

HF/NF shielding fabric (high frequency + low frequency)

Technical data sheet - Adamantan 003 shielding fabric (indoor + outdoor)

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Grounding and safety regulations

The necessary installation must be carried out by a qualified electrician. A residual current circuit breaker (FI or RCD ≤ 30 mA) must be present in the circuit. Your electrician will install this standard device for you if it is not available. All electrical work (work on electrical devices and systems) must be carried out and checked by a qualified electrician or under their direction and supervision! We will be happy to give the electrician of your confidence the following information by phone +49 7433 955 7172 or by e-mail at info@biologadanell.com for further information.

The grounding must be carried out in accordance with the applicable DIN/VDE regulations.

Safety equipotential bonding:

DIN 57100/VDE 0100 Teil 410 + Teil 540
DIN/VDE 0100 Teil 410 + Teil 540
DIN/VDE 0100 Teil 610 Abschnitt 4+5
VDE 0100

Functional potential bonding:

DIN VDE 0100-100
DIN VDE 0100-410
DIN VDE 0100-540
DIN VDE 0185-305-3
DIN EN 60445 (VDE 0197)

A: Safety potential equalisation
Old stock and minor renovation

B: Functional potential bonding (FPA)
New construction and major renovation

This type of grounding, e.g. at a socket, is only recommended if the effort required to integrate the shielding surface into the functional potential bonding exceeds the benefit, e.g. if the shielding surfaces are located far away or if there is only one shielding surface (one room, one wall surface). The decision on where to earth is always taken by your electrician, who knows the technology, your premises and the local regulations.

This type of grounding is to be used for larger renovations or new buildings. Here, the grounding is provided in the sub-distribution or main distribution board with a separately installed and marked FPA rail. All grounding and shielding wires of the shielded areas and cables are insulated or marked in pink. Each room is to be connected separately.

Here, the grounding cable (yellow / green 2.5 mm² or 4 mm²) is inserted into the existing socket and hard-wired. Your electrician will bring this cable with him.

Further information and an information flyer for your executing electrician can be found at www.funktionspotentialausgleich.de 



Important / Absolutely necessary !!!

Have your electrical installation checked by a specialist / electrician. Grounding is only possible in a TN-S (3-wire) or a TT system. Grounding on an existing TN-C system is not possible or involves renewing some parts of the electrical installation (fig. TN-S).

The processing examples listed here refer exclusively to products offered by Biologa Danell. Due to various technical peculiarities of the materials, compatibility with umbrella products from other manufacturers is not given!

HF/NF shielding fabric (high frequency + low frequency)

Technical data sheet - Adamantan 003 shielding fabric (indoor)

Indoor - Grounding and safety regulations

Safety equipotential bonding:

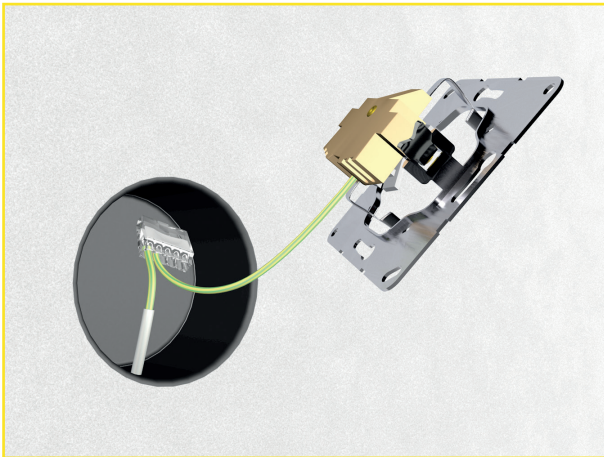


Fig. A1: Connection of the equipotential bonding conductor to the safety equipotential bonding.

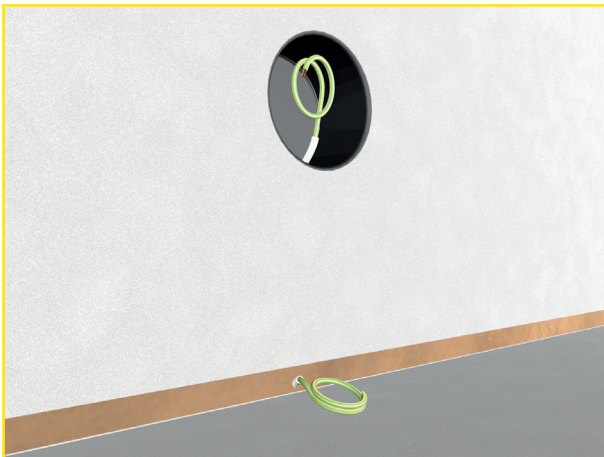
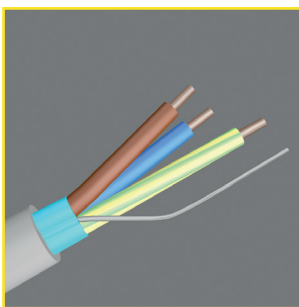


Fig. A2: Preparing the equipotential bonding conductor. Slot to box terminated flat with wall



TN-S:

Usual number of cores in usual design in buildings. Three conductors phase L1 (brown or black), neutral conductor N (blue), protective conductor PE (yellow/green). Here in shielded version with shielding wire. This is not present in a conventional electrical installation.

If your electrician has any questions regarding the grounding of your screen surface, we will be happy to instruct them by e-mail at info@biologadanell.com.

