YSHIELD

EMR - PROTECTION

Measuring and shielding of electromagnetic fields

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YSHIELD®

Shielding of electromagnetic fields

About us

Since 2003 we develop and produce **electroconductive paints on basis of carbon**, especially to shield rooms and buildings against electromagnetic fields.

Since 2015 a new business segment is **plating sheet materials with metal coats**.

As wholesaler we also deliver further products to a **global network of retailers** as well as companies and private customers directly.

Our top-selling products

Our top-selling products for almost all interior and exterior shielding applications are our metal-free, corrosion-resistant **high-frequency shielding paints**. After over 10 years permanent research and development, they are technical nearly perfect. Our shielding paints can **easily and universally be applied like regular wall paints** and achieve an **attenuation of ca. 38 dB** (99.984 % shielding effectiveness) in one layer.

Our philosophy

- **Private label:** Our strength is the **development and production of own products**. Regarding the offered trading products we work closely with the manufacturers. Many of those products have been inspired by us or are exclusively made for us.
- **In-house production:** The **best control over a product** will be achieved by carrying out the workflow in-house. We permamently develop our shielding paints in-house and are producing them in our own state-of-the art plant. Canopies, curtains and textiles are manufactured in our in-house sewery. The coating machine for the production of our Yxx-rolled goods was developed and constructed by us. All parts of our grounding accessories are milled, processed and assembled by our staff. Even the bar system along with the connectors are milled, fitted, bent, sawn and polished in-house.
- **Simply the best:** Our product range includes **selected and longtime approved products only**. We wont offer new, unexperienced products for the sake of having them added to our product range. Also there are always good reasons if we dont offer certain devices, fabrics, gauzes, fleeces and shielding textiles in our range.
- **Shielding attenuation:** This point has highest priority in our company philosphy. The informations for many products, shown in the Internet are supplied incorrect, vague or misleading or are relating to 15 year old reports. Threfore we have invested in internal measurement technology for being able, to provide **reliable attenuation values and reports** to our customers. Therewith we are testing each produced or delivered batch as well.
- **Availability from stock:** Falling back on a full stock is important to us. Many products have a production period and delivery time from 4-12 months. „Stock status: Green" shown in our online shop means that we will be able to deliver this products on the same or on the very next day, even **in large quantities**.
- **Pricing**: Our handmade high quality YSHIELD products are produced in Germany and as generally known, **quality has it´s price**. Only by pursuing this strategy we will be able, to provide a perfect customer service and a continously development of new innovative products in the future.

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Overview - Shielding paints

YSHIELD® HSF-SAMPLES

YSHIELD shielding paints are **electroconductive base coatings** for the protection of large areas against **high-frequency (HF)** radiation and/or against **low-frequency (LF)** electric fields. Typical area of application is the shielding of rooms and buildings.

Sample set HSF: There is a sample set of all HF-paints with each 0.1 liter, see left picture.

	HSF 44	HSF 54	HSF 64	HSF 74	NSF 34
Brief description	**Technically our best paint. Our exterior recommendation.** Suitable for living- and sleeping rooms after one day drying time.	**The All-in-One paint, if you cannot decide.** Frost-resistant classic paint for worldwide shipping. Low-emission.	**Ecological compromise. Our interior recommendation.** Dispersion-silicate paint with excellent adhesion. Low-emission.	**Pure silicate paint without preservative agent.** Only recommended with allergies against preservative agents. Low-emission.	**To shield electrical fields (LF) only.** Superior mechanical and chemical properties. Low-emission.
Shielding HF / LF	HF / LF	HF / LF	HF / LF	HF / LF	- / LF
Screening one-layer *	**38 dB** (99.984 %)	**37 dB** (99.980 %)	**39 dB** (99.987 %)	**39 dB** (99.987 %)	**40 dB**
Screening two-layer *	45 dB (99.997 %)	44 dB (99.996 %)	46 dB (99.997 %)	45 dB (99.997 %)	
Ecology	Normal	Normal	High	Very high	Normal
VOC content **	1 g/l	**0.2 g/l**	**0.1 g/l**	**0.1 g/l**	**0.1 g/l**
PAH content ***	0.002 mg/kg	0.002 mg/kg	0.002 mg/kg	0.002 mg/kg	0.002 mg/kg
Binding agent	Synthetic dispersion	Pure acrylate	Silicate, pure acrylate	Silicate	Pure acrylate
Solvent	Water	Water	Water	Water	Water
Screening basis	Carbon	Carbon	Carbon	Carbon	Carbon
Application area	Interior, exterior, techical coatings	Interior, exterior	Interior only	Interior only	Interior, exterior
Typical coverage per 1 liter, single-layer	Int.: 7.5 m^2 (81 ft^2); Ext.: 5 m^2 (54 ft^2)	Int.: 7.5 m^2 (81 ft^2); Ext.: 5 m^2 (54 ft^2)	Int.: 7.5 m^2 (81 ft^2)	Int.: 7.5 m^2 (81 ft^2)	Int.: 7.5 m^2 (81 ft^2); Ext.: 5 m^2 (54 ft^2)
Moisture resistance	**Very high**	**High**	Normal	Normal	**High**
Practical substrates	Almost all	Almost all	Almost all	All absorbent	Almost all
Applicable with	Paint roller, airless (nozzle>525)	Paint roller, airless (nozzle>525)	Paint roller, airless (nozzle>525)	Paint roller, airless (nozzle>525)	Paint roller, airless (nozzle>515)
Spatter behavior	**Very low**	**Very low**	Small splatters	Small splatters	Low
Adhesive tensile strength	**3.3 N/mm²**	**2.3 N/mm²**	**2.2 N/mm²**	1.7 N/mm²	4.1 N/mm²
Viscosity (Brookfield)	2000 mPas	2000 mPas	2500 mPas	2000 mPas	1500 mPas
Rheology	Newtonian	Newtonian	Shear thinning	Shear thinning	Newtonian
Film character	Elastic hard	Elastic soft	Elastic hard	Hard, frail	Elastic soft
Color	Black	Black	Black	Black	Black
Temperature max.	150 C	100° C	100 C	200° C	100° C
Sd-value	0.1 m	0.1 m	0.05 m	0.01 m	0.1 m
pH-value	8	8	12	12	8
Pigmentation size max.	100 µm	100 µm	100 µm	100 µm	10 µm
Density	1.25 kg / l	1.25 kg / l	1.27 kg / l	1.3 kg / l	1.05 kg / l
Solids content	52 %	56 %	52 %	45 %	24 %
MFFT	5° C	5° C	5° C	5° C	5° C
Frost resistance ****	No	5 frost-/thaw cycles	No	No	5 frost-/thaw cycles
Delivery sizes	1 / 5 Liter	1 / 5 Liter	1 / 5 Liter	1 / 5 Liter	1 / 5 Liter
Shelf life	12 months	12 months	12 months	12 months	12 months
Price per m^2 net *	EUR 5.60	EUR 5.60	EUR 5.60	EUR 5.60	EUR 4.48

* Maximum at a coverage of 7.5 m^2/l per layer.
** Volatile organic compounds. The EU limit value for cat. A/a is 30 g/l (by 2010).
*** Polycyclic aromatic hydrocarbons. The nonbinding EU limit value for children toys is 0.2 mg/kg.
**** The given frost resistance is only valid liquid in the container, of course on the wall its permanent frost-resistant.

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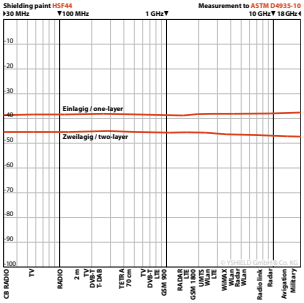
YSHIELD®

HSF44 - Shielding paint (HF+LF)

TECHNICALLY THE BEST

YSHIELD® HSF44



Characteristics

Technically regarded our best paint by far. Recommendation for exterior use. Based on a high quality **synthetic binder.** For the shielding of high-frequency radiation (HF) and low-frequency electric fields (LF).

- **Best moisture resistance, adhesive tensile strenght and film resilience of our paints**
- Breathable, after drying odor free
- **Application:** Interior, exterior, technical applications
- **Attenuation: 38 dB**, two-layer 45 dB

Underground

Interior and exterior: Excellent adhesion on almost all undergrounds like existing emulsion paints, sheetrock, wallpaper, cement, plaster, masonry, wood, etc. **In technical applications:** Plastic substrates, glass, flexible films, carpet, laminate, etc.

Top coating

Preferably covered with plastic bonded, **water-based emulsion paints**, dispersion silicate paints, facade paints or silicon resin paints. Not applicable are pure mineral paints (clay, loam, chalk, silicate). Please find appropriate product recommendations in the technical data sheet. Due to the high adhesive tensile strenght (to ETAG 004 for EIFS-systems, minimum 0.08 N/mm^2), applicable directly under pure organic plaster, no mineral pasters!

Grounding

Must be grounded! We recommend interior the **grounding strap EB2** plus **grounding set GW or GB**, exterior the **fiber additive AF3** plus the **grounding set GE**.

Frost resistance

This product is not frost resistant on shipping. At long frost periods during winter time, the shipping can be rescheduled by a few days. Our frost resistant shielding paint HSF54 is our alternative that can always be shipped.

Screening attenuation

The screening attenuation is **regularly tested in our own EMC laboratory**. We have measurement setups due to the following standards: **ASTM D4935-10, IEEE Std 299-2006, IEEEE Std 1128-1998, ASTM A698/A698M-07**. Please find the test report at our homepage directly on the product page.

Ingredients

Synthetic dispersion, graphite, water, carbon black, additives, preservative (MIT, BIT).

Optional: Fiber additive AF3

This paint is formulated without conductive carbon fibers to allow airless spraying. For crack bridging and consequential a better grounding we advise to mix in the fiber additive AF3.

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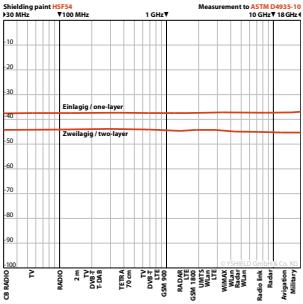
HSF54 - Shielding paint (HF+LF)

UNIVERSAL CLASSIC

YSHIELD® HSF54



Characteristics

Our longtime classic was improved again in 2014. Based on a high quality **pure acrylic binder**. For the shielding of high-frequency radiation (HF) and low-frequency electric fields (LF).

- **Frost resistant: Suitable for shipping during winter time and for sea freights in containers**
- Breathable, solvent free, **low-emission**, **low odor**
- **Application:** Interior, exterior
- **Attenuation: 37 dB**, two-layer 44 dB

Underground

Interior and exterior: Excellent adhesion on almost all undergrounds like existing emulsion paints, sheetrock, wallpaper, cement, plaster, masonry, wood, etc.

Top coating

Preferably covered with plastic bonded, **water-based emulsion paints**, dispersion silicate paints, facade paints or silicon resin paints. Not applicable are pure mineral paints (clay, loam, chalk, silicate). Please find appropriate product recommendations in the technical data sheet. Due to the high adhesive tensile strenght (to ETAG 004 for EIFS-systems, minimum 0.08 N/mm^2), applicable directly under pure organic plaster, no mineral pasters!

Grounding

Must be grounded! We recommend interior the **grounding strap EB2** plus **grounding set GW or GB**, exterior the **fiber additive AF3** plus the **grounding set GE**.

Frost resistance

This product is frost resistant (proved for 5 frost-/thaw cycles), shippable year-round by air cargo or by ship.

Screening attenuation

The screening attenuation is **regularly tested in our own EMC laboratory**. We have measurement setups due to the following standards: **ASTM D4935-10, IEEE Std 299-2006, IEEEE Std 1128-1998, ASTM A698/A698M-07**. Please find the test report at our homepage directly on the product page.

Ingredients

Pure acylic dispersion, graphite, water, carbon black, additives, preservative (MIT, BIT).

Optional: Fiber additive AF3

This paint is formulated without conductive carbon fibers to allow airless spraying. For crack bridging and consequential a better grounding we advise to mix in the fiber additive AF3.

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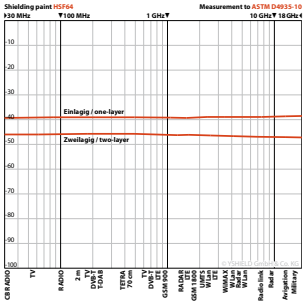
YSHIELD®

HSF64 - Shielding paint (HF+LF)

ECOLOGICAL COMPROMISE

YSHIELD® HSF64



Characteristics

Ecological compromise. Recommendation for interior use. Based on **potassium silicate** combinded with a **pure acrylic binder** for enhanced adhesion. For the shielding of high-frequency radiation (HF) and low-frequency electric fields (LF).

- **Dispersion-silicate paint with limited moisture resistance, therefore for interior use only**
- Breathable, solvent free, **low-emission**, **low odor**
- Because of a **pH-value of 12** (superalkaline), application only with protective equipment
- **Application:** For interior use only
- **Attenuation: 39 dB**, two-layer 46 dB

Underground

Interior: Excellent adhesion on almost all undergrounds like existing emulsion paints, sheetrock, wallpaper, cement, plaster, masonry, wood, glass, plastic substrates, etc. Not usable on gypsum based substrates!

Top coating

Preferably covered with plastic bonded, **water-based emulsion paints** or dispersion silicate paints. We restricted recommend pure mineral paints (clay, loam, chalk, silicate). Please find appropriate product recommendations in the technical data sheet.

Grounding

Must be grounded! We recommend interior the **grounding strap EB2** plus **grounding set GW or GB**.

Frost resistance

This product is not frost resistant on shipping. At long frost periods during winter time, the shipping can be rescheduled by a few days. Our frost resistant shielding paint HSF54 is our alternative that can always be shipped.

Screening attenuation

The screening attenuation is **regularly tested in our own EMC laboratory**. We have measurement setups due to the following standards: **ASTM D4935-10, IEEE Std 299-2006, IEEEE Std 1128-1998, ASTM A698/A698M-07**. Please find the test report at our homepage directly on the product page.

Ingredients

Potassium silicate, graphite, water, pure acylic dispersion, carbon black, additives, preservative (MIT, BIT).

Optional: Fiber additive AF3

This paint is formulated without conductive carbon fibers to allow airless spraying. For crack bridging and consequential a better grounding we advise to mix in the fiber additive AF3.

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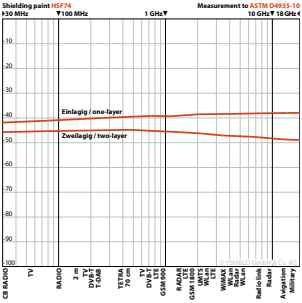
HSF74 - Shielding paint (HF+LF)

MAXIMUM ECOLOGY

YSHIELD® HSF74



Characteristics

Pure silicate paint with an absolute modicum of ingredients, also without a preservative agent. To be recommended only with an allergy against preservative agents. Based on **potassium silicate**. For the shielding of high-frequency radiation (HF) and low-frequency electric fields (LF).

- **As a pure silicate paint with limited moisture resistance, therefore for interior use only**
- Higly breathable, solvent free, **low-emission**, **neutral odor, without presevative agent**
- Because of a **pH-value of 12** (superalkaline), application only with protective equipment
- **Application:** For interior use only
- **Attenuation: 39 dB**, two-layer 45 dB

Underground

Interior: Good adhesion on absorbent, untreated, preferably mineral undergrounds like chalk, silicate, clay, etc.. Restricted use on absorbent emulsion paints, wallpapers, etc., please check first! Not usable on gypsum based substrates!

Top coating

Preferably covered with plastic bonded, **water-based emulsion paints** or dispersion silicate paints. We restricted recommend pure mineral paints (clay, loam, chalk, silicate). Please find appropriate product recommendations in the technical data sheet.

Grounding

Must be grounded! We recommend interior the **grounding strap EB2** plus **grounding set GW or GB**.

Frost resistance

This product is not frost resistant on shipping. At long frost periods during winter time, the shipping can be rescheduled by a few days. Our frost resistant shielding paint HSF54 is our alternative that can always be shipped.

Screening attenuation

The screening attenuation is **regularly tested in our own EMC laboratory**. We have measurement setups due to the following standards: **ASTM D4935-10, IEEE Std 299-2006, IEEEE Std 1128-1998, ASTM A698/A698M-07**. Please find the test report at our homepage directly on the product page.

Ingredients

Potassium silicate, graphite, water, carbon black, emulsifier, defoamer, cellulose, no preservative agent.

Optional: Fiber additive AF3

This paint is formulated without conductive carbon fibers to allow airless spraying. For crack bridging and consequential a better grounding we advise to mix in the fiber additive AF3.

NSF34 - Shielding paint (LF)

ONLY AGAINST ELECTRICAL FIELDS

YSHIELD® NSF34

Characteristics

Paint against low frequency elektrical fields only. Based on a high quality **pure acrylic binder**. For the shielding of low-frequency electric fields (LF).

- **This paint is frost resistant for shipping in the winter or on pallets in shipping containers**
- Breathable, solvent free, **low-emission**, **low odor**
- **Application:** Interior, exterior
- **Attenuation: 40 dB** (99 %)

Underground

Interior and exterior: Excellent adhesion on almost all undergrounds like existing emulsion paints, sheetrock, wallpaper, cement, plaster, masonry, wood, etc.

Top coating

Preferably covered with plastic bonded, **water-based emulsion paints**, dispersion silicate paints, facade paints or silicon resin paints. Not applicable are pure mineral paints (clay, loam, chalk, silicate). Please find appropriate product recommendations in the technical data sheet. Due to the high adhesive tensile strenght (to ETAG 004 for EIFS-systems, minimum 0.08 N/mm^2), usable directly under pure organic plaster, no mineral pasters!

Grounding

Must be grounded! We recommend interior the **grounding strap EB2** plus **grounding set GW or GB**, exterior the **fiber additive AF3** plus the **grounding set GE**.

Frost resistance

This product is frost resistant (proved for 5 frost-/thaw cycles), shippable year-round by air cargo or by ship.

Screening attenuation

The screening attenuation is **regularly tested in our own EMC laboratory**. We have measurement setups due to the following standards: **ASTM D4935-10, IEEE Std 299-2006, IEEEE Std 1128-1998, ASTM A698/A698M-07**. Please find the test report at our homepage directly on the product page.

Ingredients

Pure acylic dispersion, graphite, water, carbon black, additives, preservative (MIT, BIT).

Optional: Fiber additive AF3

This paint is formulated without conductive carbon fibers to allow airless spraying. For crack bridging and consequential a better grounding we advise to mix in the fiber additive AF3.

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AF3 - Fiber additive

YSHIELD® AF3

Characteristics

Special additive for mixing with our shielding paints. All our shielding paints are formulated without crack-bridging carbon fibers for airless spray application. In case of cracks forming in the substrate, this additive contains long, electrically conductive carbon fibers which guarantee the grounding even without using the grounding strap.

Processing

Stir in the additive (90 ml) **into 5 liter shielding paint**. Use an electro mixer that all mixes homogeneously .

Ingredients

Water, carbon black, carbon fibers, additives, preservative (MIT, BIT)

DKL90 - Dispersion glue

FOR OUR NETTINGS AND FLEECES

YSHIELD® DKL90

Characteristics

Special coordinated dispersion glue for binding our sheet materials to walls, ceilings, floors, doors, etc.. High quality class water-resistant special glue based on acrylics, breathable, low-emission and solvent-free. **Electrically conductive**, that the materials dont get isolated for grounding.

Processing

The application is identical to a wallpaper glue! Avoid bucklings and wrinkles in the materials! The wall surface and the backside of the material is primed with a painter's roller. The material is inserted wet-on-wet and fixed by hand (with disposable gloves) or with a pressure roller. Work quickly and strip by strip so that the glue won´t get dry.

Technical data

- **Specially for the following materials:** HNG80, HNG100, NCV95
- **Delivery sizes**: 5 liter
- **Coverage**: 17.5 m^2 - 25 m^2, depending on the underground
- Ingredients: Acrylic binder, water, carbon black, additives, preservative (MIT, BIT)
- Color: Black
- Surface conductivity: 400 ohm (square resistance R☐)

AR40 - Paint stirrer

IMPORTANT FOR OUR 1-LITER BINS

YSHIELD® AR40

Characteristics

Paint stirrer to mix up our shielding paints. Our **1-liter paint containers have an opening of 40 mm** diameter. None of the usual paint stirrers will fit in this opening. That´s why we have developed a stirrer by ourselves. Our paint stirrer is mixing up shielding paints quickly and consistently, even in slim and high paint containers.

Common characteristics

Easy handling and processing

YSHIELD shielding paints **can exceedingly be applied for all purpose**. Compared to wallpapers, fleeces or nettings they are easy to apply, even in structured rooms with bays, pitched roofs and dormers. Painters recommend our shielding paints for **ease of application**. All paints are best applied with a paint roller.

Perfect corrosion resistance

Many metalliferous shielding products are not resitant to corrosion. Our shielding paints do not contain any metals but a mixture of carbons instead. That´s why our shielding paints are **chemically stable and permanent corrosion-free,** even in damp environment.

Emissions VOC / PAH

Our shielding paints are tested regularly from the **TÜV-SÜD** on the content of VOC (volatile organic compounds) and PAH (polycyclic aromatic hydrocarbons). 1) The actual **VOC limit** is 30 g/l, our paints contain only 0.1 g/l to 1 g/l. 2) The recommended **PAH limit** (for category 1) is 0.2 mg/kg. Our paints contain 0.002 mg/kg, so they are **100 times below the limit for children toys**.

Preservation

Any kind of aqueous paint must be preserved. Controversial discussed is the use of Isothiazolinone- compounds, refering to CIT only. CIT is not contained in our paints. Further to this we reject preservation with BIT/silver, like utilized in eco-paints, as we dont want to use nanosilver. **Our preservation with MIT/BIT has a very low allergenic potential, which is regularly confirmed by MCS-customers.** As an alternative, our shielding paint HSF74, is free from any kind of preservatives.

Sustainability

Due to its **paint-typical holohedral structure without holes**, our shielding paints provide a nearly linear attenuation up to very high frequencies, regardless of the direction of signal polarization. Prooved up to 18 GHz they are very **future-proof**.

Carefully selected ingredients

YSHIELD shielding paints **do not contain solvents (except HSF44), plasticisers or any other problematic ingredients.** All ingredients were **carefully selected, regardless of price** and according to their high quality and safety.

Grounding instructions

Please find more information about the necessary grounding at „grounding“.

Handling and processing

Please find detailed handling instructions in our **technical data sheets on our website** on the product pages! Upon request we will be happy to send this data sheets to you!

YSHIELD GmbH & Co. KG, Am Schulplatz 2, 94099 Ruhstorf, Germany
Phone: 0049-8531-31713-0, Email: info@yshield.com, Web: www.yshield.com

Project examples

Shielding data center (60-80 MHz), Germany

Shielding industrial building (airless), Germany

Shielding semi-detached house (2648 µW/m² → 10.2 µW/m²), Germany

Shielding multifamily building complex, Hungary

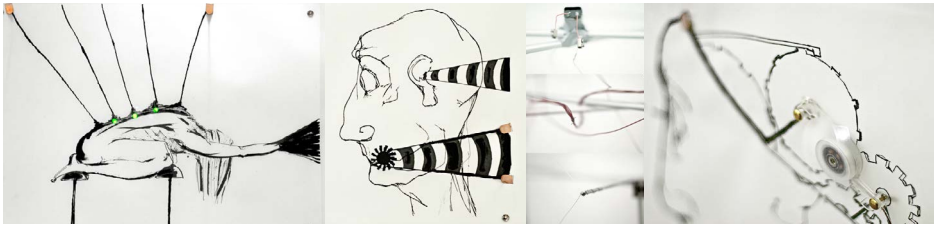
Project examples

Shielding one-family house (194 µW/m² → 0.01 µW/m²), Austria

Shielding one-family house (604 µW/m² → 0.26 µW/m²), Australia

Shielding one-family house, Australia

Art installation with conductive paint HSF54, Great Britain



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Project examples

Shielding airport terminal, Asia

Shielding development department at Asus-computer, Taiwan

Shielding apartment houses, Greece

Shielding BAUFRITZ framehouses, Germany

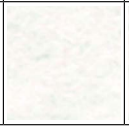
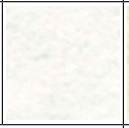
Project examples

Shielding one-family house, Germany

Shielding one-family house (616 µW/m² → 0.5 µW/m²), Hawaii

Shielding student project school building, Austria

Shieldings recording studios, Taiwan

	YCF-60-100 Wallpaper Fleece	YCF-80-100 Wallpaper Fleece	YCF-100-100 Wallpaper Fleece	YCP-60-100 Wallpaper	YCP-80-100 Wallpaper	YCP-100-100 Wallpaper
Picture (magnified)						
Shielding HF/LF/MF	HF / LF / -			HF / LF / -		
Shielding attenuation	60 dB	80 dB	100 dB	60 dB	80 dB	100 dB
Ecology	**Very high**			**Very high**		
Base material	Wallpaper base fleece certified to FSC© Mix Credit			Wallpaper base paper certified to PEFC™ und FSC©		
Coating	Zinc			Zinc		
Width	100 cm			100 cm		
Grammage	190 g/m²	230 g/m²	340 g/m²	190 g/m²	230 g/m²	340 g/m²
Thickness	0.20 mm	0.21 mm	0.22 mm	0.20 mm	0.21 mm	0.22 mm
Tensile strenght	Low: 2.7 - 4.4 kN/m			Very low: 2.1 - 3.9 kN/m		
Color	White / silver			Beige / silver		
sD-value	Follows	Follows	Follows	Follows	Follows	Follows
Electr. resistance	40 mΩ/☐	8 mΩ/☐	4 mΩ/☐	40 mΩ/☐	8 mΩ/☐	4 mΩ/☐
Moisture resistance	Limited			Limited		
Corrosion resistance	Typically good for zinc			Typically good for zinc		
Windproof	No			No		
Waterproof	No			No		
Application area (examples)	Interior: Base wallpaper for wall, ceiling			Interior: Base wallpaper for wall, ceiling		
Processing (examples)	Glueing with wallpaper paste for heavy wallpapers (e.g. Metylan Spezial / Direct)			Glueing with wallpaper paste for heavy wallpapers (e.g. Metylan Spezial / Direct)		
Rework ability (examples)	Wall paints, glueing of sheet materials			Wall paints, glueing of sheet materials		
Price / m² (20-25 m²)	EUR 12.00	EUR 13.99	EUR 18.99	EUR 12.00	EUR 13.99	EUR 18.99

YSHIELD®
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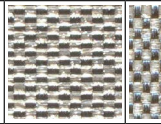
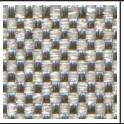
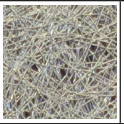
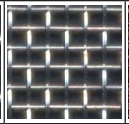
YSHIELD®

	HNG80 Netting Polyester	**HNG100** Netting Polyester	**HNV80** Fleece Nylon	**V4A10** Gauze Stainless steel	**HEG03** Gauze Stainless steel	**NCV95** Fleece Polyester	**MCL61** Magnetic film Cobalt
Picture (magnified)							
Shielding HF/LF/MF	HF / LF / -	HF / LF / -	HF / LF / -	HF / LF / -	HF / LF / -	- / **LF** / -	HF / LF / **MF**
Shielding attenuation	80 dB	100 dB	87 dB	40 dB	55 dB	LF = 80 dB	MF = 30 dB
Ecology	Bad	Bad	Bad	**Very high**	**Very high**	Normal	Normal
Base material	Polyester netting	Polyester netting	Nylon fleece	Stainless steel gauze V4A	Stainless steel gauze V2A	Polyester fléece	Cobalt based alloy
Coating	Copper, nickel	Copper, nickel	Copper, nickel	-	-	Carbon laquer	Laminating film
Width	66 / 130 cm	66 / 130 cm	100 cm	100 cm	100 / 150 cm	95 cm	61 cm
Grammage	80 g/m²	140 g/m²	85 g/m²	280 g/m²	200 g/m²	90 g/m²	265 g/m²
Thickness	0.07 mm	0.08 mm	0.15 mm	0.32 mm	0.16 mm	0.55 mm	0.1 mm
Tensile strenght	High: 220 N / mm	High: 220 N / mm	Normal: 50 N / mm	Very high	Very high	Normal: 55-260 N/mm	-
Color	Brown	Brown	Brown	Gray	Gray	Black	Silver
sD-value	Follows	Follows	Follows	-	-	Follows	-
Electr. resistance	8 mΩ/☐	4 mΩ/☐	8 mΩ/☐	100 mΩ/☐	30 mΩ/☐	100 mΩ/☐	-
Moisture resistance	Bad	Bad	Bad	**Very good**	**Good**	Good	Good
Corrosion resistance	Bad because of copper	Bad because of copper	Bad because of copper	Typically good for V4A	Typically good for V2A	Good because of carbon	Good because of laminate
Windproof	No	No	No	No	No	No	Yes
Waterproof	No	No	No	No	No	No	Yes
Application area (examples)	Interior: Wall, ceiling, floor	Interior: Wall, ceiling, floor	Interior: Loose laying, drywall installations	Interior/exterior: Drywall installations, ventilated facades, flush-mounting	Interior/exterior: Drywall installations, ventilated facades, flush-mounting	Interior: Wall, ceiling, floor, loose laying	Interior: Shielding of low frequency magnetic fields
Processing (examples)	Glueing, stapling, laying	Glueing, stapling, laying	Stapling, laying	Plastering, spackling, stapling	Plastering, spackling, stapling	Glueing, stapling, laying	Glueing, laying
Rework ability (examples)	Wall paints, glueing of sheet materials	Wall paints, glueing of sheet materials	Wall paints, glueing of sheet materials	Putty, plaster, boards	Putty, plaster, boards	Wall paints, glueing of sheet materials	Wall paints, glueing of sheet materials
Price / m² (20-25 m²)	EUR 18.93	EUR 34.08	EUR 19.99	EUR 11.90	EUR 13.90	EUR 10.52	EUR 163.79

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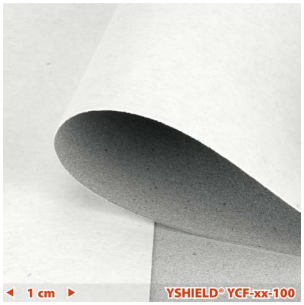
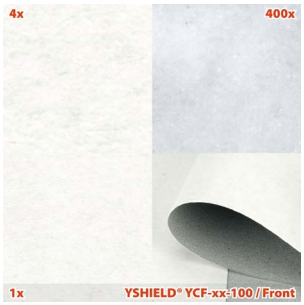
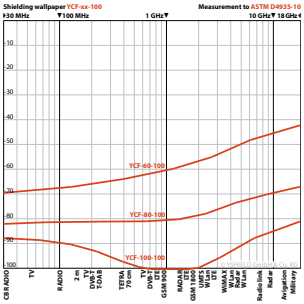
YCF-xx-100 - Fleece wallpaper (HF+LF)

OUR RECOMMENDATION







Characteristics

YCF-xx-100 are **one-side metallized fleece wallpapers** for the shielding of high-frequency radiation (HF) and low-frequency electric fields (LF).

The basis for this products is a **white wallpaper base fleece**, certified to FSC© Mix Credit, from the worldwide biggest manufacturer.

This fleece wallpaper has a very high dimension stability before, while and after processing. **Compared to our wallpapper YCP**, this fleece wallpaper has the advantage of a higher tensile strenght, so its easier to process.

Special feature

Very high ecology: Almost all EMC shielding products become metallized in a "chemical" procedure. A lot of chemicals are needed for the production of copper- and nickel-layers. **Our new coating process allows to completely apply the metal on the base material with the use of air and green electricity only, without chemicals.** The ecological standard for this is very high.

High vapour permeability: Instead of an area-wide application the metal alloy is applied spattered on the base material. This is why all serial Yxx products are highly vapour diffusive.

Application

Only interior on walls and ceilings as **base wallpaper**. Applicaple for loose laying, if the wallpaper is protected against mechanical damage.

Technical data

- **Width: 100 cm**
- Lenght: By the meter, 20 m roll, 50 m roll (YCF-100-100), 100 m roll (YCF-60-100, YCF-80-100)
- **Attenuation 1 GHz:**
  YCF-**60**-100: 60 dB
  YCF-**80**-100: 80 dB
  YCF-**100**-100: 100 dB
- Weight:
  YCF-**60**-100: 190 g/m²
  YCF-**80**-100: 230 g/m²
  YCF-**100**-100: 340 g/m²
- Thickness: 0.20 - 0.22 mm
- Tensile strenght: 2.7 - 4.4 kN/m
- Color: White / Silver
- sD-value: Upcoming
- Surface conductivity: 0.004 - 0.04 Ohm (R☐)

Processing

Loose laying / stapling: Always overlapp the single elements for at least 5 cm. Do consider that there should be no gaps / holes.

Bonding the metallized surface in direction wall: The issue is, that for a proper grounding, the sheets must be electrically connected with each other. Usually this is attained by using the grounding strap EB1, which is connecting the single sheets with each other. When bounding the sheets with the metallized surface in direction wall this is not possible. If you still decide to do though, you will have to apply the grounding strap EB1 to the wall first and then adhere the sheets with standard wallpaper paste onto the wall. This will give a slightly chance that the metallized side will be contacted with EB1. Because this depends on the glue, we recommend to carry out experiments.

Bonding the metallized surface in direction room: This is the best solution, even though the result is not so nice. But in return, all sheets subsequent can easily be connected with EB1 and grounded then.

Edge to edge or overlapping: Ideally the sheets should be glued on **overlapping** to achieve the best attenuation. As a next step the overlapping should be smoothed with a fine filler. However, you wont achieve a perfect even surface. Alternatively you can glue on the sheets **edge to edge** as normal for wallpapers. This will cause a low loss of attenuation.

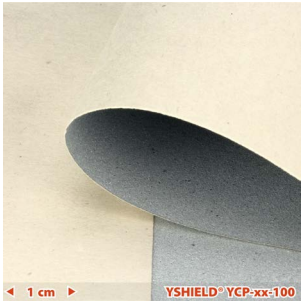
Grounding

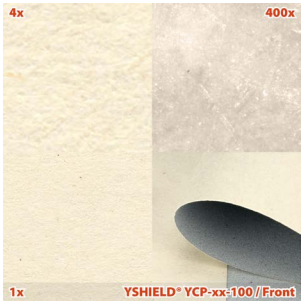
Due to the highly conductive surface this material can be **contacted and grounded easily to shield low frequency (LF) electric fields**.

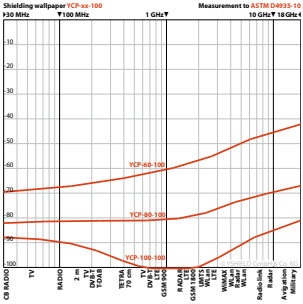
Screening attenuation

The screening attenuation is **regularly tested in our own EMC laboratory**. We have measurement setups due to the following standards: **ASTM D4935-10, IEEE Std 299-2006, IEEEE Std 1128-1998, ASTM A698/A698M-07**. Please find the test report at our homepage directly on the product page.

YCP-xx-100 - Wallpaper (HF+LF)







Characteristics

YCP-xx-100 are **one-side metallized wallpapers** for the shielding of high-frequency radiation (HF) and low-frequency electric fields (LF).

The basis for this products is a **unbleached wallpaper base**, certified to PEFC™ and FSC©, from the worldwide biggest manufacturer.

This wallpaper has a very high dimension stability before, while and after processing. **Compared to our fleece wallpaper YCF**, the processing is more difficult, the paper tear very easily! That´s why the wallpaper should be used for ecological reasons only.

Special feature

Very high ecology: Almost all EMC shielding products become metallized in a "chemical" procedure. A lot of chemicals are needed for the production of copper- and nickel-layers. **Our new coating process allows to completely apply the metal on the base material with the use of air and green electricity only, without chemicals.** The ecological standard for this is very high.

High vapour permeability: Instead of an area-wide application the metal alloy is applied spattered on the base material. This is why all serial Yxx products are highly vapour diffusive.

Application

Only interior on walls and ceilings as **base wallpaper**. Applicaple for loose laying, if the wallpaper is protected against mechanical damage.

Technical data

- **Width: 100 cm**
- Lenght: By the meter, 20 m roll, 50 m roll (YCP-100-100), 100 m roll (YCP-60-100, YCP-80-100)
- **Attenuation 1 GHz:**
  YCP-**60**-100: 60 dB
  YCP-**80**-100: 80 dB
  YCP-**100**-100: 100 dB
- Weight:
  YCP-**60**-100: 190 g/m²
  YCP-**80**-100: 230 g/m²
  YCP-**100**-100: 340 g/m²
- Thickness: 0.20 - 0.22 mm
- Tensile strenght: 2.1 - 3.9 kN/m
- Color: Beige / Silver
- sD-value: Upcoming
- Surface conductivity: 0.004 - 0.04 Ohm (R☐)

Processing

Loose laying / stapling: Always overlapp the single elements for at least 5 cm. Do consider that there should be no gaps / holes.

Bonding the metallized surface in direction wall: The issue is, that for a proper grounding, the sheets must be electrically connected with each other. Usually this is attained by using the grounding strap EB1, which is connecting the single sheets with each other. When bounding the sheets with the metallized surface in direction wall this is not possible. If you still decide to do though, you will have to apply the grounding strap EB1 to the wall first and then adhere the sheets with standard wallpaper paste onto the wall. This will give a slightly chance that the metallized side will be contacted with EB1. Because this depends on the glue, we recommend to carry out experiments.

Bonding the metallized surface in direction room: This is the best solution, even though the result is not so nice. But in return, all sheets subsequent can easily be connected with EB1 and grounded then.

Edge to edge or overlapping: Ideally the sheets should be glued on **overlapping** to achieve the best attenuation. As a next step the overlapping should be smoothed with a fine filler. However, you wont achieve a perfect even surface. Alternatively you can glue on the sheets **edge to edge** as normal for wallpapers. This will cause a low loss of attenuation.

Grounding

Due to the highly conductive surface this material can be **contacted and grounded easily to shield low frequency (LF) electric fields**.

Screening attenuation

The screening attenuation is **regularly tested in our own EMC laboratory**. We have measurement setups due to the following standards: **ASTM D4935-10, IEEE Std 299-2006, IEEEE Std 1128-1998, ASTM A698/A698M-07**. Please find the test report at our homepage directly on the product page.

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Yxx - Custom coating

Our standard assortment includes two types of wallpaper and a construction membrane. With those we do cover most of the usual applications.

But we also offer custom coating on our machine! This service is available for wholesalers, prefabricated housing manufacturers, industrial clients, etc.

Production process:
- In contrast to chemical metallization we are able to coat **almost any material** with our machine.
- Our single stage thermal process does have a current consumption of 100 kWh, but there are **absolutely no chemicals involved**.
- The conductive layer with minimal 0.002 Ohm (R☐) consists of **100 % pure zinc**.

Minimum requirements:
- Temperature resistance for one second higher 300°C
- Roll length longer than 1000 running meters (setup time is 2 hours, by 20-30 meters loss of material)
- Materials should be thinner than 1 mm
- Ideal width 100-120 cm, maximum width 150 cm

Variables:
- Attenuation between **40 dB and 100 dB**
- Edge trimming to **your needed width**
- Rewinding of master rolls in **your desired length**
- You may deliver your base material or we organize **your desired material**

Interested? Please ask for your desired product, possibly we do have a sample in stock and have tested the suitability already!

The following trial products are officially standard assortment, but in stock in medium quantities:

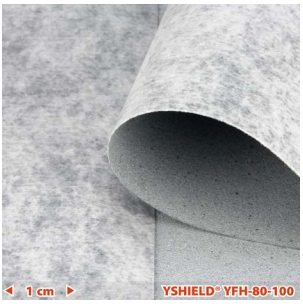
Tyvek® Soft (YTS-60-100)

Basis Tyvek® Softstructure. Tyvek® is windproof, permenent moistureproof and is still providing a high vapour permeability. Tyvek® is highly tearproof. For interior and exterior most universal usage.
Width 100 cm, attenuation 60 dB.

Tyvek® Hard (YTH-40-100)

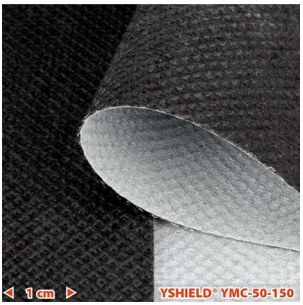
Basis Tyvek® Hardstructure. Tyvek® is waterproof, windproof, permenent moistureproof and is still providing a high vapour permeability. Tyvek® is highly tearproof. For interior and exterior most universal usage.
Width 100 cm, attenuation 40 dB.

PES-Fleece (YFH-80-100)



Basis thermal strengthened polyester fleece. Absorbent, breathable and therefore for universal application.
Width 100 cm, attenuation 80 dB.

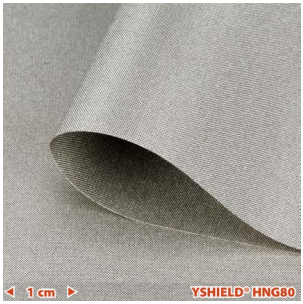
PP-Fleece (YMC-50-150)

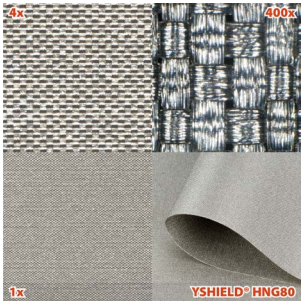


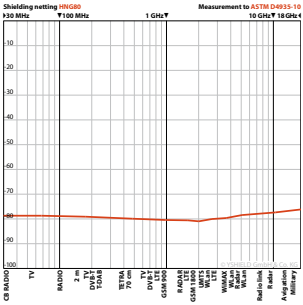
Basis thermal strengthened polypropylen fleece. Very stable and therefore for universal application. We use this product for our canopy floor mats U1M/U2M. **Width 150 cm, attenuation 50 dB.**

HNG80 - Polyester netting (HF+LF)

OUR RECOMMENDATION







Characteristics

HNG80 is a compact woven, **metallized polyester netting** for the shielding of high-frequency radiation (HF) and low-frequency electric fields (LF).

Our standard product for easy bonding on walls, ceilings and floors! This professional product is typically used for ministries of defence, banking houses, laboratories, etc. Now available for private use!

Application

For bonding interior on walls, ceilings, floors, as intermediate layer, for **drywall constructions**, loosely laid, etc.

Technical data

- **Widths: 66 cm (HNG80-66), 130 cm (HNG80-130)**
- **Length: By the meter / 20 m roll / 100 m roll**
- **Attenuation: 80 dB**, two-layer 106 dB
- Weight: 80 g/m²
- Material thickness: 0.07 mm
- Color: Anthracite / Brown
- Tensile strength: Very good in both directions, 220 N/mm
- Materials: Polyester, copper, nickel, protection coating
- Surface conductivity: 0.02 ohm (square resistance R☐)

Processing

In case of processing HNG80 as an intermediate layer we recommend using our dispersion glue DKL90 for adhesion. The wall and the backside of HNG80 should be coated with a paint roller. Insert the material wet on wet. Fix it manually (with disposable gloves) and press a gummed roller against the fleece to get a crease-free surface. Work quickly and strip by strip only so that the DKL90 glue does not dry. **A crease-free adhesion is only possible on perfectly level surfaces!** Structured surfaces (ingrain wallpaper, textured plastering) have to be smoothed. If that is not possible, we recommend using our shielding paint HSF54.

Grounding

Due to the highly conductive surface this material can be **contacted and grounded easily to shield low frequency (LF) electric fields**.

Screening attenuation

The screening attenuation is **regularly tested in our own EMC laboratory**. We have measurement setups due to the following standards: **ASTM D4935-10, IEEE Std 299-2006, IEEEE Std 1128-1998, ASTM A698/A698M-07**. Please find the test report at our homepage directly on the product page.

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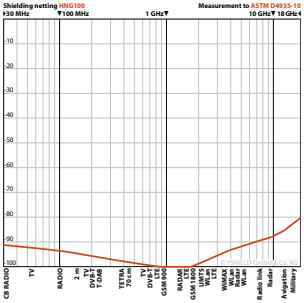
HNG100 - Polyester netting (HF+LF)



Characteristics

HNG100 is a compact woven, **heavy metallized polyester netting** for the shielding of high-frequency radiation (HF) and low-frequency electric fields (LF).

Maximum shielding product with over 100 dB. This professional product is typically used for ministries of defence, banking houses, laboratories, etc.

Application

For bonding interior on walls, ceilings, floors, as intermediate layer, for **drywall constructions**, loosely laid, etc.

Technical data

- **Widths: 66 cm (HNG100-66), 130 cm (HNG100-130)**
- **Length: By the meter / 20 m roll / 100 m roll**
- **Attenuation: 100 dB**, two-layer 134 dB
- Weight: 140 g/m^2
- Material thickness: 0.08 mm
- Color: Anthracite / Brown
- Tensile strength: Very good in both directions, 220 N/mm
- Materials: Polyester, copper, nickel, protection coating
- Surface conductivity: 0.003 ohm (square resistance R☐)

Processing

In case of processing HNG100 as an intermediate layer we recommend using our dispersion glue DKL90 for adhesion. The wall and the backside of HNG100 should be coated with a paint roller. Insert the material wet on wet. Fix it manually (with disposable gloves) and press a gummed roller against the fleece to get a crease-free surface. Work quickly and strip by strip only so that the DKL90 glue does not dry. **A crease-free adhesion is only possible on perfectly level surfaces!** Structured surfaces (ingrain wallpaper, textured plastering) have to be smoothed.

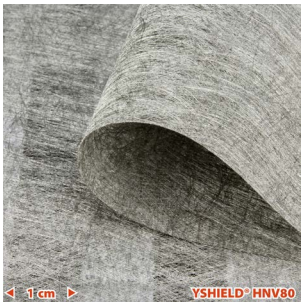
Grounding

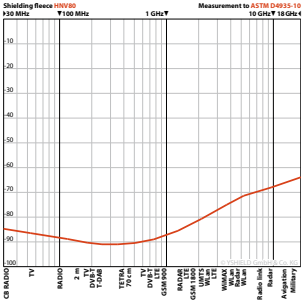
Due to the highly conductive surface this material can be **contacted and grounded easily to shield low frequency (LF) electric fields**.

Screening attenuation

The screening attenuation is **regularly tested in our own EMC laboratory**. We have measurement setups due to the following standards: **ASTM D4935-10, IEEE Std 299-2006, IEEEE Std 1128-1998, ASTM A698/A698M-07**. Please find the test report at our homepage directly on the product page.

HNV80 - Nylon fleece (HF+LF)





Characteristics

HNV80 is a fine, **metallized nylon fleece** for the shielding of high-frequency radiation (HF) and low-frequency electric fields (LF).

This professional product is typically used for ministries of defence, banking houses, laboratories, etc. Now available for private use!

Application

Interior preferable **loosely laid** or for stapling in **drywall constructions** , etc.

Technical data

- **Width: 100 cm**
- **Length: By the meter / 20 m roll**
- **Attenuation: 87 dB**, two-layer 127 dB
- Weight: 85 g/m²
- Material thickness: 0.15 mm
- Color: Anthracite / Brown
- Tensile strength: Very good in both directions, 50 N/mm
- Materials: Nylon, copper, nickel, protection coating
- Surface conductivity: 0.008 ohm (square resistance R☐)

Processing

Because of formation of wrinkles, bonding on walls with a glue is not recommended, use better HNG80 or HNG100 instead! Best usage for HNV80 is loosely laid under floor coverings, behind wall systems, etc. further for stapling in drywall constructions. Overlapp the single elements, whereby you connect the elements for grounding.

Grounding

Due to the highly conductive surface this material can be **contacted and grounded easily to shield low frequency (LF) electric fields**.

Screening attenuation

The screening attenuation is **regularly tested in our own EMC laboratory**. We have measurement setups due to the following standards: **ASTM D4935-10, IEEE Std 299-2006, IEEEE Std 1128-1998, ASTM A698/A698M-07**. Please find the test report at our homepage directly on the product page.

Product recommendation

HNV80 is also available as **self-adhesive version EB3**, with an electrically conductive glue in a width of 10 cm ... please see “Grounding accessories”.

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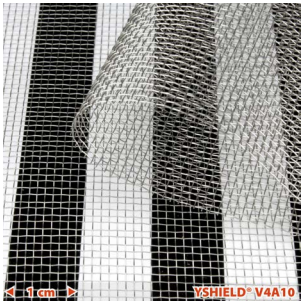
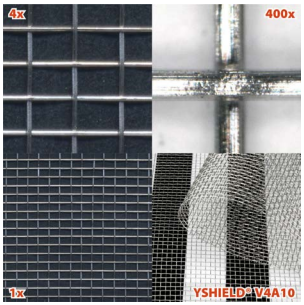
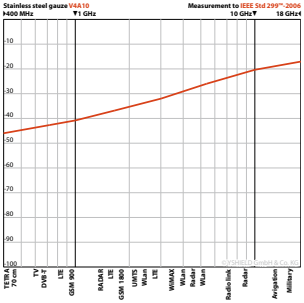
V4A10 - Stainless steel gauze V4A (HF+LF)

OUR RECOMMENDATION







Characteristics

V4A10 is a **finely woven, noncorrosive stainless-steel gauze** for the shielding of high-frequency radiation (HF) and low-frequency electric fields (LF).

Application

For the interior and exterior **under-plaster in upgraded insulations**, in **roof areas**, at **drywall constructions**, as **flyscreen**, loosely laid, etc.

V4A (AISI 316) is resistant against water, water vapor, air humidity, mild acids and in coastal areas against salty seawater!

Technical data

- **Width: 100 cm**
- **Length: By the meter / 25 m roll**
- **Attenuation: 40 dB**, two-layer 60 dB
- Mesh width: 1.0 mm, wire diameter: 0.16 mm, material thickness: 0.32 mm, open area 70 %
- Weight: 280 g/m²
- Color: Silver
- Fire-proof material, A1 according DIN 4102:1994
- Surface conductivity: 0.1 ohm (square resistance R☐)

Processing

In case processing the V4A10 under plaster you should work with a preferably fine and organic filler. Under the floor covering (laminate, parquet, PVC coating, etc.) the V4A10 is being fixed with the adhesive used for the floor covering. For drywall construction and in roof area the mesh elements can be bolt or stapled together. **The rule is:** Always overlapp the single elements at least 5 cm. For grounding use the perforated stainless steel tape ELB by screwing it right across the elements into the surface.

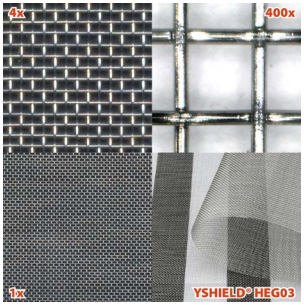
Grounding

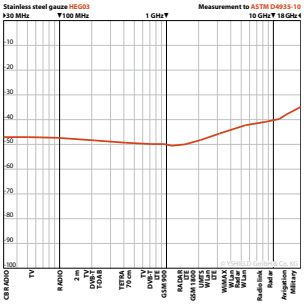
Due to the highly conductive surface this material can be **contacted and grounded easily to shield low frequency (LF) electric fields**.

Screening attenuation

The screening attenuation is **regularly tested in our own EMC laboratory**. We have measurement setups due to the following standards: **ASTM D4935-10, IEEE Std 299-2006, IEEEE Std 1128-1998, ASTM A698/A698M-07**. Please find the test report at our homepage directly on the product page.

HEG03 - Stainless steel netting V2A (HF+LF)





Characteristics

HEG03 is an **extremely fine woven, noncorrosive stainless-steel gauze** for the shielding of high-frequency radiation (HF) and low-frequency electric fields (LF).

In comparison to HEG10, due to the smaller mesh width, the shielding attenuation is better at high frequencies.

Application

Due to the thin filaments especially as flyscreen.

V2A (AISI 304 / 1.4301) is resistant against water, water vapor, air humidity and mild acids. **V2A is unsuitable in coastal areas with salty seawater!**

Technical data

- **Widths: 100 cm (HEG03-100), 150 cm (HEG03-150)**
- **Length: By the meter / 25 m roll**
- **Attenuation: 50 dB**, two-layer 68 dB
- Mesh width: 0.3 mm, wire diameter: 0.08 mm, material thickness: 0.16 mm, open area 54 %
- Weight: 200 g/m²
- Color: Silver
- Fire-proof material, A1 according DIN 4102:1994
- Surface conductivity: 0.03 ohm (square resistance R☐)

Processing

In case processing as **flyscreen**, the application is identical to that of a regular flyscreen in commercial tenter frames. In case processing the HEG03 **under plaster** you should work with a finest organic filler. Under the floor covering (laminate, parquet, PVC coating, etc.) the HEG03 is being fixed with the adhesive used for the floor covering. For drywall construction and in roof area the mesh elements can be bolt or stapled together. **The rule is:** Always overlapp the single elements at least 5 cm. For grounding use the perforated stainless steel tape ELB by screwing it right across the elements into the surface.

Grounding

Due to the highly conductive surface this material can be **contacted and grounded easily to shield low frequency (LF) electric fields**.

Screening attenuation

The screening attenuation is **regularly tested in our own EMC laboratory**. We have measurement setups due to the following standards: **ASTM D4935-10, IEEE Std 299-2006, IEEEE Std 1128-1998, ASTM A698/A698M-07**. Please find the test report at our homepage directly on the product page.

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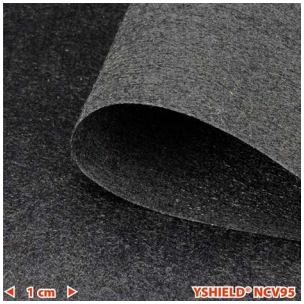
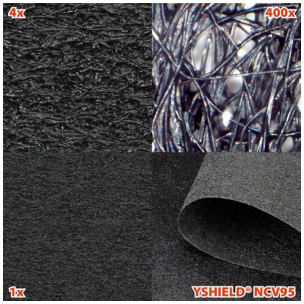
NCV95 - Polyester fleece (LF)





Characteristics

NCV95 is a fine, **cabonized polyester fleece** for the shielding of low-frequency electric fields (LF).

Application

In the **interior** for walls, ceilings and floors as **intermediate layer**, in **drywall constructions** or for loose layings. Further together with our grounding plug EST as a **cheap „earthed mattress pad“**.

Technical data

- **Width: 95 cm**
- **Length: By the meter / 20 m roll**
- **Attenuation: 80 dB** (99.99 %)
- Weight: 90 g/m²
- Material thickness: 0.55 mm
- Color: Black
- Tensile strength: 260 N/mm in longitudinal direction, 35 N/mm in transverse direction
- Materials: Polyester, carbon coating
- Surface conductivity: 1000 ohm (square resistance R☐)

Processing

In case of processing NCV95 as an intermediate layer we recommend using our dispersion glue DKL90 for adhesion. The wall and the backside of NCV95 should be coated with a paint roller. Insert the material wet on wet. Fix it manually (with disposable gloves) and press a gummed roller against the fleece to get a crease-free surface. Work quickly and strip by strip only so that the DKL90 glue does not dry. **A crease-free adhesion is only possible on perfectly level surfaces!** Structured surfaces (ingrain wallpaper, textured plastering) have to be smoothed. If that is not possible, we recommend using our shielding paint NSF34. Used as „earthed mattress pad“, NCV95 has to be grounded from an electrician with our grounding plug EST.

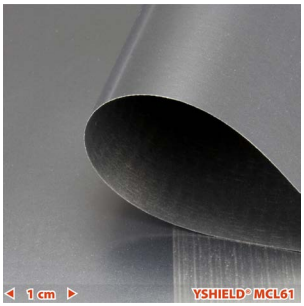
Grounding

Due to the highly conductive surface this material can be **contacted and grounded easily to shield low frequency (LF) electric fields**.

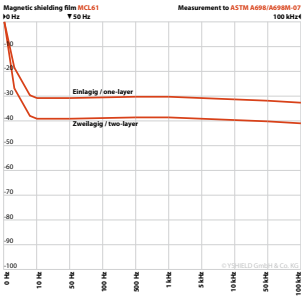
Screening attenuation

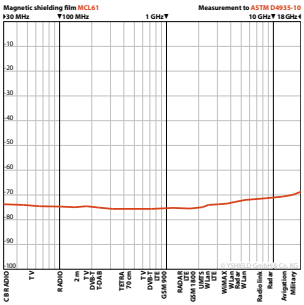
The screening attenuation is **regularly tested in our own EMC laboratory**. We have measurement setups due to the following standards: **ASTM D4935-10, IEEE Std 299-2006, IEEEE Std 1128-1998, ASTM A698/A698M-07**. Please find the test report at our homepage directly on the product page.

MCL61 - Magnetic shielding film (LF)



YSHIELD® MCL61





Characteristics

MCL61 is our **novel magnetic shielding film made from an amorphous cobalt alloy** for the shielding of low-frequency **magnetic alternating fields**. Also shields low-frequency electric alternating fields (LF) and high-frequency fields (HF).

In comparison with MUMETALL® our new MCL61 has many advantages: MUMETALL® is soft and sensitive, on bending, to shocks and on processing it looses the attenuation very fast. The cobalt strips in our MCL61 are **flexible but hard** even at small bending radii. The attenuation remains constant even at high mechanical stress. Because the cobalt strips are only 20 µm thin, 50 mm width and sharp like a knife, we **laminate it for protection**. Due to the lamination MCL61 is corrosion-resistant even in humid environments. With a **width of 61 cm** big areas are shielded faster compared to 15 cm width MUMETALL®-strips. MCL61 can easily be cut with scissors.

Technical data

- **Width: 61 cm**
- **Length: By the meter / 20 m rolls;** Because of the high production costs, we allow to divide up the ordered quantity!
- **Attenuation LF magnetic field: 30 dB (97 %);** The attenuation depends on the number of phases, cable twisting, the size of the area, etc.; Work in large areas: Shield cables with 1-2 sheets, fuse-boxes with 2-4 sheets;
- **Attenuation HF: 75 dB**
- Weight: 265 g/m^2; Material thickness: 0.1 mm; Color: Silver
- Materials: Polyester, Co69, Fe4, Mo4, Nb1, Si16, B7

Magnetic properties

- Permeability: µ 2 = 10,000; µ 4 = 25,000; µ max. = 100,000
- Saturation polarization Bs: 0.55 T
- Coercive field strength Hc: 0.5 A/m
- Remanence Br/Bs: 0.7
- Curie temperature Tc: 225 °C

Processing

Warning: The cutting edges are sharp like a knife! **Important:** Its difficult to glue the film free of creases, best cover the area with solid wall coverings. **Wall, ceiling, floor:** Best use a high-viscous assembly adhesive, that adheres to non-absorbent substrates. Smooth the glue, lay up the film, smooth with a pressure roller or squeegee. The sheets of MCL61 should be overlapped, level out the overlappings, paint it over with any commercial synthetic dispersion paint. Please pay attention that the film is a water vapour barrier on wall areas!

Grounding

MCL61 is electrically isolated. To ground it, every strip has to be screwed with a **chopper disk**, that penetrates the polyester film. The **grounding set MCL** contains all for 10-20 strips.

Screening attenuation

The screening attenuation is **regularly tested in our own EMC laboratory**. We have measurement setups due to the following standards: **ASTM D4935-10, IEEE Std 299-2006, IEEEE Std 1128-1998, ASTM A698/A698M-07**. Please find the test report at our homepage directly on the product page.

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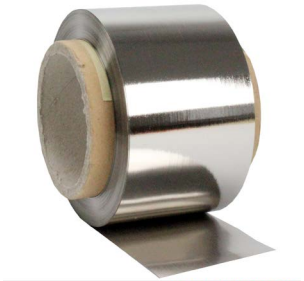
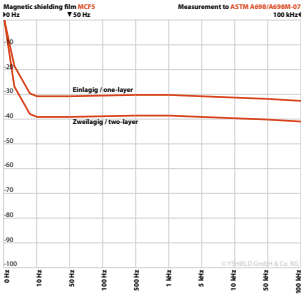
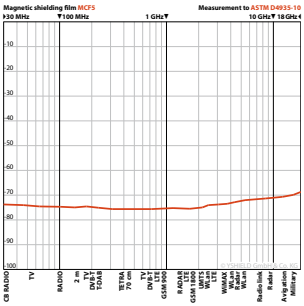
MCF5 - Magnetic shielding film (LF)



YSHIELD® MCF5-100





Characteristics

MCL5 is a **magnetic shielding film made from an amorphous cobalt alloy** for the shielding of low-frequency **magnetic alternating fields**. Also shields low-frequency electric alternating fields (LF) and high-frequency fields (HF).

In comparison with MUMETALL® our MCF5 has many advantages: MUMETALL® is soft and sensitive, on bending, to shocks and on processing it looses the attenuation very fast. MCF5 stays **flexible but hard** even at small bending radii. The attenuation remains constant even at **high mechanical stress**. MCF5 can easily be cut with scissors.

Application

Because MCF5 has a width of only 5 cm, its recommended for **shielding smaller areas, e.g. in electronic applications or for cables**.

Technical data

- **Width: 5 cm**
- **Length: Rolls** with 1 m (0.05 m^2), 20 m (1 m^2), 100 m (5 m^2)
- **Attenuation LF magnetic field: 30 dB (97 %);** The attenuation depends on the number of phases, cable twisting, the size of the area, etc.; Work in large areas: Shield cables with 1-2 sheets, fuse-boxes with 2-4 sheets;
- **Attenuation HF: 75 dB**
- Weight: 180 g/m^2; Material thickness: 0.02 mm; Color: Silver
- Composition: Co69, Fe4, Mo4, Nb1, Si16, B7

Magnetic properties

- Permeability: μ 2 = 10,000; μ 4 = 25,000; μ max. = 100,000
- Saturation polarization Bs: 0.55 T
- Coercive field strength Hc: 0.5 A/m
- Remanence Br/Bs: 0.7
- Curie temperature Tc: 225 °C

Processing

Warning: The cutting edges are sharp as a knife! Best use our plastic scraper FVR10 to press it on the adhesive tapes or into the glue, this is the safe way to keep your fingers! There is no self ashesive version available. However, bonding is easily possible: Please use a double sided adhesive tape e.g. Carpet adhesive tape with 50 mm width or a wider double-sided adhesive tape. Otherwise a commercial surface contact adhesive can be used (e.g. UHU, PATTEX).

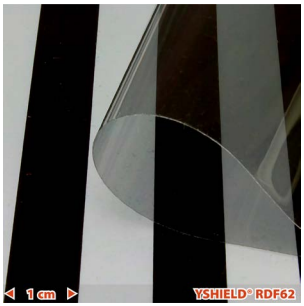
Grounding

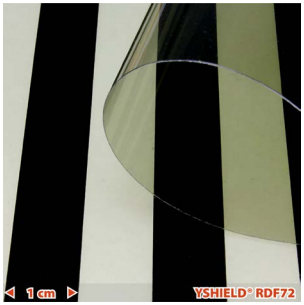
Due to the conductive surface this material **can be contacted and grounded easily** to shield low frequency (LF) electric fields.

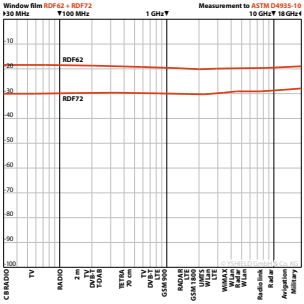
Screening attenuation

The screening attenuation is **regularly tested in our own EMC laboratory**. We have measurement setups due to the following standards: **ASTM D4935-10, IEEE Std 299-2006, IEEEE Std 1128-1998, ASTM A698/A698M-07**. Please find the test report at our homepage directly on the product page.

RDF62, RDF72 - Window films (HF)







	RDF62-Clear	RDF72-Premium
Application	Interior	Interior
Application on heat-absorbing glass	Limited / depends on the glass	Limited / depends on the glass
Edge sealant necessary	No	Yes: FKV50
Light transparency	62 %	72 %
Color of daylight	Bright grey	Bright Green
Reflections from interior	Bright silver	None
Reflections from exterior	Bright silver	None

Characteristics

RDFxx are precious-metal coated and self-adhesive films for the shielding of high-frequency radiation (HF). • **RDF62-Clear** has a perfect ratio between quality, light transmission, color of daylight and good attentuation. • **RDF72-Premium** is our premium film consisting of 10 metal layers for highest quality demands. Unrivaled attenuation and a very high degree of light transmission.

Technical data

- **Width: 76 cm** and **152 cm**
- **Length: By the meter, roll with 30 m**
- **Attenuation: RDF62 = 19 dB, RDF72 = 30 dB**
- Material thickness: RDF62 = 37.5 µm; RDF72 = 75 µm
- Mounting: Water-activated, pressure-sensitive adhesive

Mounting accessories

The mounting requires crafts-manship skills and **professional accessories**:

❶ **Mounting concentrate FMK30** for wet bonding, 30 ml for 0.5 liter of water.
❷ **Plastic scraper FVR10** for a bubble-free bonding. With the both smooth edges the water and the bubbles can be pressed out, without sctratching the film-surface.
❸ **Edge sealant FKV50**, 50 ml. This sealant has to applied to the edges of RDF72 about 8 weeks after it has been glued on.

❶ ❷ ❸

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Overview - Shielding fabrics

Here you find fabrics that are permanent in our assortement.

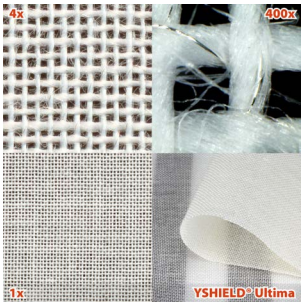
Please find many limited special items in the internet.

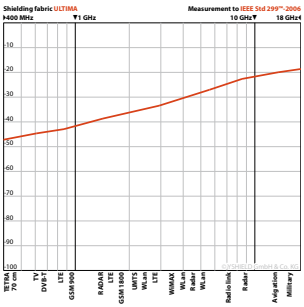
	Ultima Recommendation!	**Naturell** Recommendation!	**Naturell Ultra** Recommendation!	**Voile** Recommendation!	**Evolution**	**Evo-Ultra**	**Wear**	**New-Daylite**	**Silver-Tulle**	**Silver-Tricot** Recommendation!	**Silver-Twin**	**Steel-Twin** Recommendation!	**Steel-Gray** Recommendation!	**Silver-Elastic**	**Silver-Silk**	**Silver-Grid** Recommendation
Picture (magnified)																
Attenuation 1 GHz	41 dB	38 dB	40 dB	36 dB	30 dB	35 dB	30 dB	25 dB	50 dB	50 dB	57 dB	35 dB	35 dB	50 dB	60 dB	13 dB
Shielding HF	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
Shielding LF / Groundable	-	-	X	-	-	X	-	-	X	X	X	X	X	X	X	X
As (net) curtain	Yes	Yes	Yes	Yes	Yes	Yes	Limited	Yes	Yes	Yes	Yes	Yes	Yes	-	-	-
As canopy	Yes	Yes	Yes	Yes	-	Yes	-	Yes	Yes	Yes	-	-	-	-	-	-
For clothing	-	-	-	-	-	-	Limited	-	-	-	-	-	Yes	Yes	Limited	-
For earthing products	-	-	Yes	-	-	Yes	-	-	Limited	Limited	Limited	Yes	Yes	-	Limited	Yes
Materials	Cotton, copper, silver	Eco-cotton, copper, silver	Cotton, copper, silver, carbon	Polyes-ter, copper, silver	Polyes-ter, copper, silver	Polyes-ter, copper, silver, carbon	Cotton, copper, silver	Polyes-ter, copper, silver	Nylon, silver	Nylon, silver	Cotton, polyes-ter, silver	Cotton, poly-ester, stainless steel	Cotton, poly-ester, stainless steel	Span-dex, silver	Nylon, silver	Cotton, poly-ester, silver
Width	250 cm	250 cm	250 cm	250 cm	250 cm	200 cm	150 cm	260 cm	140 cm	140 cm	150 cm	150 cm	150 cm	155 cm	130 cm	150 cm
Weight	85 g/m²	70 g/m²	115 g/m²	55 g/m²	80 g/m²	66 g/m²	70 g/m²	65 g/m²	40 g/m²	30 g/m²	150 g/m²	190 g/m²	120 g/m²	130 g/m²	45 g/m²	130 g/m²
Color	Ecru-white	Ecru-white	Ecru-white	White	White	Light gray	White	White	Gray/ silver	Gray/ silver	Beige/ brown	Dark gray	Gray	Gray/ silver	Silver/ Brown	White
Dyeing possible	Yes	Yes	Yes	No	No	No	Yes	No	No	No	Yes	No	No	No	No	Yes
Discoloration silver	No	No	No	No	No	No	No	No	Little	Little	Little	-	-	Strong	Strong	Little
Optical transparency	Medium	Medium	Medium	High	Medium	Medium	None	High	Medium	Medium	None	None	None	None	None	None
Common quality grade	Very high	Very high	Very high	Very high	Very high	Very high	Very high	Very high	High	Very high	High	Very high	Very high	Very high	High	Very High
Result washing test / Attenuation	Very good	Very good	Very good	Very good	Good	Very good	Normal	Normal	Very good	Very good	Good	Very good	Very good	Very good	Very good	Very good

YSHIELD®

ULTIMA - Shielding fabric (HF)

OUR RECOMMENDATION





Characteristics

ULTIMA™ from Swiss-Shield® is a **finely woven cotton fabric** for the shielding of high-frequency electromagnetic fields (HF).

- **Cotton fabric without chemicals, certified to Öko-Tex 100 and 1000**
- High screening attenuation for a cotton fabric
- **Textile characteristics:** Washable, easy to iron and process
- **Quality grade: Very high**

Application

Typical application as **curtain**. Not electrically conductive.

Technical data

- **Width: 250 cm**, +/- 2 cm
- **Length: Available by the meter**, 120 meter rolls
- **Attenuation: 41 dB**, two-layer 54 dB
- Color: Ecru-White
- Raw materials: 82 % cotton, 17 % copper, 1 % silver
- Weight: 85 g/m^2
- Certificates: Öko-Tex 100 and 1000

Grounding

Cannot be grounded. Low-frequency electrical fields (LF) must be reduced by additional procedures. We recommend to shield this fields or to switch it off with a demand switch.

Screening attenuation

The screening attenuation is **regularly tested in our own EMC laboratory**. We have measurement setups due to the following standards: **ASTM D4935-10, IEEE Std 299-2006, IEEEE Std 1128-1998, ASTM A698/A698M-07**. Please find the test report at our homepage directly on the product page.

Care

30	Gentle cycle at 30°C
	Iron without steam at degree 1
	No drying in tumble dryers
	No bleaching
	No chemical dry-cleaning

Cleaning with our special washing detergent **TEXCARE**. No handwashing! For allergy sufferers: Every new fabric smells, wash before its first usage!

About Swiss Shield®

This fabric is manufactured by Swiss Shield® in Switzerland. The secret of its shielding effectiveness is a worldwide unique, patented, ultra-thin high-tech yarn. We at YSHIELD particularly value the high quality of the fabrics (haptics, slip resistance, washing resistance). **It is not for nothing that we are the world´s largest supplier of Swiss Shield®!**

YSHIELD GmbH & Co. KG, Am Schulplatz 2, 94099 Ruhstorf, Germany
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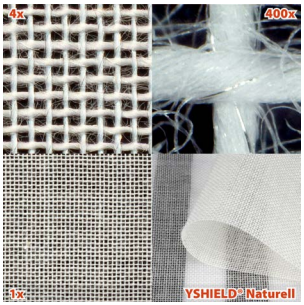
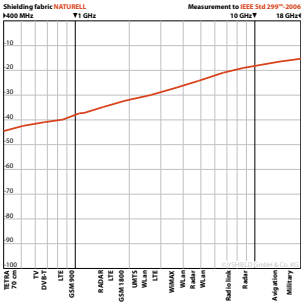
NATURELL - Shielding fabric (HF)

OUR RECOMMENDATION





Characteristics

NATURELL™ from Swiss-Shield® is a **semi-transparent ecological cotton fabric** for the shielding of high-frequency electromagnetic fields (HF).

- **Ecological cotton fabric without chemicals, certified to Öko-Tex 100 and 1000**
- High screening attenuation for a cotton fabric
- **Textile characteristics:** Washable, easy to iron and process
- **Quality grade: Very high**

Application

Typical application as **curtain**. Not electrically conductive.

Technical data

- **Width: 250 cm**, +/- 2 cm
- **Length: Available by the meter**, 120 meter rolls
- **Attenuation: 38 dB**, two-layer 53 dB
- Color: Ecru-White
- Raw materials: 82 % cotton, 17 % copper, 1 % silver
- Weight: 70 g/m²
- Certificates: Öko-Tex 100 and 1000

Grounding

Cannot be grounded. Low-frequency electrical fields (LF) must be reduced by additional procedures. We recommend to shield this fields or to switch it off with a demand switch.

Screening attenuation

The screening attenuation is **regularly tested in our own EMC laboratory**. We have measurement setups due to the following standards: **ASTM D4935-10, IEEE Std 299-2006, IEEEE Std 1128-1998, ASTM A698/A698M-07**. Please find the test report at our homepage directly on the product page.

Care

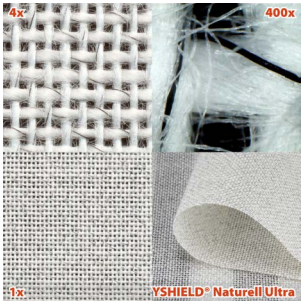
30	Gentle cycle at 30°C
	Iron without steam at degree 1
	No drying in tumble dryers
	No bleaching
	No chemical dry-cleaning

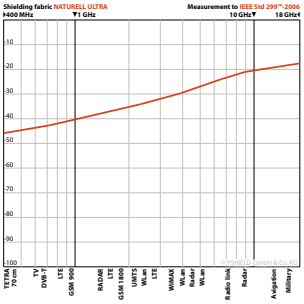
Cleaning with our special washing detergent **TEXCARE**. No handwashing! For allergy sufferers: Every new fabric smells, wash before its first usage!

About Swiss Shield®

This fabric is manufactured by Swiss Shield® in Switzerland. The secret of its shielding effectiveness is a worldwide unique, patented, ultra-thin high-tech yarn. We at YSHIELD particularly value the high quality of the fabrics (haptics, slip resistance, washing resistance). **It is not for nothing that we are the world´s largest supplier of Swiss Shield®!**

NATURELL ULTRA - Shielding fabric (HF+LF)





Characteristics

NATURELL ULTRA™ from Swiss-Shield® is a **semi-transparent cotton fabric** for the shielding of high-frequency electromagnetic fields (HF) and low-frequency electric fields (LF).

NATURELL ULTRA™ is the second fabric of a **new product series** from Swiss Shield®. In the new ULTRA-series the silver-/copper-filament is coated with carbon, why these fabrics are **electrically conductive** to shield low-frequency electric fields (LF). Perfect for bed canopies.

- **Cotton fabric certified to Öko-Tex 100 and 1000**
- **Textile characteristics:** Washable, easy to iron and process
- **Quality grade: Very high**

Application

Typical application as **curtain** or to sew a **bed canopy**. Electrically conductive and therefore groundable.

Technical data

- **Width: 250 cm**, +/- 2 cm
- **Length: Available by the meter**, 120 meter rolls
- **Attenuation: 40 dB**, two-layer 54 dB
- Color: Ecru-White
- Raw materials: 81 % cotton, 17 % copper, 1 % silver, 1 % carbon
- Weight: 115 g/m²

Grounding

Due to the surface conductivity this fabric **can be grounded** to shield low frequency (LF) electric fields.

Screening attenuation

The screening attenuation is **regularly tested in our own EMC laboratory**. We have measurement setups due to the following standards: **ASTM D4935-10, IEEE Std 299-2006, IEEEE Std 1128-1998, ASTM A698/A698M-07**. Please find the test report at our homepage directly on the product page.

Care

30	Gentle cycle at 30°C
	Iron without steam at degree 1
	No drying in tumble dryers
	No bleaching
	No chemical dry-cleaning

Cleaning with our special washing detergent **TEXCARE**. No handwashing! For allergy sufferers: Every new fabric smells, wash before its first usage!

About Swiss Shield®

This fabric is manufactured by Swiss Shield® in Switzerland. The secret of its shielding effectiveness is a worldwide unique, patented, ultra-thin high-tech yarn. We at YSHIELD particularly value the high quality of the fabrics (haptics, slip resistance, washing resistance). **It is not for nothing that we are the world´s largest supplier of Swiss Shield®!**

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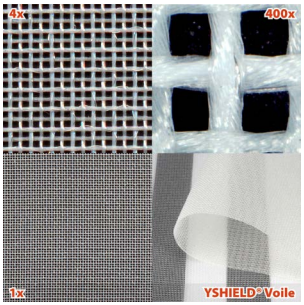
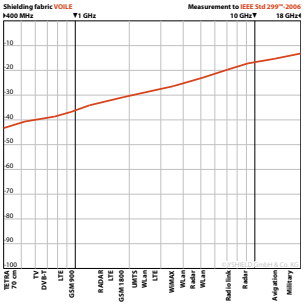
VOILE - Shielding fabric (HF)

OUR RECOMMENDATION





Characteristics

VOILE from Swiss-Shield® is a **transparent voile-fabric** for the shielding of high-frequency electromagnetic fields (HF).

Our **technically best fabric** regarding to the attenuation, transparency and the mechanical stability.

- **High transparency at high screening attenuation**
- **Very elegant and slightly glossy**
- **Crease resistant polyester**
- **Textile characteristics:** Washable, easy to iron and process
- **Quality grade: Very high**

Application

Typical application as elegant **net curtain** or to sew a **bed canopy**. Not electrically conductive.

Technical data

- **Width: 250 cm**, +/- 2 cm
- **Length: Available by the meter**, 120 meter rolls
- **Attenuation: 36 dB**, two-layer 51 dB
- Color: White
- Raw materials: 83 % polyester, 16 % copper, 1 % silver
- Weight: 55 g/m^2

Grounding

Cannot be grounded. Low-frequency electrical fields (LF) must be reduced by additional procedures. We recommend to shield this fields or to switch it off with a demand switch.

Screening attenuation

The screening attenuation is **regularly tested in our own EMC laboratory**. We have measurement setups due to the following standards: **ASTM D4935-10, IEEE Std 299-2006, IEEEE Std 1128-1998, ASTM A698/A698M-07**. Please find the test report at our homepage directly on the product page.

Care

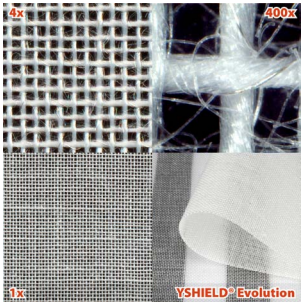
30	Gentle cycle at 30°C
	Iron without steam at degree 1
	Drying at low temperature
	No bleaching
	No chemical dry-cleaning

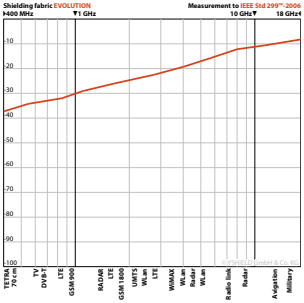
Cleaning with our special washing detergent **TEXCARE**. No handwashing! For allergy sufferers: Every new fabric smells, wash before its first usage!

About Swiss Shield®

This fabric is manufactured by Swiss Shield® in Switzerland. The secret of its shielding effectiveness is a worldwide unique, patented, ultra-thin high-tech yarn. We at YSHIELD particularly value the high quality of the fabrics (haptics, slip resistance, washing resistance). **It is not for nothing that we are the world´s largest supplier of Swiss Shield®!**

EVOLUTION - Shielding fabric (HF)





Characteristics

EVOLUTION™ from Swiss-Shield® is a **semi-transparent Trevira® fabric** for the shielding of high-frequency electromagnetic fields (HF).

- **Crease resistant Trevira®-polyester**
- **Textile characteristics:** Washable, easy to iron and process
- **Quality grade: Very high**

Application

Typical application as **curtain**. Not electrically conductive.

Technical data

- **Width: 250 cm**, +/- 2 cm
- **Length: Available by the meter**, 120 meter rolls
- **Attenuation: 30 dB**, two-layer 43 dB
- Color: White
- Raw materials: 91 % polyester (Trevira), 8.5 % copper, 0.5 % silver
- Weight: 80 g/m²

Grounding

Cannot be grounded. Low-frequency electrical fields (LF) must be reduced by additional procedures. We recommend to shield this fields or to switch it off with a demand switch.

Screening attenuation

The screening attenuation is **regularly tested in our own EMC laboratory**. We have measurement setups due to the following standards: **ASTM D4935-10, IEEE Std 299-2006, IEEEE Std 1128-1998, ASTM A698/A698M-07**. Please find the test report at our homepage directly on the product page.

Care

30	Gentle cycle at 30°C
	Iron without steam at degree 1
	Drying at low temperature
	No bleaching
	No chemical dry-cleaning

Cleaning with our special washing detergent **TEXCARE**. No handwashing! For allergy sufferers: Every new fabric smells, wash before its first usage!

About Swiss Shield®

This fabric is manufactured by Swiss Shield® in Switzerland. The secret of its shielding effectiveness is a worldwide unique, patented, ultra-thin high-tech yarn. We at YSHIELD particularly value the high quality of the fabrics (haptics, slip resistance, washing resistance). **It is not for nothing that we are the world´s largest supplier of Swiss Shield®!**

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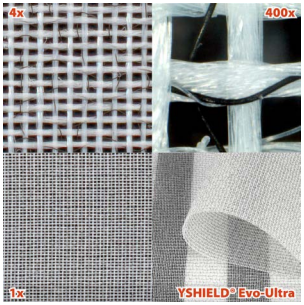
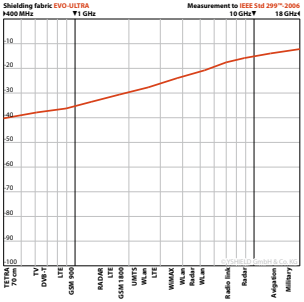
EVO-ULTRA - Shielding fabric (HF+LF)





Characteristics

EVO-ULTRA™ from Swiss-Shield® is a **semi-transparent polyester fabric** for the shielding of high-frequency electromagnetic fields (HF) and low-frequency electric fields (LF).

EVO-ULTRA™ is the first fabric of a **new product series** from Swiss Shield®. In the new ULTRA-series the silver-/copper-filament is coated with carbon, why these fabrics are **electrically conductive** to shield low-frequency electric fields (LF). Perfect for bed canopies.

- Crease resistant polyester
- **Textile characteristics:** Washable, easy to iron and process
- **Quality grade: Very high**

Application

Typical application as **curtain** or to sew a **bed canopy**. Electrically conductive and therefore groundable.

Technical data

- **Width: 200 cm**, +/- 2 cm
- **Length: Available by the meter**, 120 meter rolls
- **Attenuation: 35 dB**, two-layer 46 dB
- Color: Light gray
- Raw materials: 81 % polyester, 17 % copper, 1 % silver, 1 % carbon
- Weight: 66 g/m²

Grounding

Due to the surface conductivity this fabric **can be grounded** to shield low frequency (LF) electric fields.

Screening attenuation

The screening attenuation is **regularly tested in our own EMC laboratory**. We have measurement setups due to the following standards: **ASTM D4935-10, IEEE Std 299-2006, IEEEE Std 1128-1998, ASTM A698/A698M-07**. Please find the test report at our homepage directly on the product page.

Care

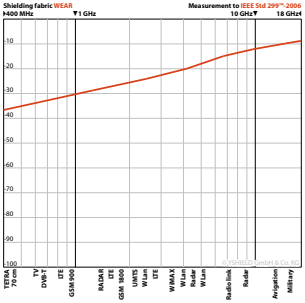
30	Gentle cycle at 30°C
	Iron without steam at degree 1
	Drying at low temperature
	No bleaching
	No chemical dry-cleaning

Cleaning with our special washing detergent **TEXCARE**. No handwashing! For allergy sufferers: Every new fabric smells, wash before its first usage!

About Swiss Shield®

This fabric is manufactured by Swiss Shield® in Switzerland. The secret of its shielding effectiveness is a worldwide unique, patented, ultra-thin high-tech yarn. We at YSHIELD particularly value the high quality of the fabrics (haptics, slip resistance, washing resistance). **It is not for nothing that we are the world´s largest supplier of Swiss Shield®!**

WEAR - Shielding fabric (HF)



Characteristics

WEAR™ from Swiss-Shield® is a **compact cotton fabric** for the shielding of high-frequency electromagnetic fields (HF).

- **Good haptics and pleasant skin feel**
- **Textile characteristics:** Washable, easy to iron and process
- **Quality grade: Normal**

Application

Typical application for **sewing all articles of clothing**. Not electrically conductive.

Technical data

- **Width: 150 cm**, +/- 2 cm
- **Length: Available by the meter**, 80 meter rolls
- **Attenuation: 30 dB**, two-layer 39 dB
- Color: White; dyeing possible
- Raw materials: 90 % cotton, 9.5 % copper, 0.5 % silver
- Weight: 70 g/m^2

Grounding

Cannot be grounded. Low-frequency electrical fields (LF) must be reduced by additional procedures. We recommend to shield this fields or to switch it off with a demand switch.

Screening attenuation

The screening attenuation is **regularly tested in our own EMC laboratory**. We have measurement setups due to the following standards: **ASTM D4935-10, IEEE Std 299-2006, IEEEE Std 1128-1998, ASTM A698/A698M-07**. Please find the test report at our homepage directly on the product page.

Care

30	Gentle cycle at 30°C
	Iron without steam at degree 1
	No drying in tumble dryers
	No bleaching
	No chemical dry-cleaning

Cleaning with our special washing detergent **TEXCARE**. No handwashing! For allergy sufferers: Every new fabric smells, wash before its first usage!

About Swiss Shield®

This fabric is manufactured by Swiss Shield® in Switzerland. The secret of its shielding effectiveness is a worldwide unique, patented, ultra-thin high-tech yarn. We at YSHIELD particularly value the high quality of the fabrics (haptics, slip resistance, washing resistance). **It is not for nothing that we are the world´s largest supplier of Swiss Shield®!**

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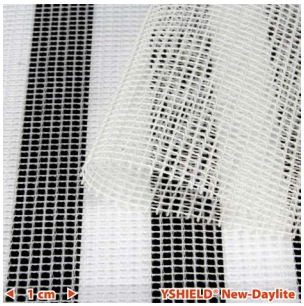
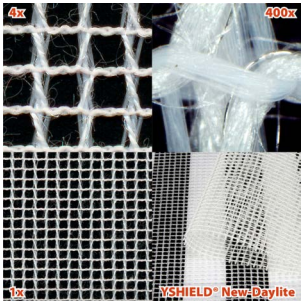
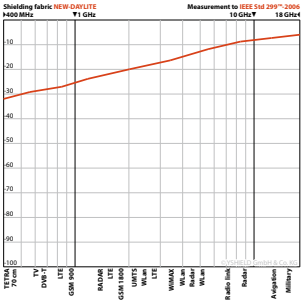
NEW-DAYLITE - Shielding fabric (HF)







Characteristics

NEW-DAYLITE™ from Swiss-Shield® is a **highly-transparent Trevira® fabric** for the shielding of high-frequency electromagnetic fields (HF).

- **Yery high transparency**
- **Crease resistant Trevira®-polyester**
- **Textile characteristics:** Washable, easy to iron and process
- **Quality grade: Very high**

Application

Typical application as **net curtain** or to sew a **bed canopy**. Not electrically conductive.

Technical data

- **Width: 260 cm**, +/- 2 cm
- **Length: Available by the meter**, 120 meter rolls
- **Attenuation: 25 dB**, two-layer 34 dB
- Color: White
- Raw materials: 78 % polyester (Trevira), 21 % copper, 1 % silver
- Weight: 65 g/m²
- Certificates: Öko-Tex 100 and 1000

Grounding

Cannot be grounded. Low-frequency electrical fields (LF) must be reduced by additional procedures. We recommend to shield this fields or to switch it off with a demand switch.

Screening attenuation

The screening attenuation is **regularly tested in our own EMC laboratory**. We have measurement setups due to the following standards: **ASTM D4935-10, IEEE Std 299-2006, IEEEE Std 1128-1998, ASTM A698/A698M-07**. Please find the test report at our homepage directly on the product page.

Care

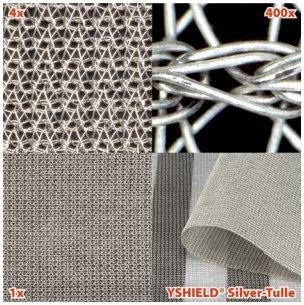
30	Gentle cycle at 30°C
	Iron without steam at degree 1
	Drying at low temperature
	No bleaching
	No chemical dry-cleaning

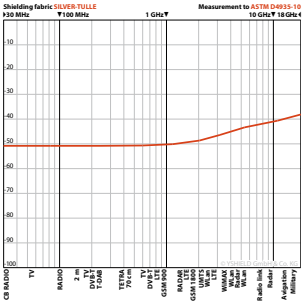
Cleaning with our special washing detergent **TEXCARE**. No handwashing! For allergy sufferers: Every new fabric smells, wash before its first usage!

About Swiss Shield®

This fabric is manufactured by Swiss Shield® in Switzerland. The secret of its shielding effectiveness is a worldwide unique, patented, ultra-thin high-tech yarn. We at YSHIELD particularly value the high quality of the fabrics (haptics, slip resistance, washing resistance). **It is not for nothing that we are the world´s largest supplier of Swiss Shield®!**

SILVER-TULLE - Shielding fabric (HF+LF)





Characteristics

SILVER-TULLE is a **transparent fully silvered nylon fabric** for the shielding of high-frequency radiation (HF) and low-frequency electric fields (LF).

By comparison to competitor products, this fabric has a **thicker and better silver plating** and dont loose its screening attenuation while washing or movement.

This fabric is hard to sew accurately, because it's stretchy and pulls out of place easily when you try to sew on it. Please note that customized curtains are difficult to sew dimensionally stable!

- **Good transparency at very high screening attenuation**
- **Contactable (groundable) to shield LF electric fields**
- **Textile similar characteristics:** Washable, easy to process. Exception: Do not iron.
- **Quality grade: Very high**

Application

As **net curtain**, as room divider in laboratorys, medical practices, etc. and due to the highest washability to sew a **bed canopy**.

Technical data

- **Width: 140 cm**, +/- 2 cm
- **Length: Available by the meter**, 100 meter rolls
- **Attenuation: 50 dB**, two-layer 67 dB
- Color: Gray, silver
- **This silver-fabric can discolorate and has a limited durability, more under „Information silver-fabrics"**
- Raw materials: 80 % nylon, 20 % silver
- Weight: 40 g/m²
- Surface conductivity: 0.8 ohm (square resistance R☐)

Grounding

Due to the surface conductivity this fabric **can be grounded** to shield low frequency (LF) electric fields.

Screening attenuation

The screening attenuation is **regularly tested in our own EMC laboratory**. We have measurement setups due to the following standards: **ASTM D4935-10, IEEE Std 299-2006, IEEEE Std 1128-1998, ASTM A698/A698M-07**. Please find the test report at our homepage directly on the product page.

Care

30	Gentle cycle at 30°C
	No ironing
	No drying in tumble dryers
	No bleaching
	No chemical dry-cleaning

Cleaning with our special washing detergent **TEXCARE**. No handwashing! For allergy sufferers: Every new fabric smells, wash before its first usage!

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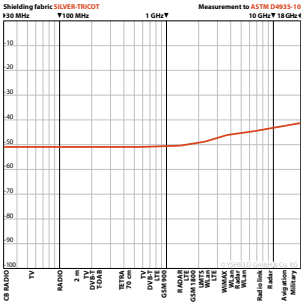
SILVER-TRICOT - Shielding fabric (HF+LF)

OUR RECOMMENDATION



Characteristics

SILVER-TRICOT is a **transparent fully silvered nylon fabric** for the shielding of high-frequency radiation (HF) and low-frequency electric fields (LF).

This fabric is coated with **25 % pure silver** and has a very high quality. Certification according to **OEKO-TEX® 100, product class 1**.

This fabric is hard to sew accurately, because it's stretchy and pulls out of place easily when you try to sew on it. Please note that customized curtains are difficult to sew dimensionally stable!

- **Certification according to OEKO-TEX® 100, product class 1**
- **Good transparency at very high screening attenuation**
- **Contactable (groundable) to shield LF electric fields**
- **Textile similar characteristics:** Washable, easy to process. Exception: Do not iron.
- **Quality grade: Very high**

Application

As **net curtain**, as room divider in laboratorys, medical practices, etc. and due to the highest washability to sew a **bed canopy**.

Technical data

- **Width: 140 cm**, +/- 2 cm
- **Length: Available by the meter**
- **Attenuation: 50 dB**, two-layer 67 dB
- Color: Gray, silver
- **This silver-fabric can discolorate and has a limited durability, more under „Information silver-fabrics"**
- Raw materials: 75 % nylon, 25 % silver
- Weight: 30 g/m²
- Surface conductivity: 1.0 ohm (square resistance R☐)

Grounding

Due to the surface conductivity this fabric **can be grounded** to shield low frequency (LF) electric fields.

Screening attenuation

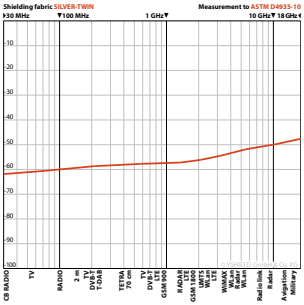
The screening attenuation is **regularly tested in our own EMC laboratory**. We have measurement setups due to the following standards: **ASTM D4935-10, IEEE Std 299-2006, IEEEE Std 1128-1998, ASTM A698/A698M-07**. Please find the test report at our homepage directly on the product page.

Care

30	Gentle cycle at 30°C
	No ironing
	No drying in tumble dryers
	No bleaching
	No chemical dry-cleaning

Cleaning with our special washing detergent **TEXCARE**. No handwashing! For allergy sufferers: Every new fabric smells, wash before its first usage!

SILVER-TWIN - Shielding fabric (HF+LF)



Characteristics

SILVER-TWIN is a **compact, double-ply cotton/silver fabric** for the shielding of high-frequency radiation (HF) and low-frequency electric fields (LF).

The frontside is made of white cotton, while the backside is densely woven with a silver thread. Despite the extremely high attenuation due to the dark silver threads on the backside, this fabric has a light gray front side!

- **Very high attenuation, even at high frequencies!**
- **Excellent cost/performance ratio**
- **Contactable (groundable) to shield LF electric fields**
- **Textile characteristics:** Washable, easy to iron and process
- **Quality grade: High**

Application

As **curtain**, to sew thicker clothes, handy bags, etc..

Technical data

- **Width: 150 cm**, +/- 2 cm
- **Length: Available by the meter**, 150 meter rolls
- **Attenuation: 57 dB**
- Color: Frontside light gray, backside silver
- **This silver-fabric can discolorate and has a limited durability, more under „Information silver-fabrics“**
- Raw materials: 50 % cotton, 35 % polyester, 15 % silver
- Weight: 150 g/m²
- Surface conductivity: 0.25 ohm (square resistance R☐)

Grounding

Due to the surface conductivity this fabric **can be grounded** to shield low frequency (LF) electric fields.

Screening attenuation

The screening attenuation is **regularly tested in our own EMC laboratory**. We have measurement setups due to the following standards: **ASTM D4935-10, IEEE Std 299-2006, IEEEE Std 1128-1998, ASTM A698/A698M-07**. Please find the test report at our homepage directly on the product page.

Care

30	Gentle cycle at 30°C
	Iron without steam at degree 1
	No drying in tumble dryers
	No bleaching
	No chemical dry-cleaning

Cleaning with our special washing detergent **TEXCARE**. No handwashing! For allergy sufferers: Every new fabric smells, wash before its first usage!

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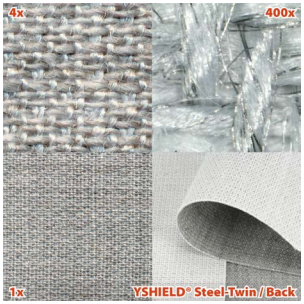
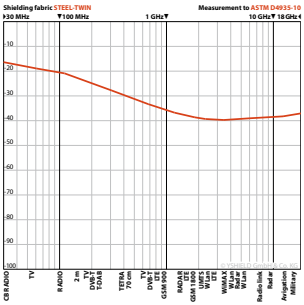
STEEL-TWIN - Shielding fabric (HF+LF)

OUR RECOMMENDATION





Characteristics

STEEL-TWIN is a **compact cotton/polyester/stainless-steel fabric** for the shielding of high-frequency radiation (HF) and low-frequency electric fields (LF).

The frontside is made of white cotton, while the backside is densely woven with a stainless steel thread. Despite the high attenuation due to the gray stainless steel threads on the backside, this fabric has a light gray front side!

- **Our most long-lasting and stable fabric**
- **Best price/value ratio of all fabrics!**
- Good screening attenuation, especially at high frequencies!
- **Contactable (groundable) to shield LF electric fields**
- **Textile characteristics:** Washable, easy to iron and process
- **Quality grade: Very high**

Application

As **curtain** or for floor mats.

Technical data

- **Width: 150 cm**, +/- 2 cm
- **Length: Available by the meter**, 150 meter rolls
- **Attenuation: 35 dB**, two-layer 50 dB
- Color: Frontside light gray, backside silver
- Raw materials: 68 % cotton, 17 % polyester, 15 % stainless steel
- Weight: 190 g/m²
- Surface conductivity: 100-800 ohm (square resistance R☐)

Grounding

Due to the surface conductivity this fabric **can be grounded** to shield low frequency (LF) electric fields.

Screening attenuation

The screening attenuation is **regularly tested in our own EMC laboratory**. We have measurement setups due to the following standards: **ASTM D4935-10, IEEE Std 299-2006, IEEEE Std 1128-1998, ASTM A698/A698M-07**. Please find the test report at our homepage directly on the product page.

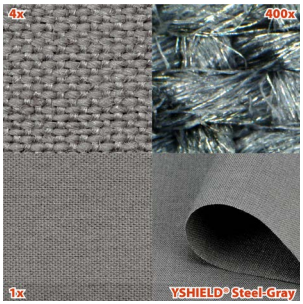
Care

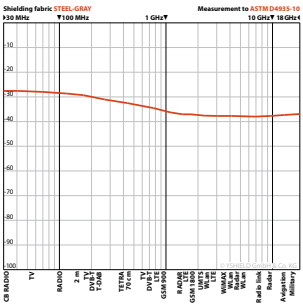
30	Gentle cycle at 30°C
	Iron without steam at degree 1
	No drying in tumble dryers
	No bleaching
	No chemical dry-cleaning

Cleaning with our special washing detergent **TEXCARE**. No handwashing! For allergy sufferers: Every new fabric smells, wash before its first usage!

STEEL-GRAY - Shielding fabric (HF+LF)

OUR RECOMMENDATION





Characteristics

STEEL-GRAY is a **compact cotton/polyester/stainless-steel fabric** for the shielding of high-frequency radiation (HF) and low-frequency electric fields (LF).

For clothing the steel threads aren´t as soft on the skin as the silver threads of Silver-Jersey or Silver-Knit, it feels like a little scratchy woolen sweater. **Tip:** Wear a pyjama in bedding or a sleeping bag made from Steel-Active, then nothing scratches! Or use it as under-bedding. Order a free sample for testing!

- **Our most long-lasting and stable fabric**
- **Best price/value ratio of all fabrics!**
- **Good screening attenuation, especially at high frequencies!**
- **Contactable (groundable) to shield LF electric fields**
- **Textile characteristics:** Washable, easy to iron and process
- **Quality grade: Very high**

Application

As **curtain, floor mat, blanket, to incorporate in furniture (bed), room divider, or with reservations for low priced clothing or bedding**.

Technical data

- **Width: 150 cm**, +/- 2 cm
- **Length: Available by the meter**, 150 meter rolls
- **Attenuation: 35 dB**, two-layer 50 dB
- Color: Gray
- Raw materials: 40 % cotton, 30 % polyester, 30 % stainless steel
- Weight: 120 g/m²
- Surface conductivity: 100-800 ohm (square resistance R☐)

Grounding

Due to the surface conductivity this fabric **can be grounded** to shield low frequency (LF) electric fields.

Screening attenuation

The screening attenuation is **regularly tested in our own EMC laboratory**. We have measurement setups due to the following standards: **ASTM D4935-10, IEEE Std 299-2006, IEEEE Std 1128-1998, ASTM A698/A698M-07**. Please find the test report at our homepage directly on the product page.

Care

30	Gentle cycle at 30°C
	Iron without steam at degree 1
	No drying in tumble dryers
	No bleaching
	No chemical dry-cleaning

Cleaning with our special washing detergent **TEXCARE**. No handwashing! For allergy sufferers: Every new fabric smells, wash before its first usage!

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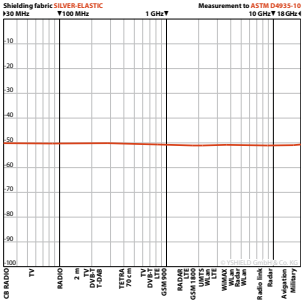
SILVER-ELASTIC - Shielding fabric (HF+LF)



Characteristics

SILVER-ELASTIC is a **compact, full silvered spandex fabric** for the shielding of high-frequency radiation (HF) and low-frequency electric fields (LF).

This fabric is elastic, to sew articles of clothing, please consider the **shrink** and **extensibility** rates at the „Technical data".

- **High screening attenuation, especially at high frequencies!**
- **Contactable (groundable) to shield LF electric fields**
- **Textile similar characteristics:** Washable, easy to process. Exception: Do not iron.
- **Quality grade: Very high**

Application

To sew articles of clothing. Due to the high elasticity perfect as close-fitting laundry. **Actually our best apparel fabric.**

Technical data

- **Width: 155 cm**, +/- 2 cm
- **Length: Available by the meter**
- **Shrink** after first wash: 0 % width, 0 % length
- **Extensibility**: 50 % width, 80 % length
- **Attenuation: 50 dB**
- Color: Silver
- **This silver-fabric can discolorate and has a limited durability, more under „Information silver-fabrics"**
- Raw materials: 80 % spandex, 20 % silver
- Weight: 130 g/m²
- Surface conductivity: 0.5 ohm (square resistance R☐)

Grounding

Due to the surface conductivity this fabric **can be grounded** to shield low frequency (LF) electric fields.

Screening attenuation

The screening attenuation is **regularly tested in our own EMC laboratory**. We have measurement setups due to the following standards: **ASTM D4935-10, IEEE Std 299-2006, IEEEE Std 1128-1998, ASTM A698/A698M-07**. Please find the test report at our homepage directly on the product page.

Care

30	Gentle cycle at 30°C
	No ironing
	No drying in tumble dryers
	No bleaching
	No chemical dry-cleaning

Cleaning with our special washing detergent **TEXCARE**. No handwashing! For allergy sufferers: Every new fabric smells, wash before its first usage!

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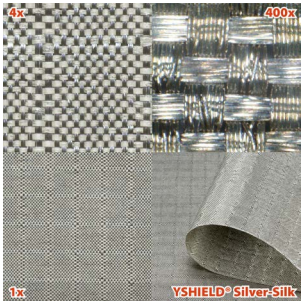
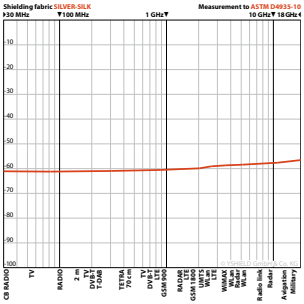
YSHIELD®

SILVER-SILK - Shielding fabric (HF+LF)





Characteristics

SILVER-SILK is a **fully silvered parachute silk / nylon fabric** for the shielding of high-frequency radiation (HF) and low-frequency electric fields (LF).

- **Very high screening attenuation**
- **Contactable (groundable) to shield LF electric fields**
- **Textile similar characteristics:** Washable, easy to process.
  Exception: Do not iron.
- **Quality grade: High**

Application

Preferable in **technical applications** to shield cables, **handy bags**, **room divider**, etc.. Due to the good washablity even sewable in the **inside of articles of clothing.**

Technical data

- **Width: 130 cm**, +/- 2 cm
- **Length: Available by the meter**, 100 meter rolls
- **Attenuation: 60 dB**, two-layer 76 dB
- Color: Silver
- **This silver-fabric can discolorate and has a limited durability, more under „Information silver-fabrics“**
- Raw materials: 80 % nylon, 20 % silver
- Weight: 45 g/m²
- Surface conductivity: 0.2 ohm (square resistance R☐)

Grounding

Due to the surface conductivity this fabric **can be grounded** to shield low frequency (LF) electric fields.

Screening attenuation

The screening attenuation is **regularly tested in our own EMC laboratory**. We have measurement setups due to the following standards: **ASTM D4935-10, IEEE Std 299-2006, IEEE Std 1128-1998, ASTM A698/A698M-07**. Please find the test report at our homepage directly on the product page.

Care

30	Gentle cycle at 30°C
	No ironing
	No drying in tumble dryers
	No bleaching
	No chemical dry-cleaning

Cleaning with our special washing detergent **TEXCARE**. No handwashing! For allergy sufferers: Every new fabric smells, wash before its first usage!

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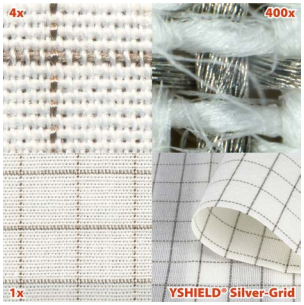
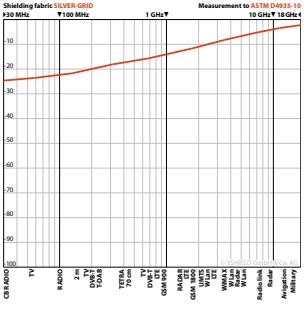
SILVER-GRID - Shielding fabric (LF)





Characteristics

SILVER-GRID is a **cotton fabric with a silver thread** for the shielding of low-frequency electric fields (LF).

Compared to a competitor product, SILVER-GRID has a tigher silver-mesh with a lower resistance for better grounding.

- **Contactable (groundable) to shield LF electric fields**
- **Textile characteristics:** Washable, easy to iron and process
- **Quality grade: Very high**

Application

The perfect fabric for groundable products, so-called "Earthing". For bedding, ticks, sheets, chair or floor underlays, etc.. With just 13 dB HF attenuation only limited suitable for HF shielding.

Technical data

- **Width: 150 cm**, +/- 2 cm
- **Length: Available by the meter**, 100 meter rolls
- **Attenuation LF: 40 dB**
- Attenuation HF: 13 dB
- Color: White
- Raw materials: 95 % cotton, 4 % polyester, 1 % silver
- Weight: 130 g/m²
- Conductivity: 15 ohm / 100 cm

Grounding

Due to the surface conductivity this fabric **can be grounded** to shield low frequency (LF) electric fields.

Screening attenuation

The screening attenuation is **regularly tested in our own EMC laboratory**. We have measurement setups due to the following standards: **ASTM D4935-10, IEEE Std 299-2006, IEEE Std 1128-1998, ASTM A698/A698M-07**. Please find the test report at our homepage directly on the product page.

Care

30	Gentle cycle at 30°C
	Iron without steam at degree 1
	No drying in tumble dryers
	No bleaching
	No chemical dry-cleaning

Cleaning with our special washing detergent **TEXCARE**. No handwashing! For allergy sufferers: Every new fabric smells, wash before its first usage!

TEXCARE - Washing detergents

Characteristics

Special washing detergents for the care of our shielding textiles with silver- and stainless steel threads.
The special recipes developed by us, preserves the shielding fabrics amd achieves the shielding attenuation on washing.
Perfect cleannes and hygiene yet at 30°C.

The only authorized washing detergents we can recommend for all our shielding fabrics.
Play it safe and use it!

Background

As we made extensive washing tests with many different laundry detergens, we found out that **some laundry detergents are bad for the shielding attenuation**. In addition we got many customers feedback, that e.g. soap nuts would cause smell with silver fabrics. **For this reasons we have developed laundry detergents together with a manufacturer of eco-detergents**, that will not react with our shielding fabrics anymore.

For allergy sufferers

TEXCARE detergents not only protect our shielding textiles and the environment: **They contain no fragrances, colouring agents, complexing agents, preservatives, enzymes, genetic engineering, petrochemicals, all ingredients are 100 % biodegradable**.

TEXCARE - Liquid detergent

OUR RECOMMENDATION

YSHIELD® Texcare

Yield / Dosage / Application

1 liter yield for 20 loads. The dosage is independent of the water hardness. Pour **50 ml TEXCARE per wash** in the detergent drawer or put it straight in the drum. Select delecates program with **washing at 30°C**. Please take a note on the care label of the fabric also, respective to ironing and drying! Tip: If you wish some „fresh" smell, just add some drops of an essential oil.

Ingredients

Soap from rapeseed oil 5-15 %, sugar surfactant 5-15 %, coconut oil alcohol sulphate 5-15 %, vegetable alcohol (ethanol) 1-5 %, sulphated castor oil < 1 %, citrate < 1 %, water up to 100 %.

EC 648/2004: Aqua, Potassium Soap, Alkylpoly-glucoside C8–16, Sodium C 8–14 Fatty Alcohol Sulfate, Alcohol, Sulfated Castor Oil, Potassium Citrate.

TEXCARE - Powder detergent

OUR RECOMMENDATION

YSHIELD® Texcare

Yield / Dosage / Application

1 kg yield for 20 loads. The dosage is independent of the water hardness. Pour **50 g TEXCARE per wash** in the detergent drawer or put it straight in the drum. Select delecates program with **washing at 30°C**. Please take a note on the care label of the fabric also, respective to ironing and drying! Tip: If you wish some „fresh" smell, just add some drops of an essential oil.

Ingredients

Zeolite 15–30 %, Soap from vegetable oils 15–30 %, Citrate 15–30 %, Sugar surfactants 5–15 %, Sodium carbonate 5–15 %, Silicates 1–5 %, Sodium bicarbonate 1–5 %, Organic Quillaja <1 %, Powder humidity 10–15 %.

EC 648/2004: Zeolite, sodium soap, sodium citrate, coco glucoside, sodium carbonate, sodium silicate, sodium bicarbonate, Quillaja saponaria.

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HAL - Silvered hook-and-loop fastener

Characteristics

For **sewing reclosable openings** in canopies, mobile pockets, shielding bags, EMC tents, intelligent clothing, etc.. Suitable for all shielding fabrics and nettings. Due to the **full silvering** the surface is consistently conductive with a good resistance even over the gap! Ideally, the fasteners are sewed up with our silvered sewing yarns. The reverse side is without any glue!

Technical data

- **Width:** 30 mm
- **Length:** Available by the meter, 25 meter rolls
- **Highest quality from Germany** due to the following certifications and approvals: ROHS, REACH, ISO 9001:2000
- Surface conductivity: 1.3 ohm (square resistance R☐)
- Material: Polyamid with a 99 % pure silver plating
- Durability: Approx. 5000 x opening and closing
- Temperature resistance: 90 °C

ZIP - Silvered zip fastener

Characteristics

For **sewing reclosable openings** in canopies, mobile pockets, shielding bags, EMC tents, intelligent clothing, etc.. Suitable for all shielding fabrics and nettings. Due to the **full silvering** the surface is consistently conductive with a good resistance even over the gap! Ideally, the zip fasteners are sewed up with our silvered sewing yarns.

There is no slider included. Please order suitable sliders. **Fulda** is a classical slider with one handle. **Werra** is a turn-over slider, the handle can be used on both sides. **Illner** has handles on both sides.

Technical data

- **Width:** 32 mm
- **Length:** Available by the meter
- **Highest quality from Germany** due to the following certifications and approvals: ROHS, REACH, ISO 9001:2000
- Surface conductivity: 1.3 ohm (square resistance R☐)
- Material: Polyamid with a 99 % pure silver plating
- Durability: Approx. 5000 x opening and closing
- Temperature resistance: 90 °C

Y300 - Silvered ply yarn

Characteristics

As a 2-ply yarn for sewing shielding fabrics and conductive nettings, if a high attenuation is needed between textile seams. Further to sew and embroider **functional textiles** (heatings, sensors), as antenna, conductor, etc. **We ourselves use this yarn** in a zigzag machine to sew on the hook-and-loop fastener HAL and sew in the zip fastener ZIP in all of our groundable textile products.

Technical data

- **Lenght: 14625 LM**
- **Cone: 23 cm**
- **dtex: 300 silvered**
- **Resistance: 200 Ohm/m**
- Tensile strenght: 34 cN / tex
- Beak elongation: 28 %
- Certifications and approvals: ROHS, REACH, ISO 9001:2000

Curtains - At no extra charge

Custom made curtains at no extra charge are especially popular among end customers. You only pay for the linear meters of the fabric! Per curtain we need and surcharge 15 cm seam. Retailers pay a small service charge, see pricelist.

Which service is for free?

1) Curtains with a **heading tape on top** and a **lead weight at the bottom**. 2) Curtains with a **drawstring on top** and a **lead weight at the bottom**. 3) Ideally, the curtains have a rectangular shape. However, we also try to sew other shapes or wishes (e.g. hook-and-loop fasteners) upon request without any extra charge! 4) Curtains with several loops are not free of charge. If you are interested, we would be pleased to make you an individual offer.

Fabric widths

Our shielding fabrics have widths from 130 cm to 260 cm. **We can use the width either as height or width of a curtain.** As regards width, about 8 cm will be lost due to the edging. About 15 cm will be lost in height and width. **Consequently, width and height of a fabric depend on the fabric width!** Example: If you want to cover an area of 400 cm (width) x 230 cm (height): 1) With Naturell you need 4.0 linear meters (LM) as the 250 cm of the Naturell are sufficient for the required height of 230 cm. 2) With Silver-Tulle you need 6.9 linear meters for 3 curtains. **If you need assistance in calculating the measures of your curtain(s), we will be pleased to help you!**

Front side / Back side

Some fabrics (e.g. Silver-Twin, Steel-Twin) have a light front side and a dark back side with metal threads. **By default, the light side faces the room.** Please let us know if you would like to hang the fabric the other way round.

Dimensions / Size accuracy

We understand your stated dimensions as final dimensions (sewed curtains incl. heading tape or drawstring, hemmed edges, etc.). If you wish **drapery you should add 20-50 %** for the width! For most fabrics we achieve a **size accuracy of +/- 2 cm**. Stretchy fabrics (e.g. Silver-Tulle, Perspective) are more difficult to sew, **size accuracy can be up to +/- 5 cm**!

Best possible shielding

As a general point, it should be noted that **shielding as such is more important than a perfect optic!** 1) Curtains must cover the complete window, window sill included. In front of doors they must contact the floor! Only in this way will it be possible to achieve a continous shielding as unshielded gaps will be covered also. 2) Always cover window apertures in such a way that the walls next to them are covered as well (20-40 cm). Only if the inner wall shielding (e.g. shielding paint) overlaps with the shielding fabric you will achieve a good result. 3) If possible, curtains are to be put up with only little distance to the wall. The larger the gap, the more electromagnetic radiation may get through it.

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Silver fabrics - Information

Discoloration

Fabrics with silver threads will discolor over time! Sometimes the fabrics are yet discolored, when we get it from the manufacturer. This process is absolutely normal for silver fabrics. The reasons for this are direct sunlight, heat from the radiator, splashes from the cleaning water, sweat, etc. **Stained places have no negative effects on the screening attenuation at all and they are no quality defect!** If you cannot accept any discolorations you should have a look at the list on page 1 and 2, where you will find various fabrics which are not subject to discolorations. The following are (admittedly extreme) examples of such discolorations:

Durability

Fabrics which consist of nonprotected silver threads (Silver-Tulle, Silver-Light, Silver-Twin, Silver-Elastic) **show a limited stability. The life period of those fabrics is depending on the frequency of movement.** Examples:

1) Washing: A regularly wash, at low temperature (30°C) and gentle cycle, using our washing detergent TEXCARE is without any problems for the fabrics. Please consider our washing test.

2) Curtains: Curtains made of silver fabrics will last for many years, as long as they are not drawned many times a day.

3) Canopies: Canopies will stay stable if they are not completely wrapped away daily, e.g. for fluffing up the feather beds. Used on daily journeys and being wrapped in a suitcase every day, your canopy will stay stable only for a few months. Alternative: Choose a canopy made of the fabric Voile, those canopies will stay stable at longest, as the silver threads are isolated and swathed. Use our blanket or a sleeping bag made of the fabric Steel-Gray for travelling.

4) Clothing: If you wear our hoodies/underpants made of Silver-Elastic once a week in case of emergency, they will stay stable for many years. If the hoodies/underpants are used as pajamas it is very likely, that caused through the sweat, the fabric is spoilt within a few months. Alternative: For permanent use we recommend a blanket or underwear made of the fabric Steel-Gray. Due to its stainless steel threads this fabric will last for a long time.

Nanosilver

More and more textiles for neurodermatitis, sports textiles, etc. contain nanosilver. Due to their size, these tiny silver nano particles can penetrate through the skin into each cell. The Federal Environment Agency warns about major knowledge gaps. **Thick layers of „metallic silver“ on the other hand is safe for the environment and human health. All our silver yarns and silvered textiles are coated with 99% „metallic silver“.** Even if particles should come off one day due to heavy use (e.g. clothing, bedding) they are far too big to penetrate through the skin!

Silver-Light
Hanging in the sun for some months

Silver-Net
Hanging in the sun for one year

Silver-Tulle
Lying on a heater for some months

Silver-Silk
Hanging in the sun for one year

Wash resistance - Information

Shielding fabrics loose their attenuation during washing and in case of movement. As there is still considerable misinformation on this, we publish here our **ninth washing test** (August 2016).

Washing and drying

We have washed all known fabrics on the market 50 times at 30°C. We did the test on two washing machines parallel (Bosch and Samsung) and averaged the results. We used our special detergent TEXCARE.

Measuring method

Measurement to standard **ASTM D4935-10**. The orange bar stands for the attenuation before washing in dB at 1 GHz. Each further bar stands for 10 wash cycles.

Conclusion

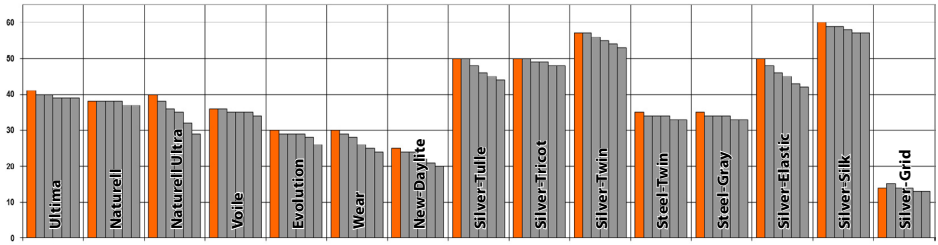
The good washing results of all our fabrics at 30°C are related to the fact, that we have removed all unstable fabrics from our product range over the years. The results with competitive fabrics (not in the diagram) are partly much worse.

For 60°C washing temperature we have 3 fabrics in our product range: Steel-Twin, Steel-Gray and Silver-Silk.

Washing tips

Washing detergent: In previous washing tests we tested different kinds of detergents (cheap, ecological, liquid, powder, etc.). Due to this detergent tests we only can recommend our own washing detergent TEXCARE, which is the only one to preserves all fabrics best!
Drying: The best way is to simply hang up the washing for drying. High temperatures in a dryer will destroy the fabrics. If you choose to use a dryer, you will have to keep the temperature low.
Ironing: It will be best to not iron the fabrics. If you must iron the fabric, as e.g. for Naturell which is wrinkling very much, always iron at low temperature, at degree 1, with less steam.

Result at 30°C



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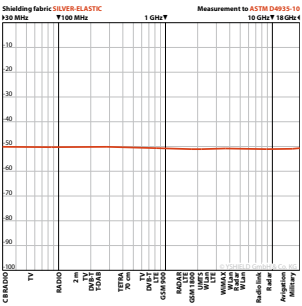
TKE - Headgear (HF)

OUR RECOMMENDATION

YSHIELD® TKE

YSHIELD® TKE



Characteristics

The modern alternative to a headscarf! This headgear (a fabric sleeve) can be worn in several ways: as a cap or as protection of nose, mouth and neck or for a complete protection of the head by using 2 pieces. Silver-Elastic is **very flexible** and perfectly adapting to the shape of the head. Due to the **high content of silver**, Silver-Elastic is **very durable** and has an excellent attenuation of 50 dB.

Technical data

- **Diameter 24 cm, lenght 40 cm**
- **Attenuation: 50 dB**
- Color: Silver
- **This silver-fabric can discolorate and has a limited durability, more under „Information silver-fabrics“**
- Raw materials: 80 % spandex, 20 % silver
- Surface conductivity: 0.5 ohm (square resistance R☐)

Screening attenuation

The screening attenuation is **regularly tested in our own EMC laboratory**. We have measurement setups due to the following standards: **ASTM D4935-10, IEEE Std 299-2006, IEEEE Std 1128-1998, ASTM A698/A698M-07**. Please find the test report at our homepage directly on the product page.

Care

30	Gentle cycle at 30°C
	No ironing
	No drying in tumble dryers
	No bleaching
	No chemical dry-cleaning

Cleaning with our special washing detergent **TEXCARE**. No handwashing! For allergy sufferers: Every new fabric smells, wash before its first usage!

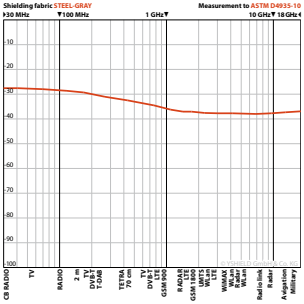
How to put on the headgear

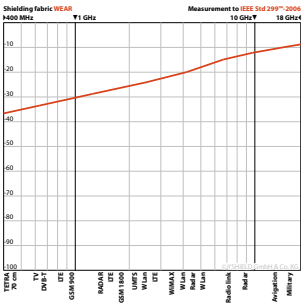
- A headgear is ususally worn as „pirate bandana“.
- Turn the inside out so that the seam is visible.
- Put the headgear on your head (middle image).
- Hold the underside of the headgear. Now take the upper side and pull it back over your head with your other hand. Finally, cover your head.

TKG, TKW - Headscarfs (HF)

YSHIELD® TKG

YSHIELD® TKW





Shielding **headscarfs from 2 fabrics in 2 shapes**. First-class workmanship and quality. **Three-cornered as typical headscarf (picture above), quadratic as Bandana (picture below).**

Characteristics Steel-Gray

Stable and long-lasting! Steel-Gray is **not so soft on the skin**. The stainless steel threads feels like a little scratchy woolen sweater, but as headscarf over the hairs this doesn't bother. Because of the electrically conductive surface on both sides, low-frequency fields will connect less and can be conducted away more easily. Many electrosensitive people give priority to fabrics that are groundable!

Characteristics Wear

Wear is the classical fabric of Swiss-Shield. **Very soft and comfortable against the skin**. Electrically non-conductive.

Technical data

- **Size three-cornered: 120 x 85 x 85 cm**
- **Size quadratic: 70 x 70 cm**

Steel-Gray:
- **Attenuation: 35 dB**
- **Raw materials**: 40 % cotton, 30 % polyester, 30 % stainless steel
- **Color:** Gray

Wear:
- **Wear attenuation: 30 dB**
- **Wear raw materials**: 90 % cotton, 9.5 % copper, 0.5 % silver
- **Color:** White

Screening attenuation

The screening attenuation is **regularly tested in our own EMC laboratory**. We have measurement setups due to the following standards: **ASTM D4935-10, IEEE Std 299-2006, IEEEE Std 1128-1998, ASTM A698/A698M-07**. Please find the test report at our homepage directly on the product page.

Care

30	Gentle cycle at 30°C
	Iron without steam at degree 1
	No drying in tumble dryers
	No bleaching
	No chemical dry-cleaning

Cleaning with our special washing detergent **TEXCARE**. No handwashing! For allergy sufferers: Every new fabric smells, wash before its first usage!

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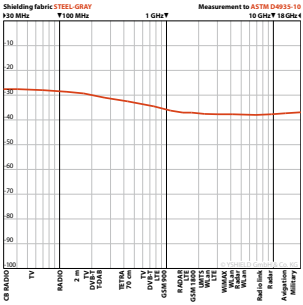
TDG - Blanket (HF)

YSHIELD® TDG

YSHIELD® TDG

YSHIELD® TDG



Characteristics

Shielding thin **blanket made from Steel-Gray** for the shielding of high-frequency radiation (HF) and low-frequency electric fields (LF).

Steel-Gray is a compact woven **cotton/polyester/ stainless-steel fabric.** Steel-Gray contains very fine stainless steel threads, that feels on the skin like a little scratchy woolen sweater. But on the couch with clothing or in the bed with a pyjama nothing scrathes.

Nevertheless we use this fabric, because its very wash-resistant and much more durable than all other fabrics!

Application

This blanket was created to protect yourself, easy and fast, on the **couch**, in the **bed**, on **holiday**, on **business trips** or while **playing console** games.

Technical data

- **Size: 200 cm x 140 cm**
- **Attenuation: 35 dB**
- Raw materials: 40 % cotton, 30 % polyester, 30 % stainless steel
- Color: Gray

Screening attenuation

The screening attenuation is **regularly tested in our own EMC laboratory**. We have measurement setups due to the following standards: **ASTM D4935-10, IEEE Std 299-2006, IEEE Std 1128-1998, ASTM A698/A698M-07**. Please find the test report at our homepage directly on the product page.

Care

30	Gentle cycle at 30°C
	Iron without steam at degree 1
	No drying in tumble dryers
	No bleaching
	No chemical dry-cleaning

Cleaning with our special washing detergent **TEXCARE**. No handwashing! For allergy sufferers: Every new fabric smells, wash before its first usage!

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YSHIELD®

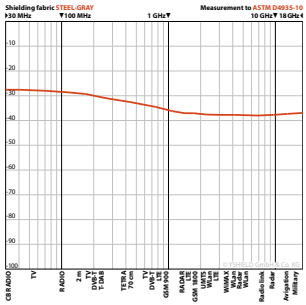
TSB - Sleeping bag (HF)

OUR RECOMMENDATION

YSHIELD® TSB

YSHIELD® TSB

YSHIELD® TSB



Characteristics

Shielding **sleeping bag made from Steel-Gray** for the shielding of high-frequency radiation (HF).

The **sleeping bag is sewn from Steel-Gray**. The zipper is collateral fitted at mid length and is silvered to provide an integrated shielding. The **inner cover, made of cotton fabric**, is removable and fixed with a hook and loop fastener. The inner cover will ensure your scratch free sleep, even without pajamas. If required the head area can be tightened with an elastic cord, so that only the face is uncovered. In comparison to common sleeping bags this shielding sleeping back is designed with generous measurements for a comfortable, permanent use.

The fabric **Steel-Gray** was chosen as it is, due to it´s stainless steel threats, **considerably durable and more stable** even with strong movement, than fabrics with silver threats would be. On the skin Steel-Gray feels a bit like a scratchy woolen sweater. Without inner cover or pajama on, this could bother you.

Application

This sleeping bag is a competitive alternative to canopies and perfect to be used for travelling.

Technical data

- **Size: Width 90 cm, lenght 220 cm**
- **Attenuation: 35 dB**
- Raw materials: 40 % cotton, 30 % polyester, 30 % stainless steel
- Color: Gray, white

Grounding

To shield low frequency electrical fields this sleeping bag could be grounded. You need: 1 x GS, 1 x GP, 1 x GC500.

Screening attenuation

The screening attenuation is **regularly tested in our own EMC laboratory**. We have measurement setups due to the following standards: **ASTM D4935-10, IEEE Std 299-2006, IEEEE Std 1128-1998, ASTM A698/A698M-07**. Please find the test report at our homepage directly on the product page.

Care

30	Gentle cycle at 30°C
	Iron without steam at degree 1
	No drying in tumble dryers
	No bleaching
	No chemical dry-cleaning

Cleaning with our special washing detergent **TEXCARE**. No handwashing! For allergy sufferers: Every new fabric smells, wash before its first usage!

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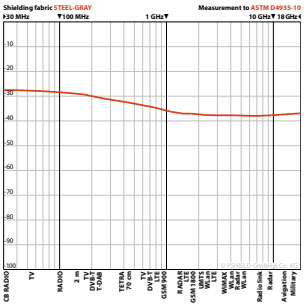
TBL - Bedding (HF)

YSHIELD® TBL

YSHIELD® TBL



Characteristics

Shielding **bedding made from Steel-Gray** for the shielding of high-frequency radiation (HF).

The bedding set includes a sheet and a duvet cover. The sheet is made of Steel-Gray and can be coverd with a common sheet if required. The duvet cover is sewed two-sided: With the Steel-Gray side (gray fabric) used downwards for a better shielding, as the shielding fabrics will lay on top of each other. With the cotton fabric side (white fabric) used downwards with a decreased shielding but less scratchy. The set is not including a pillow case, this is not necessary anyway because of the incluced sheet.

The fabric **Steel-Gray** was chosen as it is, due to it´s stainless steel threats, **considerably durable and more stable** even with strong movement, then fabrics with silver threats would be. On the skin Steel-Gray feels a bit like a scratchy woolen sweater. Without pajama on this could bother you.

Application

This bedding is a **cheap alternative to canopies**.

Technical data

- **Size sheet: 240 cm x 140 cm**
- **Size duvet cover: 200 cm x 135 cm**
- **Attenuation: 35 dB**
- Raw materials: 40 % cotton, 30 % polyester, 30 % stainless steel
- Color: Gray, white

Grounding

To shield low frequency electrical fields this bedding could be grounded. You need: 2 x GS, 1 x GP, 1 x GC100, 1x GC500. Because of the cables in your bed a grounding is not advised.

Screening attenuation

The screening attenuation is **regularly tested in our own EMC laboratory**. We have measurement setups due to the following standards: **ASTM D4935-10, IEEE Std 299-2006, IEEEE Std 1128-1998, ASTM A698/A698M-07**. Please find the test report at our homepage directly on the product page.

Care

30	Gentle cycle at 30°C
	Iron without steam at degree 1
	No drying in tumble dryers
	No bleaching
	No chemical dry-cleaning

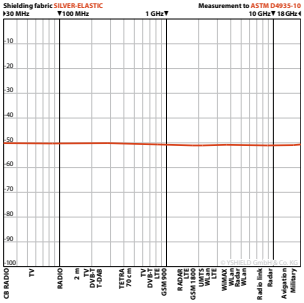
Cleaning with our special washing detergent **TEXCARE**. No handwashing! For allergy sufferers: Every new fabric smells, wash before its first usage!

TEO - Hoodie from Silver-Elastic (HF)

OUR RECOMMENDATION

YSHIELD® TEO

YSHIELD® TEO+TEU



HF and LF shielding **hooded long sleeve shirt**. To wear as **thin sweater** „on top", or directly on the skin as **pyjama top** together with our long underpants TEU (bottom picture). Top-quality individual pieces produced by us, no mass production!

Application

Perfect at home, on holiday or business trips!

Characteristics Silver-Elastic

- **Silver-Elastic is a very elastic fabric which fits each body shape easily.** Therefore it is not visible through outer clothing.
- Silver-Elastic has a **very high washability** without attenuation loss, see our „washing test" on the fabric pages.
- Despite the metal surface, Silver-Elastic is **soft and comfortable against the skin**.
- Unlike common fabrics whose main focus is to „look good", our hoodies contain a high content of an expensive silver thread. This thread gets discolored in the course of time, stripes or spots are no quality defect!
- Silver-Elastic is electrically conductive on both sides which is why low-frequency fields will connect less and can be conducted away more easily. Many electrosensitive people give priority to fabrics that are groundable!

Technical data

- **European sizes: S, M, L, XL, XXL**
- **Shielding attenuation: 50 dB**
- Color: Silver
- Raw materials: 80 % spandex, 20 % silver
- Weight: 130 g/m²
- Surface conductivity: 0.5 ohm (square resistance R☐)

Screening attenuation

The screening attenuation is **regularly tested in our own EMC laboratory**. We have measurement setups due to the following standards: **ASTM D4935-10, IEEE Std 299-2006, IEEEE Std 1128-1998, ASTM A698/A698M-07**. Please find the test report at our homepage directly on the product page

Care

30	Gentle cycle at 30°C
	No ironing
	No drying in tumble dryers
	No bleaching
	No chemical dry-cleaning

Cleaning with our special washing detergent **TEXCARE**. No handwashing! For allergy sufferers: Every new fabric smells, wash before its first usage!

Sizes

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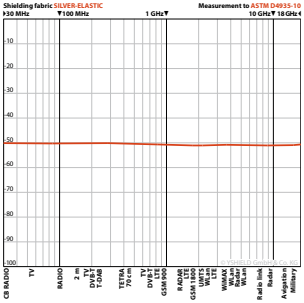
TEU - Underpants from Silver-Elastic (HF)

OUR RECOMMENDATION

YSHIELD® TEU

YSHIELD® TEO+TEU



HF and LF shielding **long underpants**. To wear as **thin underpants** under one´s other clothing, or as **pyjama** together with our hoodie TEO (bottom picture). Top-quality individual pieces produced by us, no mass production! Perfect at home, on holiday or business trips!

Application

Perfect at home, on holiday or business trips!

Characteristics Silver-Elastic

- **Silver-Elastic is a very elastic fabric which fits each body shape easily.** Therefore it is not visible through outer clothing.
- Silver-Elastic has a **very high washability** without attenuation loss, see our „washing test" on the fabric pages.
- Despite the metal surface, Silver-Elastic is **soft and comfortable against the skin**.
- Unlike common fabrics whose main focus is to „look good", our hoodies contain a high content of an expensive silver thread. This thread gets discolored in the course of time, stripes or spots are no quality defect!
- Silver-Elastic is electrically conductive on both sides which is why low-frequency fields will connect less and can be conducted away more easily. Many electrosensitive people give priority to fabrics that are groundable!

Technical data

- **European sizes: S, M, L, XL, XXL**
- **Shielding attenuation: 50 dB**
- Color: Silver
- Raw materials: 80 % spandex, 20 % silver
- Weight: 130 g/m²
- Surface conductivity: 0.5 ohm (square resistance R☐)

Screening attenuation

The screening attenuation is **regularly tested in our own EMC laboratory**. We have measurement setups due to the following standards: **ASTM D4935-10, IEEE Std 299-2006, IEEEE Std 1128-1998, ASTM A698/A698M-07**. Please find the test report at our homepage directly on the product page

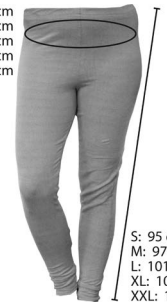
Care

30	Gentle cycle at 30°C
	No ironing
	No drying in tumble dryers
	No bleaching
	No chemical dry-cleaning

Cleaning with our special washing detergent **TEXCARE**. No handwashing! For allergy sufferers: Every new fabric smells, wash before its first usage!

Sizes

S: 52-70 cm
M: 55-83 cm
L: 63-84 cm
XL: 70-94 cm
XXL: 77-109 cm



S: 95 cm
M: 97 cm
L: 101 cm
XL: 107 cm
XXL: 111 cm

Earthing - Overview

Background

The latest US trend is the conjunction of the body with the earth, so called Earthing. We are a technical company and do not comment on health aspects, we suggest specialist literature by Clinton Ober, Stephen Sinatra or Martin Zucker, for information.

Fabric Silver-Grid

We use our fabric Silver-Grid. In comparison to competitive products this fabric provides a tighter silvernet with a lower resistance, which leads to a better earthing. Silver-Grid consists of **95 % unbleached cotton and 5 % silver-threat**.

Correct grounding

- **You will achieve the best and "most natural contact to earth" by inserting the grounding rod GR-40 into the ground, in front of your house.** Alternatively use a grounding plug GX for socket outlets.
- Rod or plug are connected with grounding cables GC. Most suitable for grounding plug GX are short cables e.g. GC-200 or GC-500. For exterior use with grounding rod GR-40 you will have to use 1–2 longer cables GC-1000 plus cable distributor GC-E.
- **Silvered hoop and loop fasteners are sewed onto all Earthing products.** For connecting cables GC with the hook and loop fastener, you will need the Velcro plate GV.
- Important: Under bad conditions electrical fields (bedside lamp, clock radio, etc.) will couple on and will worse the situation. **We recommend a measurement analysis with a LF-meter** (e.g. ME3030B).

Technical data

- **Color**: White with a silvery checked pattern
- **Raw materials**: 95 % cotton, 4 % polyester, 1 % silver
- **Weight**: 130 g/m²
- **Conductivity**: 15 Ohm / 100 cm

Care

30	Gentle cycle at 30°C
	Iron without steam at degree 1
	No drying in tumble dryers
	No bleaching
	No chemical dry-cleaning

Cleaning with our special washing detergent **TEXCARE**. No handwashing! For allergy sufferers: Every new fabric smells, wash before its first usage!

Earthing - Products

ES2 - Sheet single bed

YSHIELD® ES2

Sheet for single beds. The sheet is layed on the mattress, you sleep directly on it. **Size: 140 x 240 cm (55.1 x 94.5 inches).**

ES3 - Sheet double bed

YSHIELD® ES3

Sheet for double beds. The sheet is layed on the mattress, you sleep directly on it. Because of the 150 cm width fabric, there is a seam exactly in the middle. **Size: 240 x 240 cm (94.5 x 94.5 inches).**

ED1 - Duvet cover

YSHIELD® ED1

Duvet cover for normal size blankets. A zip fastener is sewed in at the bottom. **Size: 135 x 200 cm (53.1 x 78.7 inches).**

EP1 - Pillow cover normal

YSHIELD® EP1

Pillow cover for normal size pillows. A zip fastener is sewed in at the bottom. **Size: 80 x 80 cm (31.5 x 31.5 inches).**

EP2 - Pillow cover small

YSHIELD® EP2

Pillow cover for half size pillows. A zip fastener is sewed in at the bottom. **Size: 80 x 40 cm (31.5 x 15.7 inches).**

ESC - Sleeping cover

YSHIELD® ESC

Sleeping cover. Single layer sleeping bag with zip fastener, Sewed very generous. **Size: 90 x 200-240 cm (35.4 x 78.7-94.5 inches).**

ESB - Blanket

YSHIELD® ESB

Blanket. On the couch, in the bed, on holiday or on business trips. **Size: 140 x 200 cm (55.1 x 78.7 inches).**

EU1 - Sofa cushion big

YSHIELD® EU1

Sofa cushion big. With a Oeko-Tex® filling cushion made from 100 % cotton (cover) and dug/goose feathers (filling). **Size: 60 x 40 cm (23.6 x 15.7 inches).**

EU2 - Sofa cushion small

YSHIELD® EU2

Sofa cushion small. With a Oeko-Tex® filling cushion made from 100 % cotton (cover) and dug/goose feathers (filling). **Size: 40 x 40 cm (15.7 x 15.7 inches).**

EU3 - Seat cushion

YSHIELD® EU3

Seat cushion for chairs or couches. Filled with a 3 cm thick foam material. **Size: 45 x 45 cm (17.7 x 17.7 inches).**

Canopies - Overview

General properties

Shielding canopies provide a simple and low-cost method for a complete shielding of beds. We sew different models out of different fabrics. On the following pages you can find an overview. For shielding of below, we recommend our floor mats.

Floor mats

We also recommend shielding the canopies from below, to achieve a complete faraday cage. Our floor mats are layed under the bed, or better under a carpet. With the sewn in ground connection sockets, compatible to our grounding system, low-frequency electric fields (LF) can be shielded easily (e.g. from the ceiling lightning from below).

	Box shape double bed	Box shape single bed	Pyramidal single bed
Voile			
Naturell Ultra			
Silver-Tulle			
Silver-Tricot			
Naturell			
New-Daylite			

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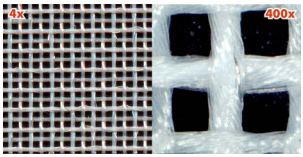
Canopies - Fabrics

Voile

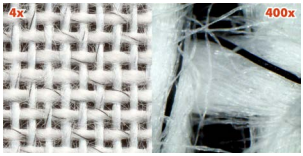
EX STOCK



Our favourite fabric from Swiss Shield® with good allround features, if you need a high attenuation! Good light- and air permeability, good look through, mechanically stable and crease resistant. Disadvantage: Anyway none! Attenuation **36 dB** at 1 GHz. Not groundable.

Naturell Ultra

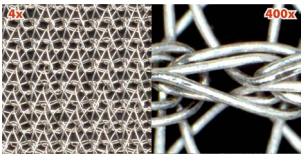
EX STOCK



The new groundable fabric from Swiss Shield® made from cotton. The only groundable fabric that does not change its color. Disadvantages: Limited air permeability, the high price. Attenuation **40 dB** at 1 GHz. **Groundable** with our grounding plate Velcro GV.

Silver-Tulle

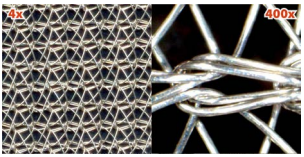
EX STOCK



Full silvered high-end fabric with a maximum high attenuation! Reasonable light- and air permeability, mechanically stable, crease resistant. Very high washing restistance. Disadvantage: Due to the 20 % silver content only the price. Attenuation **50 dB** at 1 GHz. **Groundable** with our grounding plate Velcro GV.

Silver-Tricot

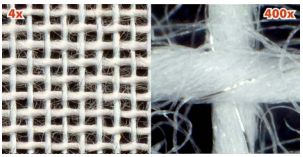
EX STOCK



Full silvered high-end fabric with a high attenuation! Certified to OEKO-TEX 100, class 1. Reasonable light- and air permeability, crease resistant. Very high washing restistance. Disadvantage: With only 30 g/m² more sensitive than Silver-Tulle. Attenuation **50 dB** at 1 GHz. **Groundable** with our grounding plate Velcro GV.

Naturell

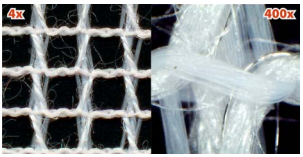
UPON REQUEST



Our classic fabric from Swiss Shield® made from ecological cotton with high attenuation. Acceptable light- and air permeability. Disadvantage: Like other cotton fabrics not crease resistant after washing. Attenuation **38 dB** at 1 GHz. Not groundable.

New-Daylite

UPON REQUEST



Our classic fabric from Swiss Shield® with good allround features! High light- and air permeability, mechanically stable, crease resistant. Disadvantage: Due to the mesh width only limited attenuation at high frequencies. Attenuation **25 dB** at 1 GHz. Not groundable.

Canopies - Models

Box shape - double bed

This box shaped canopy offers a **spacious ambience**. For double beds up to 220 cm width. Bed-making is easily possible without lifting the canopy away.

- **Width: 220 cm, depth: 220 cm, height: 220 cm** (All sizes depending on the fabric with +/- 10 % tolerance)
- **Entries:** Two overlapping openings
- **Mounting:** By four points on the ceiling. Any kinds of bars (not included in delivery) can be inserted into the sewed fabric tunnel to stabilize the canopy installation.
- **Scope of supply:** Canopy, mounting accessories

Box shape - single bed

This box shaped canopy offers a **spacious ambience**. For single beds up to 120 cm width. Bed-making is easily possible without lifting the canopy away.

- **Width: 120 cm, depth: 220 cm, height: 220 cm** (All sizes depending on the fabric with +/- 10 % tolerance)
- **Entry:** One overlapping opening
- **Mounting:** By four points on the ceiling. Any kinds of bars (not included in delivery) can be inserted into the sewed fabric tunnel to stabilize the canopy installation.
- **Scope of supply:** Canopy, mounting accessories

Pyramidal shape - single bed

This paramidal shape canopy is desirable, if you need **fast mounting** or if you have a **roof pitch**. Only suitable for single beds up to 100 cm width, since otherwise the slope gets too big. Disadvantage: Offers only limited free space and you have to lift the canopy away for bed-making.

- **Bottom circumference: 1150 cm, height: 240 cm** (All sizes depending on the fabric with +/- 10 % tolerance)
- **Entry:** Through the overlapping opening
- **Mounting:** By one point on the ceiling
- **Scope of supply:** Canopy, mounting accessories, 100 cm ring

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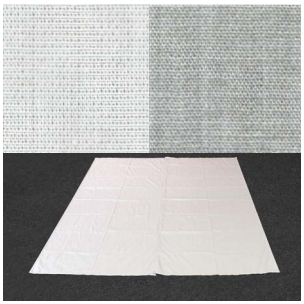
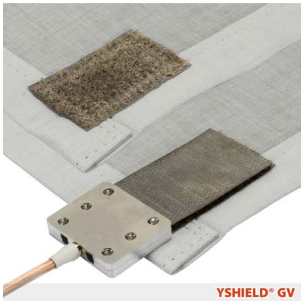
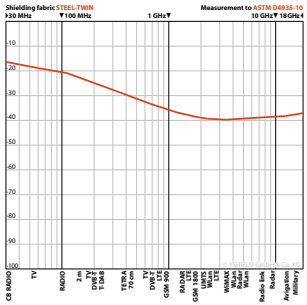
U1S/U2S - Floor mats







With **35 dB attenuation** optimal for all canopies made from NEW-DAYLITE, EVO-ULTRA, VOILE, NATURELL.

Made from our shielding fabric STEEL-TWIN. The stainless-steel-side should face towards the floor, the white cotton-side upwards.

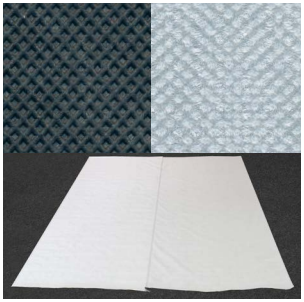
Directly layed under the canopy, the sewed edges would be too thick under a carpet.

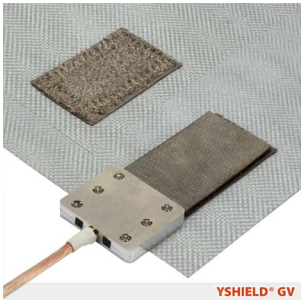
Technical data

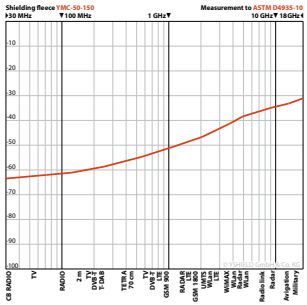
- **Attenuation: 35 dB**
- **Size single bed (U1S):** Width 140 cm, length: 250 cm
- **Size double bed (U2S):** Width 270 cm, length: 250 cm
- **Scope of supply single bed (U1S): 1 sheet Steel-Twin.** Grounding: 1 plate GV, 1 cable GC500, 1 plug GD have to be ordered seperately.
- **Scope of supply double bed (U2S): 2 sheets Steel-Twin.** The two sheets are layed 10 cm overlapping. Grounding: 2 plates GV, 2 cables GC20/GC500, 1 plug GD have to be ordered seperately.
- With sewed on Velcro-areas for our grounding plate GV.

U1M/U2M - Floor mats

OUR RECOMMENDATION







With **50 dB attenuation** optimal for canopies made from SILVER-TULLE, SILVER-TRICOT but also for all other fabrics.

Made from our fleece YMC-50-150. Basis is a stable PP-fleece, on one side coated with zinc.

The sheets with 0.5 mm are very flat and are not sewed at the edges. The black fleece-side must always face towards the floor, the silvery metal-side would scratch the floor. Place over it a carpet or a material of your choice. This floor mat is bigger than the one made from Steel-Twin, and therefore offers more reserve space, if the canopy is not hanging straight down. **Our price/value recommendation!**

Technical data

- **Attenuation: 50 dB**
- **Size single bed (U1M):** Width 150 cm, length: 290 cm
- **Size double bed (U2M):** Width 290 cm, length: 290 cm
- **Scope of supply single bed (U1M): 1 sheet YMC-50-150.** Grounding: 1 plate GV, 1 cable GC500, 1 plug GD have to be ordered seperately.
- **Scope of supply double bed (U2M): 2 sheets YMC-50-150.** The two sheets are layed 10 cm overlapping. Grounding: 2 plates GV, 2 cables GC20/GC500, 1 plug GD have to be ordered seperately.
- With sewed on Velcro-areas for our grounding plate GV.

Functional equipotential bonding (FEB)

Large shielding measures with shielding materials are no electrical equipment but „new conductive parts" according to IEV 826-03-03 or IEV 195-06-11 and thereby a new method of DIN VDE 0100-100:2009-06. By connecting the material(s) to the potential equalization they are inherent part of the electrical system. Generally accepted rules of technology have to be respected.

The state of the technology differentiates between protective equipotential bonding and functional equipotential bonding (FEB). The protective equipotential bonding (green/yellow cable) is a protective measure and ensures that , in the event of a fault, sufficient fault current flows to operate the disconnection device (e.g. line circuit breaker). **The functional equipotential bonding (transparent cable) has the function to „reduce the emission of low-frequency electrical fields", i.e. prevents from leaking electrical field.**

- **Grounding/earthing measures are only permitted in TN-S, TT and IT networks. Grounding measures must never be executed in network forms with combined PEN-wiring!**
- **A leakage/fault circuit breaker with ≤ 30 mA must be installed!**
- **DIN EN 62305-3 (VDE 185-305-3:2006-10) applies to buildings with outer lightning protection system.**

Proper grounding sequence

1 The FEB-balancing circuit has to be connected **directly to the FEB-busbar with a 4 mm² cable** in the electric circuit distributor (fuse box).

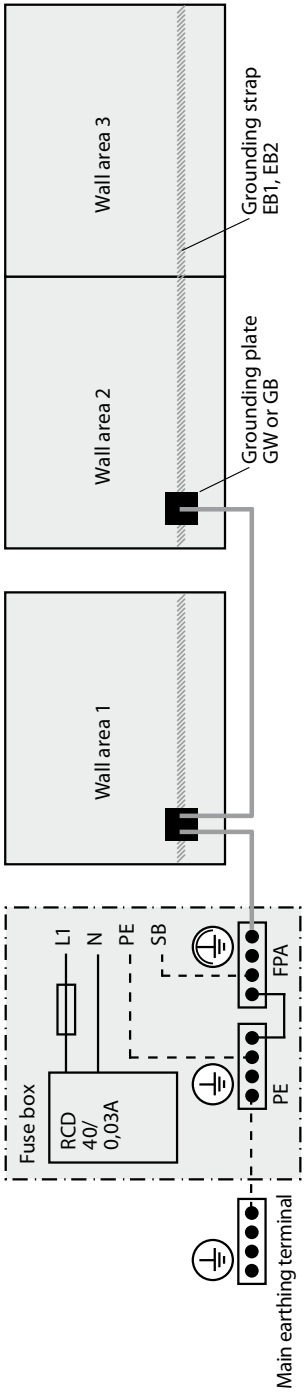
2 In exceptional cases, the FEB-balancing circuit can be connected to a „**suitable protective earth conductor or balancing line**". This exemption clause is important to make earthing possible without the need for making modifications to the fuse box.

3 Grounding with a **2,5 mm² cable at a protective conductor** in the electric installation.

4 Grounding with our **grounding plug GP** by screwing in the power socket. Our grounding plug must be installed by a licenced electrician!

5 Metallic pipe systems or detached grounding rods which are not included in the potential equalization of the building are of limited suitability. It is nevertheless possible to use them in network forms with combined PEN-wiring. Please be sure to follow all local laws and standards.

Installation of a functional equipotential bonding is as follows:



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New grounding components

YSHIELD® GW

What is new?

Covering caps: White covering caps have been added to many new grounding plates. The covers are looking better and serve as protection against an accidential unplug of the cables.

Improved connectors: The new 4mm gold plugs are fixed very firm and contact safe in the tight 3.8 mm connectors.

Flat design: Instead the previous height of 14 mm the new grounding plates are 6 mm high only and with the covering caps 8 mm only.

GW - Grounding plate Wall

YSHIELD® GW

Grounding plate for shielding paints, nettings, fleeces, etc. for interior use. