values regarding sound absorption:
  - Grooving 3 mm = 28/4 M = 7.5% – page 11
  - Grooving 4 mm = 8/3 M = 9.5% – page 7
### ARIAl-Plus

The perforation is barely visible thanks to the deep grooving and the black MDF board. The grooves create the effect of individual bars. The product can be promoted as no added Formaldehyde.

<table>
<thead>
<tr>
<th>Fire category</th>
<th>D-s1.d0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planks</td>
<td>4080 × 128 mm</td>
</tr>
<tr>
<td>Panel max.</td>
<td>4060 × 1216 mm</td>
</tr>
<tr>
<td>Panel ideal</td>
<td>2020 × 550 mm</td>
</tr>
</tbody>
</table>

#### Fire performance

- **28/4 M-7.5%**
  - 1.2
  - 1
  - 0.8
  - 0.6
  - 0.4
  - 0.2
  - 0
  - 125 Hz
  - 250 Hz
  - 500 Hz
  - 1000 Hz
  - 2000 Hz
  - 4000 Hz

#### Acoustic performance

- **0.55 LM D0 .78**
- **0.55 MD 0.72**

#### Surface finishes

- **Silver-Gold**
- **Chocolate**
- **Alu-Silver**
- **White**
- **Nordic Blue**
- **White Shade**

### Technical specifications

- **Silver-Gold Chocolate**
- **Alu-Silver White**
- **Nordic Blue White Shade**

### Further information

- **Spruce Hardwood – picture shows 90 × 25 cm**
- **White Fir, finger jointed – picture shows 90 × 25 cm**

### Additional notes

- **Silver-Gold Chocolate**
- **Alu-Silver White**
- **Nordic Blue White Shade**

### Coatings

- For ceilings, glazed surface treatment provides protection against yellowing; for walls, we recommend an additional coat of water-based paint. Other glazed paint finishes in various colors are also available. Please consult our website for information, or contact us directly.

### Dimensions

- **TOTAL THICKNESS**
  - 215 mm
  - 55 mm

### Contact information

- For more information, please visit our website or contact us directly.
MEDIUM DENSITY FIBERBOARD (MDF)

TOPAKUSTIK and TOPPERFO products are manufactured from medium density fiberboard (MDF) as a standard. Thanks to the homogeneous structure, MDF is well suited for this application. MDF panels are produced from soft and hard wood fibers with added binding agents. Only panels meeting the international emission values E1 are processed. Panels are also available in No added Formaldehyde and FSC certified upon request.

FIRE STABILITY ACCORDING TO EUROCLASS EN 13501-1

TOPAKUSTIK and TOPPERFO have successfully passed extensive tests in accordance with Euroclass EN 13501-1 and are classified as follows in the flame-retardant specification: B-s2,d0.

This code comprises the following values:
B: little or no contribution to the spread of fire
s2: little or insignificant smoke emission
d0: no flammable particles or drops in the event of a fire

The system is broken down into the following categories:
A1: no contribution to the spread of fire
A2: no significant contribution to the spread of fire
B1: little or no contribution to the spread of fire
B2: limited contribution to the spread of fire
C: contributor to the spread of fire
D: major contributor to the spread of fire

US classifications according to ASTM E84 standard

Expansion and contraction of the core materials:

Wooden materials are hygroscopic and have a balancing effect on the relative humidity of the room. Changing room humidity also causes the shrinkage and expansion of wooden materials.

In air conditioned rooms the panel and plank dimensions can change by +/– 1 mm per 1000 mm. In non air conditioned rooms this can increase to +/- 2 mm per 1000 mm. Therefore panels and planks should be separated with joints of 3 mm to 6 mm depending on their size.

The installation should only be done when the normal operating humidity and temperature conditions are in place. After delivery and unloading the plastic transport covering should be removed and the panels or planks left to acclimatize for 3 – 4 days prior to starting installation.

CONTENT OF UREA-FORMALDEHYDE

We only use class E1 panels or panels glued without any addition of urea formaldehyde whatsoever. An overview of the panels we use is provided here.

<table>
<thead>
<tr>
<th>Finish</th>
<th>No add. urea formaldehyde</th>
<th>Class E1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Veneered</td>
<td>On request</td>
<td>Products</td>
</tr>
<tr>
<td>Colour or white lacquered</td>
<td>Standard products</td>
<td>Special products</td>
</tr>
<tr>
<td>Eco (melamine finish)</td>
<td>Standard products</td>
<td>Special products</td>
</tr>
</tbody>
</table>

Topcoat, with MDF fiberboards without formaldehyde, has been examined for volatile pollutants as per ISO 1600: it was awarded the best possible classification (A+).

For example: Black MDF

Black or colored MDF core boards offer many interesting possibilities. They contrast well with both painted and wood veneer TOPAKUSTIK planks or panels.

When the core is the finish: All of the core panels are industrially manufactured. Color differences, even within one production batch, cannot be avoided. The application of a topcoat can make these differences even more apparent.

RESAP®

RESAP is a non-flammable panel (A2 – CH: 6q.3) made from natural gypsum and recycled cellulose fibres.

Painted panels:
Homogenous design – surface and edges can be finished for seamless transition. The RESAP-Plus version is recommended for a largely non-porous coat of paint.

Veneered panels:
The light brown/beige coloring of the panel is visible in the grooves or perforations and in combination with oak, beech or light veneers gives a high-quality appearance.

OVERVIEW OF SPECIAL CORE PANELS

<table>
<thead>
<tr>
<th>Core Material designation</th>
<th>Fire category DIN (CH)</th>
<th>Suitable for humid rooms</th>
<th>Basic sizes of core materials</th>
<th>Maximum expansion due to humidity increase for 1000 mm length in air conditioning</th>
</tr>
</thead>
<tbody>
<tr>
<td>RESAP®</td>
<td>A2 (6.3)</td>
<td>–</td>
<td>−</td>
<td>0.4 mm/1 m = 0.4%</td>
</tr>
<tr>
<td>Cement</td>
<td>A2 (6.3)</td>
<td>+</td>
<td>C</td>
<td>0.8 mm/1 m = 0.8%</td>
</tr>
<tr>
<td>Particle board</td>
<td>B2 (4.3)</td>
<td>−</td>
<td>C</td>
<td>0.8 mm/1 m = 0.8%</td>
</tr>
<tr>
<td>Flakeboard OSB</td>
<td>B2 (4.3)</td>
<td>–</td>
<td>C</td>
<td>−DIV</td>
</tr>
<tr>
<td>Forex</td>
<td>B1 (5.3)</td>
<td>+</td>
<td>C</td>
<td>0.8 mm/1 m = 0.8%</td>
</tr>
<tr>
<td>plywood</td>
<td>B2 (4.3)</td>
<td>–</td>
<td>+</td>
<td>−DIV</td>
</tr>
<tr>
<td>Blockboard</td>
<td>B2 (4.3)</td>
<td>–</td>
<td>−</td>
<td>−DIV</td>
</tr>
</tbody>
</table>

Legend:
– unsuited
+ well suited
C upon request
Wood veneer p. 21
Paint p. 21
Melamine p. 21

Expansion: Wood veneer p. 21
Paint p. 20
Melamine p. 21
WOOD VENEERED SURFACES:
The TOPAKUSTIK products are veneered in all customary types of wood. The veneers are processed for each order in order to obtain the most even appearance possible for color and pattern. Further, the veneer appearance is influenced by the cut and the composition of the veneers. Since wood is a natural product, the matching of the veneer must be done in connection with each individual order.

PAINT SURFACES
Matching is available for any manufacturer’s color specification (RAL/NCS/…). The application is done with the latest generation spray robotics, providing a guaranteed even application. Due to the grooves and perforations of the products, the color appearance is different from that on smooth surfaces. If TOPAKUSTIK products are finished by the client, please remember that an even paint application, even in the grooves, is absolutely necessary for a good final result.

The advantage of painted surfaces is that the grooves are also the same color.

White coating in MDF-eco melamine gives the grooves greater prominence.

MELAMINE (eco)
Details for eco:
- 10 different cutting-edge Decars
- All panels are classified as no added urea formaldehyde NAUF
- Short delivery times; all decors in stock NA
- Both fire classes available D-s2,d0 and B-s2,d0 (FR)
- FSC mix possible on request (depending on quantity)

Different lengths of planks and panels:
The choice of the veneers is tailored to the length of the plank or panel. Different veneers may be used for various lengths. If the entire project needs to be manufactured using the same veneer, that needs to be specified as a condition.

Rift veneers (sliced veneers or true quarters) on panels:
Joining rift veneers on the bias is not advisable with certain types of wood such as maple or cherry as the appearance of the veneers becomes striped. We recommend random match veneering = our Random matched range.

VARNISH:
A high quality, clear, flat varnish is provided on all orders unless otherwise specified. Light kinds of wood such as maple or birch are varnished with a slight lightening effect as a matter of principle.

NM = natural, gloss varnish
AM = lightening, gloss varnish
### EDGES

**TOPAKUSTIK-planks edge details:**

- Longitudinal edges with tongue and groove
- Transverse edges are cut industrially and at a 90 degree angle. When planks of multiple lengths are requested, the perforations are visible on the front edge.

- If requested, perforations on the transverse edges are set back. The rear stress relief grooves are necessary for stability and are visible.

- If requested, the first and last plank may have a visible edge without tongue or groove. It may also be veneered or painted.

**Product tolerances**

**Planks:**
- TOPAKUSTIK planks are supplied with a standard industrial 90 degree angle cut. The length tolerance amounts to +/- 2 mm. If requested, the planks can be supplied to a "fixed" dimension with a reduced tolerance of approx. +/- 0.25 mm per m². This is only recommended for lengths shorter than 2 m because of the potential for greater expansion and contraction of core materials.

**Panels:**
- TOPAKUSTIK panels are produced to tolerances of +/- 0.5 mm per m².

### TOPAKUSTIK-panels edge details:

- Visible edge, perforation set back (Edge finished in colored paint version!)
- 4 mm tongue or groove joint – Panel joints need to be shown
- For blind edges, perforations are visible
- Groove interrupted at edge
- Female rabbet joint 4 mm deep for a spline joint

### CEILING FINISHES FOR PLANKS + PANELS

#### Edge Molding Type 1

#### Edge Molding Type 2

#### Edge Molding Type 3

### CEILING FINISHES FOR PANELS

#### Mitre Type 10

#### Visible Edge with Grooves set back Type 11

#### Visible Edge with continuous grooves Type 12

### CUTOUTS

- On site or factory cut
- Produced with interrupted grooves
- Inserts for planks 128/256/384 mm

### WALL CORNERS AND TERMINATIONS

#### Type 21 (Alu 25·3 mm)

#### Type 22 (Alu)

#### Type 23 (Alu)

#### Type 27

#### Type 25

#### Type 26 (Alu)
**MOUNTING OF TOPAKUSTIK PLANKS**

Mounting on wooden Battens: The TOPAKUSTIK planks are installed like conventional tongue and groove planks. It is important that compressed air pressure used for the nailing or stapling gun is set precisely, so the staples do not protrude in the groove or penetrate too deeply.

Mounting on Metal Ceiling Grids: The TOPAKUSTIK plank is fitted to the suspended H-bar rail with special "twist on" mounting clips. This form of assembly is ideal for non-flammable ceiling finishes.

**ACCESS PANEL**

**LAYOUT**

Offset joints: The installation with offset joints permits a slight material expansion without it becoming visible. In combination with joint widths of about 3 mm, a clear and tidy joint appearance results.
For a long time, high sound absorption was equated with large open areas that also entailed large perforations. However, architects and designers wanted, and still want, to make the perforations less visible. Following the launch of our TOPPERFO-T and TOPPERFO-Clo products with smaller perforations, we have now achieved hole diameters of a mere 0.5mm or even 0.3mm with our TOPPERFO-Micro range. In other words, the circle has been squared: small perforations and high sound absorption combined in one and the same product!

The ceiling cladding in this family home on Lake Zurich exudes cool elegance. The neutral ceiling surface enhances the tasteful decor rather than competing with it. The functioning of the room acoustics is virtually invisible.
TOPPERFO are perforated acoustic panels tailor made specifically for each project. Various panel sizes and hole diameters are available for selection. TOPPERFO-Micro and TOPPERFO-Clou, developed by NH, are discrete in their appearance and simultaneously very effective in sound absorption thanks to the small hole diameters. TOPPERFO panels can be provided with various edge designs.

Large perforation diameters may be problematic due to the strong light and dark contrast > risk of flickering! Recommendation: use fine perforations for wall panels (TOPPERFO-T, -Clou or -Micro).

THE ACOUSTIC SYSTEM

All TOPPERFO types are available with M and T perforations on the rear. This makes it possible for acousticians to match the TOPPERFO surface treatment with the required absorption. The absorption coefficients stated in this brochure were measured according to the ISO 354 standard as described previously. Additional absorption coefficients with other porous materials in the air cavity (e.g. only fleece, melamine resin foam, fibre-glass, etc.) are listed in the TOPAKUSTIK/TOPPERFO sound absorption document.

Micro Perforation delivers convincingly high sound absorption – but it can’t be seen! The core panel is fully perforated and the covering, veneer or coating material is micro-perforated. TOPPERFO-Micro is suitable for almost all areas, except for outdoor applications.

Clou Perforation in core panels with normal flammability. Developed on the basis of T-Perforation, our Clou Perforation product features even smaller bore diameters, starting at 1.2 mm. The sound energy is channelled through four bores on the visible side into one larger bore on the rear side. Materials other than MDF can also be used for core panels.

Clou Perforation in low-flammability or non-flammable core panels. The bore on the rear side is replaced by a groove that has a slight influence on the absorption values – note the measurements. The perforation on the visible side remains the same on low-flammability panels; the minimum diameter for non-flammable core panels is 2 mm.

Micro Perforation delivers convincingly high sound absorption – but it can’t be seen! The core panel is fully perforated and the covering, veneer or coating material is micro-perforated. TOPPERFO-Micro is suitable for almost all areas, except for outdoor applications.

Clou Perforation in core panels with normal flammability. Developed on the basis of T-Perforation, our Clou Perforation product features even smaller bore diameters, starting at 1.2 mm. The sound energy is channelled through four bores on the visible side into one larger bore on the rear side. Materials other than MDF can also be used for core panels.

Clou Perforation in low-flammability or non-flammable core panels. The bore on the rear side is replaced by a groove that has a slight influence on the absorption values – note the measurements. The perforation on the visible side remains the same on low-flammability panels; the minimum diameter for non-flammable core panels is 2 mm.

TOPPERFO-Micro delivers convincingly high sound absorption – but it can’t be seen! The core panel is fully perforated and the covering, veneer or coating material is micro-perforated. TOPPERFO-Micro is suitable for almost all areas, except for outdoor applications.

Clou Perforation in core panels with normal flammability. Developed on the basis of T-Perforation, our Clou Perforation product features even smaller bore diameters, starting at 1.2 mm. The sound energy is channelled through four bores on the visible side into one larger bore on the rear side. Materials other than MDF can also be used for core panels.

Clou Perforation in low-flammability or non-flammable core panels. The bore on the rear side is replaced by a groove that has a slight influence on the absorption values – note the measurements. The perforation on the visible side remains the same on low-flammability panels; the minimum diameter for non-flammable core panels is 2 mm.

Micro Perforation delivers convincingly high sound absorption – but it can’t be seen! The core panel is fully perforated and the covering, veneer or coating material is micro-perforated. TOPPERFO-Micro is suitable for almost all areas, except for outdoor applications.

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With TOPPERFO Micro, the sound absorption function becomes almost completely invisible. The perforation measures a mere 0.5 mm (or even 0.3 mm), so it is virtually invisible from a certain distance. TOPPERFO micro-perforation is available in various grids and diameters, depending on the required level of sound absorption. The choice of surface coverings is also virtually unrestricted. At veens and paint colors are available, as well as CPL and HPL surfaces by arrangement.

Graphic designs and patterns are available in every imaginable form. Would you like a portrait, or do you prefer an abstract pattern? The possibilities are virtually limitless. The back cover of this brochure shows a project featuring an abstract pattern.
**TOPPERFO®-Clou**

The fine Clou perforation in an 8 mm grid with a diameter of only 1.2 mm can hardly be seen at a distance. The wooden texture is therefore completely retained in its natural beauty. TOPPERFO®-Clou has excellent acoustic absorption coefficients in the low to middle frequency range. It is therefore ideally suited for lecture rooms and auditoriums where low frequency control is needed.

- Fire category DIN A2 = Ø 2mm perforation
- Fire category DIN B1, grooved on the back, 5/3

See page 29 for dimensions and materials.

**Hole spacings and bore diameters**

<table>
<thead>
<tr>
<th>Hole Spacing</th>
<th>Ø 1.2 mm</th>
<th>Ø 2 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>8/8/1.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.4/6.4/1.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.3/5.3/1.2</td>
<td></td>
<td></td>
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<tr>
<td>4/4/1.2</td>
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<tr>
<td>8/8/1.6</td>
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<td></td>
</tr>
<tr>
<td>6.4/6.4/1.6</td>
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</tr>
<tr>
<td>5.3/5.3/1.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8/8/2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL THICKNESS**

- ≈ 226 mm
- ≈ 66 mm

More information Page 4

**DIGITAL PRINT**

Because the Clou- or Micro-perforation is almost invisible, it does not clash with the printed subject – but the surface still absorbs sound. At the DaVinci College high school in Roosendaal (Netherlands), the pupils’ imaginative versions of the Mona Lisa were assembled to create a very unusual collage.
The T-perforation developed and successfully used by NH Akustik + Design AG has a discreet effect, yet offers appreciable absorption. TOPPERFO-T panels are available with perforation bores of ø 2, 3, 4 and 5 mm. Decreasing the diameter of the visible perforations, shifts the absorption maximum to a lower frequency.

See page 29 for dimensions and materials
See page 20/21 for surfaces
### Hole spacings and bore diameters

<table>
<thead>
<tr>
<th>Hole spacing</th>
<th>Bore diameter (mm)</th>
<th>Non-Perforated Total Thickness (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>16/16/16</td>
<td>6</td>
<td>215</td>
</tr>
<tr>
<td>16/16/10</td>
<td>6</td>
<td>55</td>
</tr>
</tbody>
</table>

...and many others!

See page 29 for dimensions and materials
See page 20 / 21 for surfaces
Three different holes

Longitudinal slots

***TOPPERFO*** - Bubble

***TOPPERFO*** - Split

**TOPPERFO** - Graphic NEW!

**UNO GRAPHIC**

Individual perforations are exposed to create a graphic pattern. This page shows just a few ideas, but the possibilities are almost unlimited. The only rule: the bore grid of 16 mm must always be observed. Sound absorption values are available for “minus 20%” and “minus 40%” of the perforation.

**GRAPHIC MULTI**

Multiple bore diameters offer considerably more possibilities, but production is also more complex.

We’ll be happy to advise you!
COLLABORATION

We offer far more than innovative products that bring together architectural materials with acoustical performance. Our strength in systems engineering coupled with the excellent craftsmanship of our fabricators allows us to also bridge invention and reality. We offer time tested engineering and installation strategies for the most unique projects. Early design motifs can be quickly adapted into prototyping for feasibility studies, and our design commitment maintains its endurance through the entire project lifecycle to final commissioning. Our goal is to both encourage creativity and meet its demands.

Falkengården Gymnasium DK
Architect: Falko Arkitekter, Copenhagen – Photo: Stamers Kontor, Copenhagen
Product: TOPPERFO-M 16/16/8, Oak veneered

The extension built onto the Falkengården high school in Frederiksberg, Denmark, houses a rather unusual gymnasium. The Falko Arkitektur firm created an additional space between two traditional brick buildings, providing accommodation for sports as well as meetings. TOPPERFO panels with a large M-perforation alternating with smooth veneered areas were used for the wall claddings. The installation was slightly curved.
TOPPERFO Planks

TOPPERFO planks allow a line effect combined with circular perforation. The length can be chosen as required. All surfaces and fire categories are possible.

Dimensions:
Length: max. 4080 mm in increments of 16 mm
Width: Micro = 128/176/192 mm
Clou = 128/192 mm
M + T = 192 mm

SIXTY-SYSTEM
(US = 2x2 GRID PANELS)

The ceiling system offering maximum choice and extremely easy assembly. Sixty-System 2 x 2 grid panels fit into all standard T-profiles.

Opening upwards: types A, B and C
Opening downwards: type D

Only available with ungrooved borders.
CABINET FRONTS

Cabinet fronts or rear walls of cabinets can be used as sound absorbers. The following products are most suitable: TOPAKUSTIK 14/2, 19/2, 8/2, TOPPERFO Micro/T and Clou.

In conjunction with the fleece attached to the inside (RK 200), the acoustic surface ensures an absorption across the entire frequency band. The fleece developed by NH is tear-proof and set back from the hinges and handles.

→ 3 point-lock must be used!

A perforated MDF panel (thickness: 19mm) in the middle and a micro-perforated covering on both sides. The structure of the Micro cabinet door is symmetrical, so it ensures perfect stability.

→ 3 point-lock must be used!

Type Duplex

Duplex is particularly suited to large hinged or sliding doors. These have invisible, integrated absorptive panels.

→ 3 point-lock must be used!

FORMED SHAPES

For ceiling clouds, curved walls and other shapes TOPAKUSTIK and TOPPERFO elements can be used for shaped wall and ceiling finishes without significant additional effort. For radii above 10 meters, the standard TOPAKUSTIK planks are assembled on the round sub-construction in a segmented way. For smaller radii, the planks or panels can be made flexible by deeper relief grooving on the rear side. In this way, the panels can simply be adapted to the curved sub-construction.

<table>
<thead>
<tr>
<th>Type</th>
<th>Radius</th>
<th>Machining</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planks</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt; 10 m</td>
<td>Assembled in segments</td>
</tr>
<tr>
<td></td>
<td>&gt; 10 m</td>
<td>Grooved on the back</td>
</tr>
<tr>
<td>Panels</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt; 5 m</td>
<td>Grooved on the back</td>
</tr>
<tr>
<td></td>
<td>&gt; 5 m</td>
<td>Grooved on the back</td>
</tr>
<tr>
<td></td>
<td>&gt; 1 m</td>
<td>Prepared as shapes in the factory</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Planks</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt; 15 m</td>
<td>Assembled in segments</td>
</tr>
<tr>
<td></td>
<td>&gt; 15 m</td>
<td>Grooved on the back</td>
</tr>
<tr>
<td>Panels</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt; 8 m</td>
<td>Grooved on the back</td>
</tr>
<tr>
<td></td>
<td>&gt; 8 m</td>
<td>Grooved on the back</td>
</tr>
<tr>
<td></td>
<td>&gt; 1 m</td>
<td>Prepared as shapes in the factory</td>
</tr>
</tbody>
</table>
GYMNASIA

Wall and ceiling finishes are subjected to high impacts in gymnasium. TOPAKUSTIK and TOPPERFO finishes, in combination with the subconstruction systems specifically developed for sports venues, fulfill the high requirements with regard to physical impact and room acoustics. Various TOPAKUSTIK and TOPPERFO products have been tested and certified to DIN 18 032 part 3.

SWIMMING POOLS

For acoustic finishes in high humidity rooms, requirements corresponding to the application are to be fulfilled, e.g.:

- Ceilings and walls constructed to local code requirements
- Rear ventilation of wall and ceiling finish
- Use of corrosion-proof subconstruction materials
- Use of specific, moisture-resistant core panels in production
- Use of specific varnishes or impregnations
- Consideration of the (extraordinary) shrinkage and swelling properties of the core panels
- Water-repellent absorbers such as polyester fleece

The use of acoustic surfaces in damp areas is highly complex. Please contact us with your project and we shall be happy to assist you with developing it.
QUALITY IS NEVER A COINCIDENCE

What we do, we do perfectly: to the highest quality for our customers, with respect for the environment, with products that comply with EN standards and with world-wide patent protection for our inventions.

TOPAKUSTIK®
TOPPERFO®
RESAP®

are registered brands of NH Akustik + Design AG

CH-PATENT
No 683 112

USA-PATENT
No 5,362,931
No 5,422,446

EU-PATENT
No 5504429

EN 13501-1
FIRE CLASSIFICATION

EN 13986
WOOD-BASED PANELS

EN 20354
SOUND ABSORPTION

41 KKL, Luzern CH
Architect: Jean Nouvel, Paris FR

42 Reichstag Berlin DE
Architect: Foster + Partner, London GB

43 New York Times, New York USA
Architect: Renzo Piano, Genova/Paris

44 Burj Khalifa 828 m, UAE
Architect: Adrian Smith SOM, Chicago USA

VISIT OUR PLANT IN LUNGERN

Our company headquarters and the Production site in Lungern are 30 minutes south of Lucerne, accessible by rail or road.

TOPAKUSTIK-SERVICE

Basic sample box
Contains 4 samples

Eco sample box

AREA-Plus sample box

Deluxe sample box
(subject to a nominal charge)
17 different samples including 5 different veneers

AS sample from stock:

...more than 250 different samples available immediately from our stock! Special samples within 2 weeks + shipping (nominal charge)
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