Functional potential bonding:

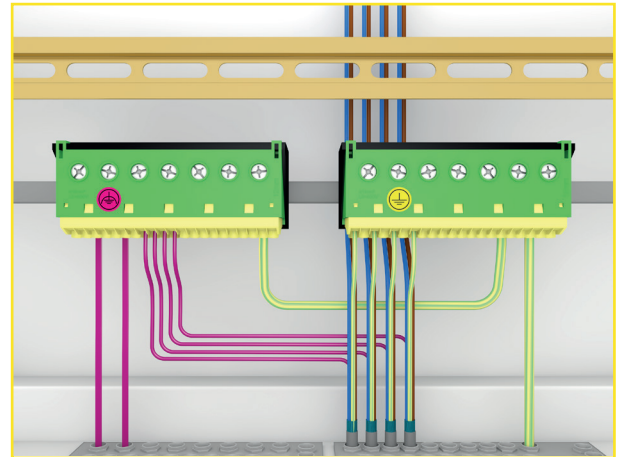


Fig. B1: Connection on the left of the functional equipotential bonding conductor in the sub-main distribution board of the power supply with the separately marked functional equipotential bonding bar.

In diesem Schaltschrank sind **geschirmte Leitungen** und/oder **elektrisch leitfähige Wandflächen** angeschlossen.

Die Schirm-Beidrähte der Leitungen sowie der Anschluss der Wandflächen sind mit der Schutzleiter-Schiene verbunden. Bei Lösen dieser Verbindung wird die Funktion der Schirmung aufgehoben.

Zur Erhöhung des Personen- und Sachschutzes sind alle geschirmten Leitungen und Wandflächen über einen Fehlerstromschutzschalter mit einem Bemessungs-differenzstrom $\leq 30 \text{ mA}$ geführt.

Zutreffende Normen:
DIN VDE 0100-100
DIN VDE 0100-410
DIN VDE 0100-540
DIN VDE 0185-305-3
DIN EN 60445 (VDE 0197)

www.funktionspotentialausgleich.de



Ihr ausführender Elektriker:

Ihr beratender Sachverständiger / Messtechniker:

Fig. B2: QS labelling available from Biologa Danell

Quality labelling

A QS labelling in the distribution door signals the connection of the shielding surface to the FPA rail, warns of removal and notes the addresses of the expert involved as well as those of the responsible electrician. QS labelling - enclosed with boxes and installation cables in the form of the FPA flyer. On request individually.

For more information on functional potential bonding, see: www.funktionspotentialausgleich.de

Adamantan 003 - HF/NF- shielding fabric (high frequency + low frequency)

Interior - laying facing shell (wall)

1. Preliminary work / measuring the area

Determine the grounding point and have the grounding checked by an electrician. Ask the electrician to bring a correspondingly long earthing wire 2.5 mm² (yellow/green protective insulation) and markings in pink/pink, depending on the distance to the earthing point (Fig. A2).

Measure the width and height of the surface. Plan for an overlap of 5 - 10 cm (area + 10 %).

Switch off the fuses and secure them against being switched on again. Check that the room is voltage-free. Remove all socket and switch inserts in the walls to be shielded.

2. Attaching the fabric

Temporarily fix the individual panels in the upper wall area with small nails, staples or screwed wooden strips (Fig. 1).

Screw the screen material panels directly onto the wall using the battening (Fig. 2).

3. Connecting grounding / further processing

Screw the EEB earthing strap flat and continuously from sheet to sheet. 4 x in the middle of the sheet and 1 x in the overlap area (Fig. 3).

Your electrician now connects the grounding strap to the intended box (Fig. A1) or your electrical distributor (functional potential bonding) (Fig. B1) using the RKS pipe cable lug and the prepared grounding cable.

Subsequently, the further wall construction of the facing layer with wood, plasterboard, panels or similar can be carried out.

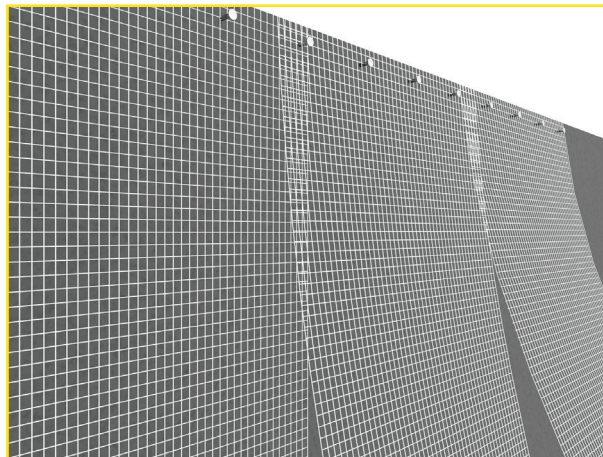


Fig. 1: Temporary fixation of the fabric sheets

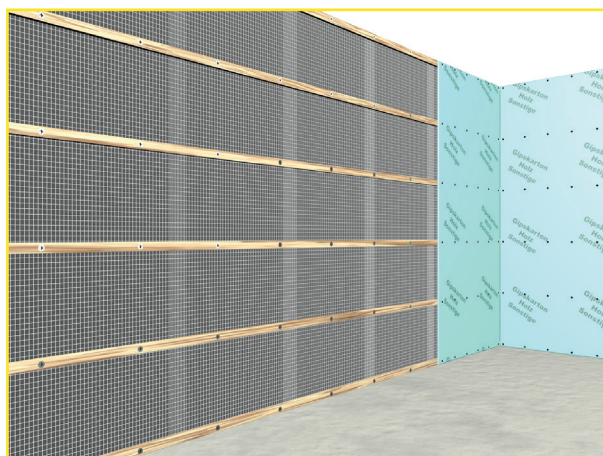


Fig. 2: Fixed fastening of the sheets with the aid of the battening. Removing the auxiliary fastening

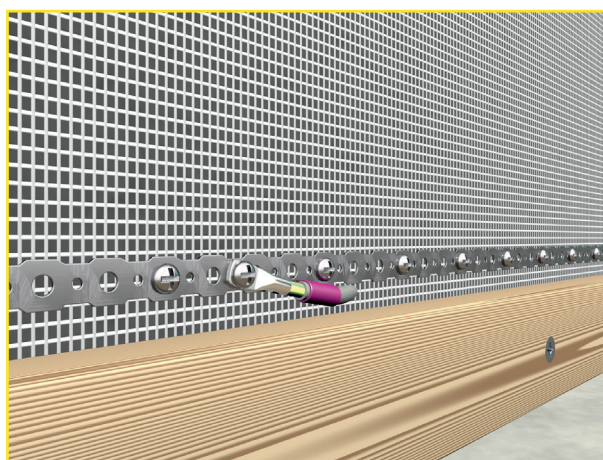


Fig. 3: Attaching the stainless steel grounding strap EEB with stainless steel screws. Pink/pink marking. Grounding with RKS.

Adamantan 003 - HF/NF- shielding fabric (high frequency + low frequency)

Indoor area - installation of facing layer (ceiling)

1. Preliminary work / measuring the area

Determine the grounding point and have the grounding checked by an electrician. Ask the electrician to bring a correspondingly long earthing wire 2.5 mm² (yellow/green protective insulation) and markings in pink/pink, depending on the distance to the earthing point (Fig. A2).

Measure the width and height of the surface. Plan for an overlap of 5 - 10 cm (area + 10 %).

Switch off the fuses and secure them against being switched on again. Check that the room is voltage-free. Remove all socket and switch inserts in the walls to be shielded.

2. Attaching the fabric

Temporarily fix the individual sheets to the entire ceiling surface with small nails, staples or screwed wooden strips (Fig. 4).

Screw the screen material panels onto the ceiling using the battening (Fig. 5).

When working in the ceiling area under plaster, it may be necessary to use plate anchors to better fix the screen material and secure it against loosening.

3. Connecting grounding / further processing

Screw the EEB earthing strap flat and continuously to the material webs near a luminaire outlet. 4 x in the middle of the track and 1 x in the overlap area (Fig. 6).

Your electrician now connects the earthing strap to the intended box (Fig. 6) or your electrical distributor (functional potential bonding) with the help of the pipe cable lug RKS and the prepared grounding cable. (Fig. B1).

Subsequently, the ceiling can be built up with wood, plasterboard, wood panels or similar.

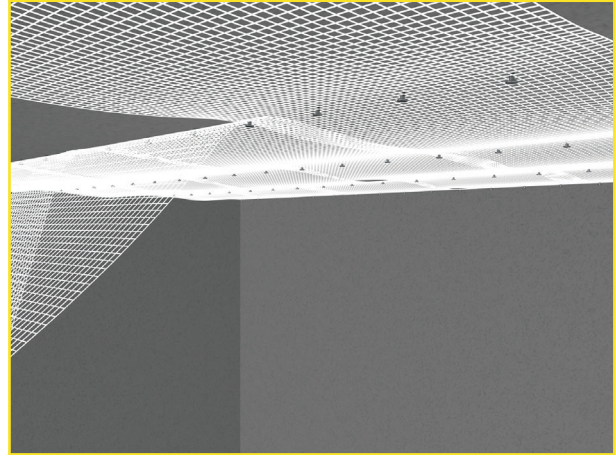


Fig. 4: Temporary fastening of the sheets



Fig. 5: Fixed fastening of the sheets with the help of the battening - Removal of the auxiliary nails

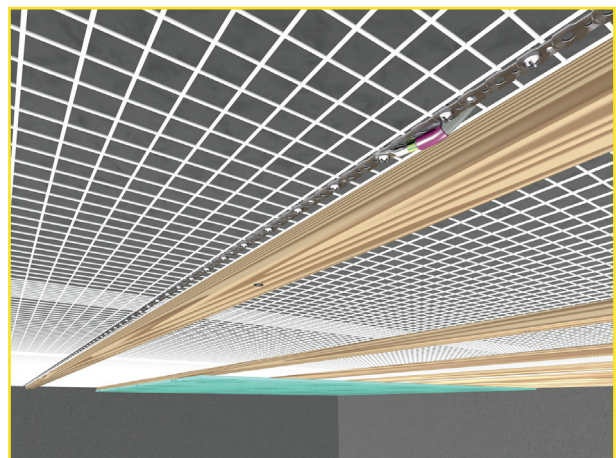


Fig. 6: Attaching the stainless steel grounding strap EEB with stainless steel screws. Pink/pink marking. Grounding with RKS

Adamantan 003 - HF/NF- shielding fabric (high frequency + low frequency)

Indoor - Installation under floor coverings 1

1. Preliminary work / measuring the area

Please clarify in advance which floor covering will be used. It is important to know whether the floor covering is to be laid floating or glued. A floating installation of the floor covering simplifies the installation of the shielding material. When working with glued floor coverings, e.g. under parquet or tiles, special measures must be taken into account. In particular, stable levelling compounds and edge reinforcements with suitable adhesives. Adamantan 003 is not suitable for application with adhesives or levelling compounds on the floor!

Determine the grounding point and have the grounding checked by an electrician. Ask the electrician, depending on the distance to the earthing point, to bring an appropriately long earthing wire 2.5 mm² (yellow/green protective insulation) and pink/pink markings (Fig. A2).

Measure the length and width of the surface. Allow for an overlap of 5 - 10 cm area + 10 % (Fig. 7)

Switch off the fuses and secure them against being switched on again. Check that the room is voltage-free. If necessary, remove the socket insert for connecting the grounding.

When using the safety equipotential bonding, prepare a small slot from the socket to the floor (fig. A2). Insert the cable so that it protrudes approx. 20 cm in the socket and at the edge of the floor. Protect the two visible ends with insulating tape. The wire can also come to rest on the wall.

2. Installation of the material

Clean the floor and lay out the sheets preferably on the long side of the room incl. the floor. 5 - 10 cm overlap from sheet to sheet (Fig. 8).

The individual strips can be fixed with double-sided carpet tape, strips, screws, staples, nails or similar. Pay special attention to the overlapping areas. The individual strips should lie flat on top of each other. Staple, screw or nail lengthwise at a distance of approx. 20 - 30 cm. The individual sheets are fastened 1 x in the middle of the sheet and 1 x in the overlap area (Fig. 9).

Cut out heating pipes and keep a distance to the pipes of approx. 0.5 - 1.0 cm. For more information on wall penetrations of pipes, vents, chimneys, etc., see Tips and frequently asked questions at the end of this technical data sheet.

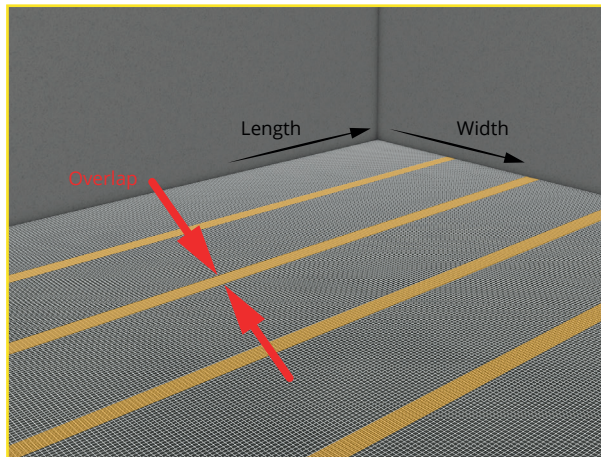


Fig. 7: Length and width of the surface / overlap

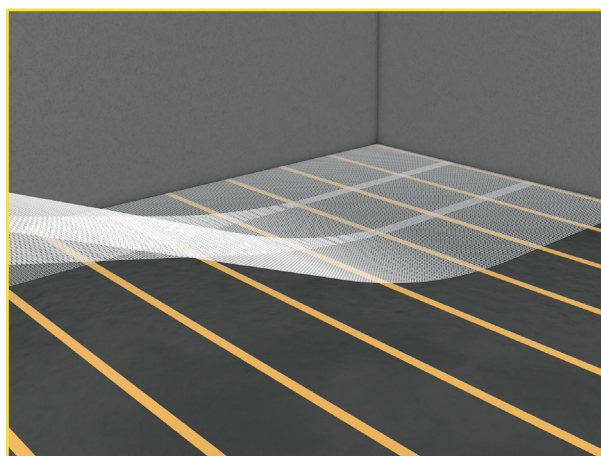


Fig. 8: Laying the screen material on the floor. Double-sided carpet tape

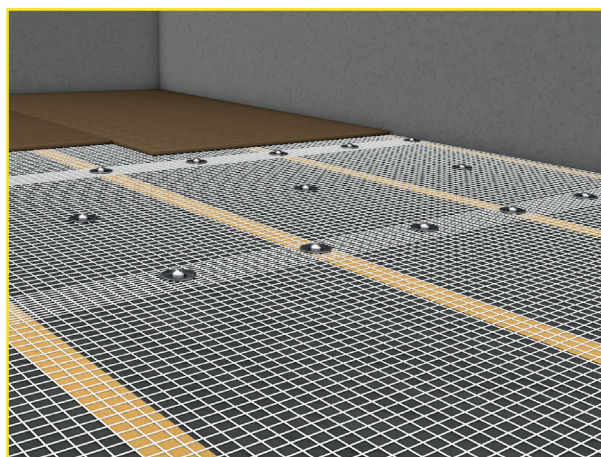


Fig. 9: Fastening the shielding sheets / overlapping areas

Adamantan 003 - HF/NF- shielding fabric (high frequency + low frequency)

Indoor - Installation under floor coverings 2

3. Connecting grounding / further processing

Screw the earthing strap EEB flat and continuously onto the material webs. (Fig. 10)

Your electrician now connects the earthing strap to the socket (Fig. A1) or your electrical distributor (functional potential bonding) using the RKS pipe cable lug and the prepared grounding cable. (Fig. B1).

Im Anschluss daran kann der weitere Bodenaufbau mit Trittschalldämmung und Bodenbelag erfolgen.

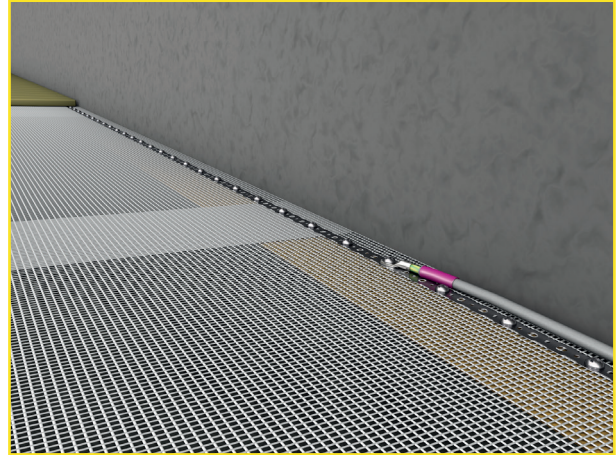


Fig. 10: Electrically conductive connection of the individual tracks to each other and connection to the equipotential bonding (RKS+EEB)

Adamantan 003 - HF/NF- shielding fabric (high frequency + low frequency)

Indoor - combinations of areas 1

1a. Transition from ceiling to wall

Allow for an overlap of approx. 10 - 20 cm from ceiling to wall (Fig. 11) This must be provided for all types of installation (under plaster, behind boarding).

1b. Grounding combination ceiling to wall

Screw on another earthing strap (EEB) in the additional overlap area to connect the two surfaces. This is only done on one side. On all other sides, the overlap indicated above is sufficient (Fig. 12). The actual grounding is done in the base area or on the floor (Fig. 12+14). Optionally, the earthing strap in the base area can also be left out and the equipotential bonding cable can also be connected directly to the upper earthing strap.

The intended earthing point continues to be used. One earthing point per contiguous area / or room. In this case on the wall (safety potential bonding) (Fig. A1) or in the electrical distributor (functional potential bonding) (Fig. B1).

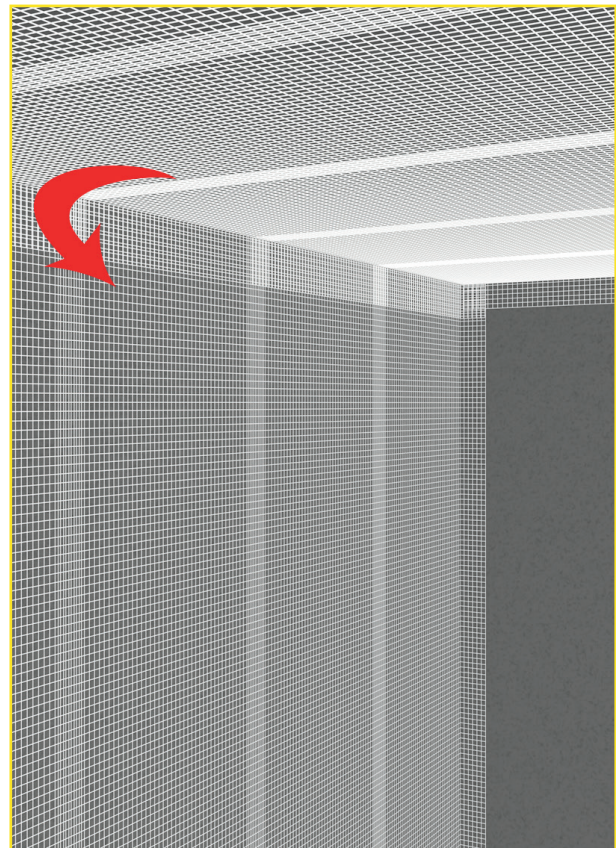


Fig. 11: Overlap from ceiling to wall

Adamantan 003 - HF/NF- shielding fabric (high frequency + low frequency)

Indoor - combinations of areas 2

2a. Transition wall to floor

Allow for an overlap of approx. 10 - 20 cm from wall to floor (Fig. 13). This must be provided for all types of installation (under plaster, behind boarding).

2b. Grounding wall to floor

The grounding can take place in the floor area as well as in the wall area. Usually on the floor (Fig. 14), screw on the earthing strap (EEB) in the overlap area to connect the two surfaces. This is only done on one side. On all other sides, the overlap indicated above is sufficient (Fig. 13).

The intended earthing point continues to be used. One earthing point per contiguous area / or room. (safety potential bonding) (Fig. A1) or in the electrical distributor (functional potential bonding) (Fig. B1).

IMPORTANT!

As a rule, do not form loops. So no earthing strap once in the room „all around!“. Only one earthing point is to be provided per room, to which all connecting surfaces are connected!

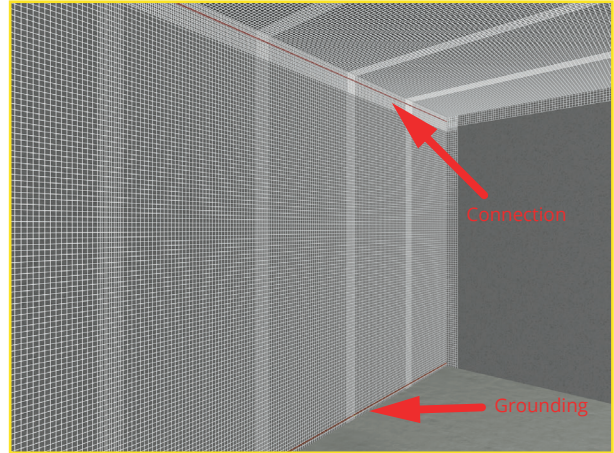


Fig. 12: Connecting the overlapping parts - grounding in the base area with EEB

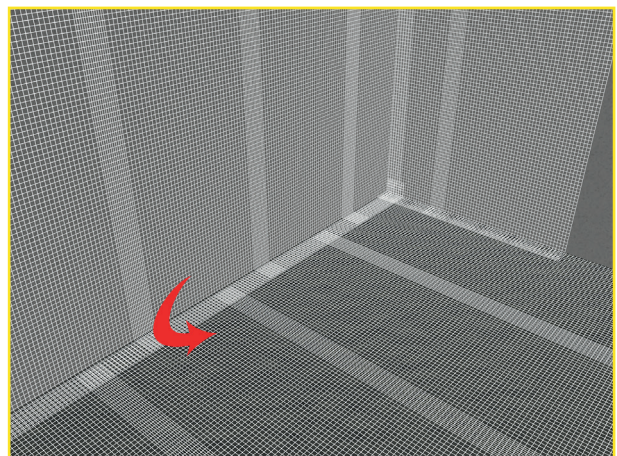


Fig. 13: Wall-to-floor overlap

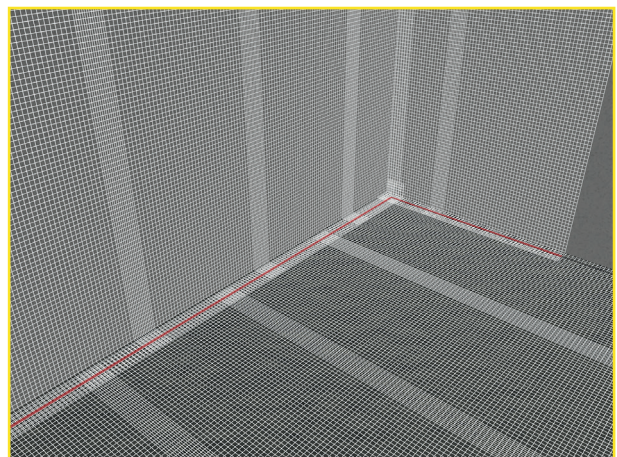


Fig. 14: Connecting the overlapping parts. Grounding on the floor with EEB

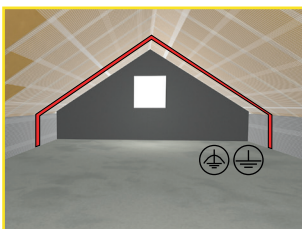


Fig. 16a: Grounding sloping roof with EEB

Different materials can be combined, e.g. HF shielding paint on walls and ceiling, Adamantan 003 on floor. We would be happy to provide you or your craftsman with further information by e-mail at info@biologadanell.com.

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Adamantan 003 - HF/NF- shielding fabric (high frequency + low frequency)

Indoor - Overview complete room

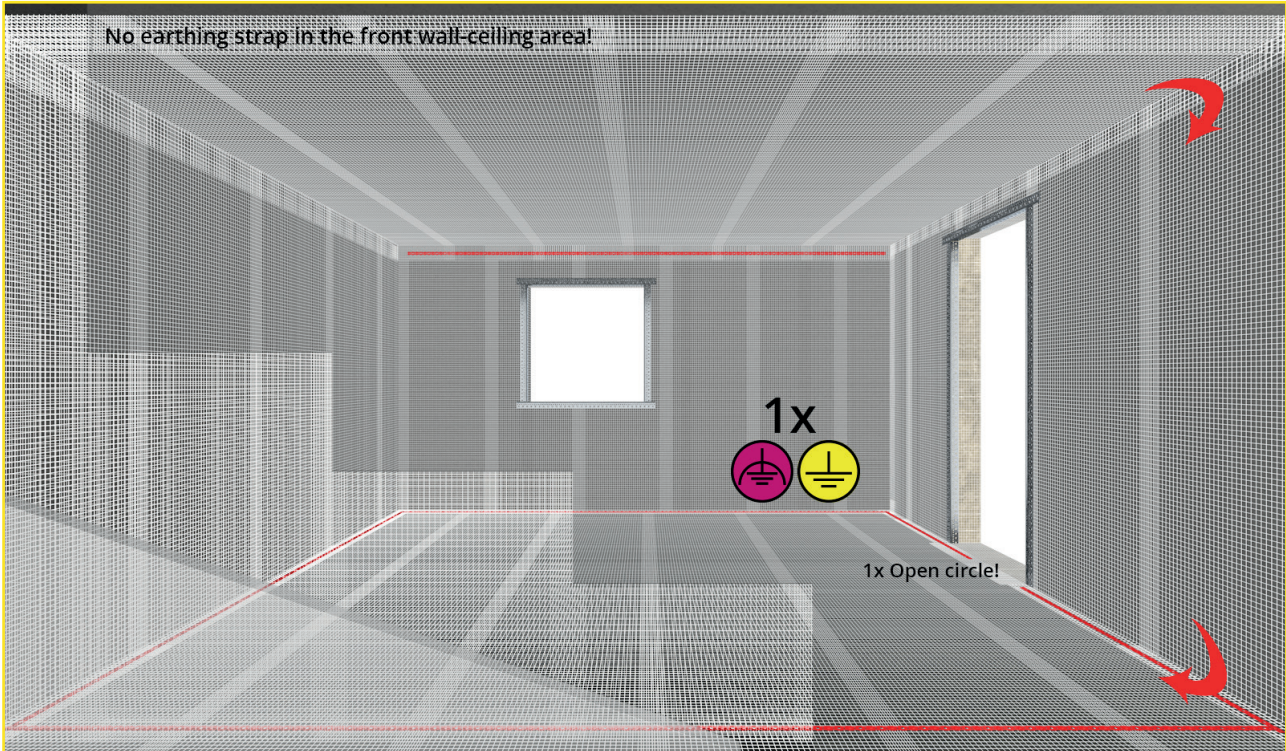


Fig. 15: Illustration of a room shielding of all sides. Attaching the earthing strap EEB

More examples

a. Roof slopes

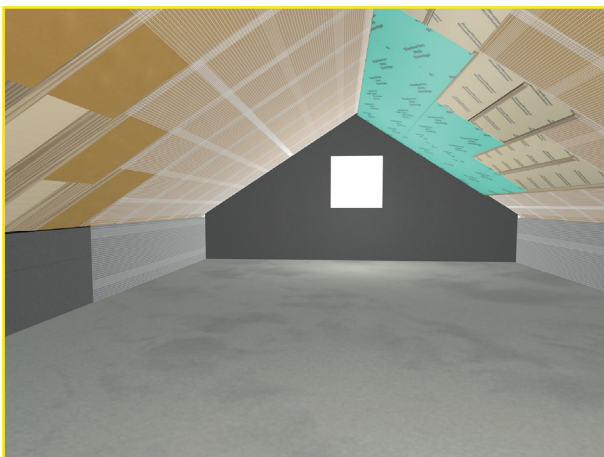


Fig. 16: Laying on rafters or between two layers of panels.
Earthing diagram see Fig. 16a

b. Gable wall to roof

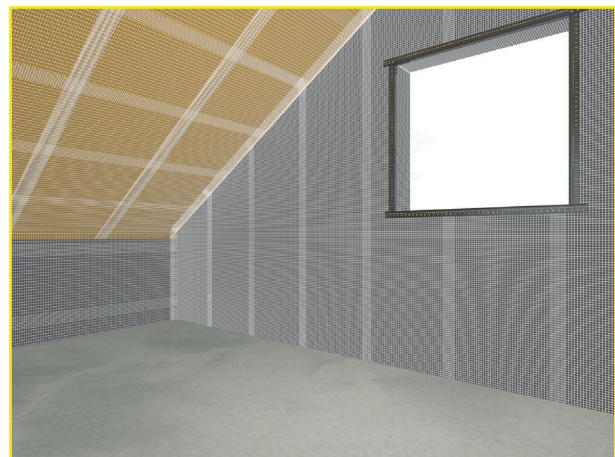


Fig. 17: Overlapping of gable wall to roof slope. In this case, the grounding of the gable surface is done via the ceiling surface Fig. 16a

to a+b) Laying of Adamantan 003

Adamantan 003 can also be laid vertically when installed between e.g. double planking. In this case, the grounding is either applied horizontally over the wall and gable surface (Fig. 6 + 10) or accordingly on the floor (Fig. 10 + 14).

Adamantan 003 - HF/NF- shielding fabric (high frequency + low frequency)

Angled places and connection points

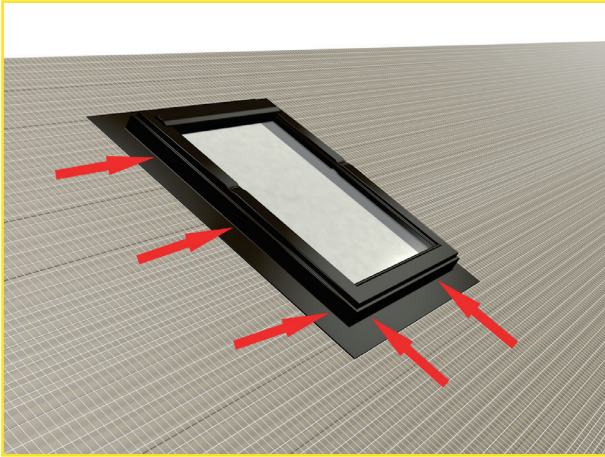


Fig. 18: Connection to rooflight Installation under flashing to window

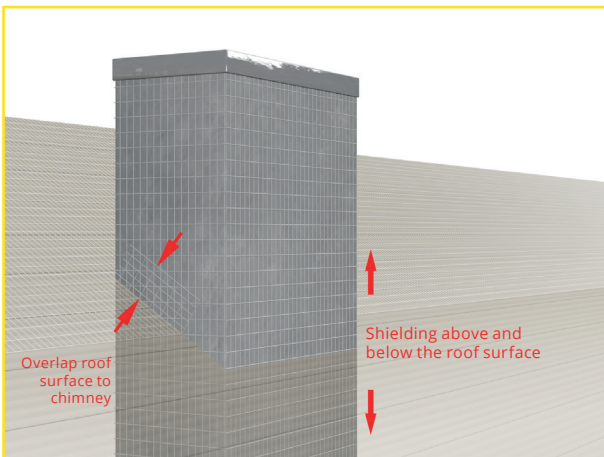


Fig. 19: Optional roof penetration chimney- Ø x 2 to the outside and inside

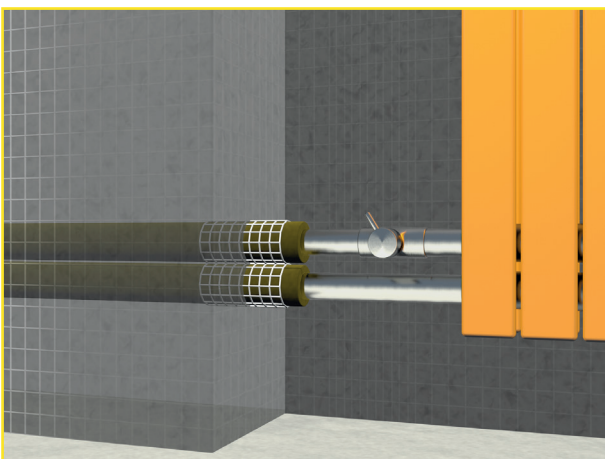


Fig. 20: Optional wall penetration of heating pipes - Ø x 2 to the outside and inside

Penetrations / wall and roof openings

Ensure a flat installation, without gaps and slits, especially in the overlapping areas. Swelling of the fabric must be avoided.

Adamantan 003 is also often used as a „supplementary material“ due to its flexibility, e.g. Adamantan 003 in the window area (directly on the frame) and Adamantan 10 as a surface material. Both materials overlap here.

No grounding cable is included in the scope of delivery of the grounding accessories, which must be ordered separately, in order to avoid improper connection of the components. Please inform your electrician about this and he will bring it in the appropriate length.

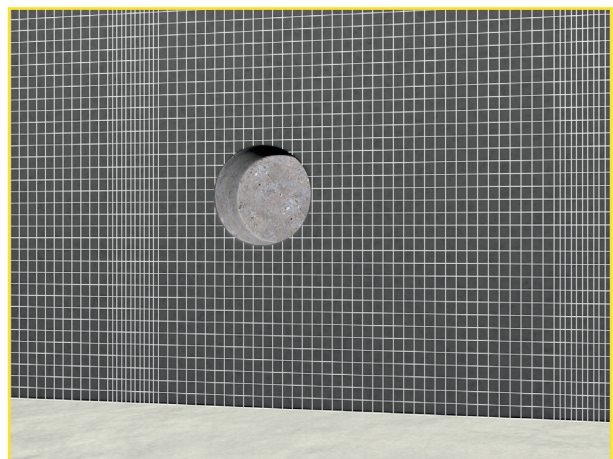


Fig. 21: Wall openings - example: switch / socket, cut flush

Adamantan 003 - HF/NF- Abschirmgewebe (Hochfrequenz + Niederfrequenz)

Sonderlösungen

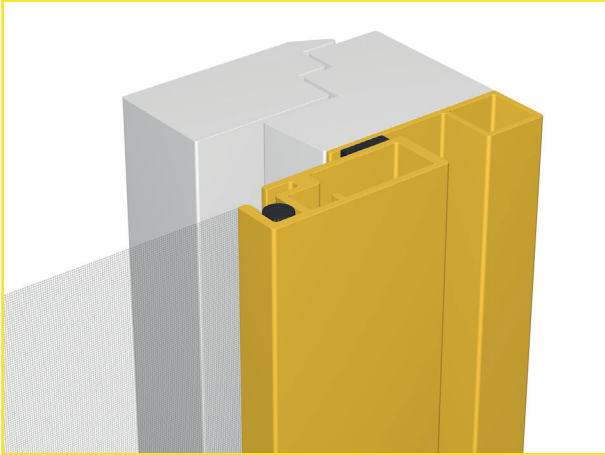


Fig. 22: Metal profile with clamped Adamantan 003 in front of window frame

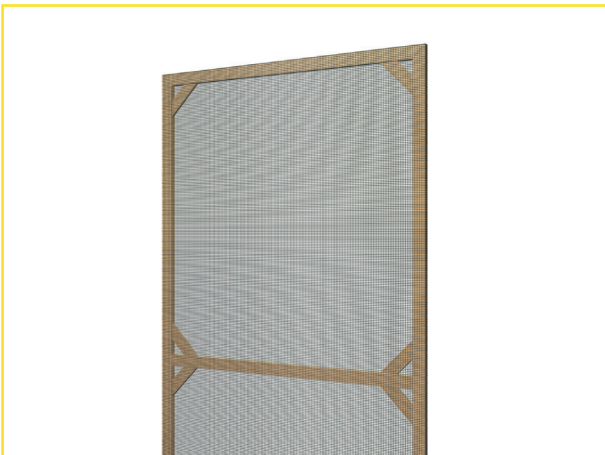


Fig. 23: Tensioning frame for fastening to walls or for making screens

1. Insect protection doors/windows

Fig. 22 Please note that the profile of wooden and plastic windows covers the entire window frame. The profile can also be made of metal (e.g. aluminium).

Due to the maximum width of 105 cm, intermediate bars/ rungs must be provided for wider windows.

Grounding in this area is not always necessary. Ask your building biologist.

2. Covering / room divider

Fig. 23 - Adamantan 003 can be stretched very well on, for example, a wooden frame. This type of screen formation is interesting, for example, when curtains or structural measures such as wallpaper and paint are not desired.

The tensioning frame can be easily attached to the wall and also covered with e.g. a conventional fabric.

By producing several covered parts and individual hinges, you can also create an individual screen. It is important to close the gaps caused by the hinges.

Grounding of strings can be done using a grounding plate (EGP) and a grounding set (ESR-ST), or can be done by your electrician using a grounding plate (EGP) and a fixed connection with normal grounding wire.

3. Curtain / Drape

Adamantan 003 can be sewn and cut like a textile. It is therefore also possible to make up the screen material as a curtain or as a hanging room divider.

Curtains made of Adamantan 003 are not produced by Biologa Danell. It is best to have these customised and produced locally.

Any grounding can be done with a grounding set-B (ESB) or a grounding set ESR-DK.

4. Canopies

Canopies / partial canopies are also possible with Adamantan 003.

Canopies are not made by Biologa Danell from Adamantan 003. Like the curtains, produce them locally on site.

Grounding can be installed using a grounding set-B (ESB) or a grounding set ESR-DK.

Note

Please note the „Frequently Asked Questions“ -> topic „Smoothing“ listed in the appendix !

The above information corresponds to the current state of development. They are to be regarded as non-binding in any case, as we have no influence on the processing and the processing requirements vary locally. Claims arising from this information are therefore excluded. The same applies to the commercial and technical advice and information provided free of charge and without obligation. We therefore recommend that you carry out sufficient tests of your own to determine whether the product is suitable for the intended use. With the publication of these instructions, all previous technical information (leaflets, installation recommendations and other instructions intended for similar purposes) become invalid.
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Adamantan 003 - HF/NF- shielding fabric (high frequency + low frequency)

Frequently asked questions

Frequently asked questions

Which materials?

A variety of materials are available on the market for processing with the above techniques. It is not possible at this point to review the processing with each of the available products. Furthermore, the application should not be limited to certain products within the material group. Therefore, typical products have been selected and the experiences made with them form the basis for these instructions. For the above-mentioned reasons, the applicator is therefore requested to check the application technique of these instructions in consideration of the respective product descriptions and application instructions of the materials used and to adapt them to the conditions and materials. The above-mentioned application possibilities can only be examples; other application possibilities are also conceivable. In this case, the processing craftsman must assess the technical background individually with his specialist knowledge. In addition to these processing instructions, the recognised rules of technology and the processing instructions for the adhesives, paints, fillers, etc. used must be taken into account.

Can pictures or other objects be attached to the wall or ceiling after the screen has been completed?

Fixing pictures or other objects is no problem and can also be done on a screen surface. Nails or screws may be used. Please note the cable routing of your electrical installation in advance so as not to damage existing cables in the wall. Cable finders no longer work after shielding!

Can the screen material also be laid between two layers of plasterboard or similar panels?

Yes, the shielding material can also be laid between two panel layers. Processing is the same as on a conventional surface with regard to fastening and grounding.

Can the screen material also be attached behind panels using an adhesive, attachment binder for panel fastening?

For use in this application, we will be happy to send you or your craftsman samples for suitability testing.

Can Adamantan 003 be smoothed?

It is very difficult to remove sharp creases from Adamantan003. In some cases, creases can be softened or removed by carefully smoothing them with a rounded object (e.g. a ruler). Please do not try to iron Adamantan 003!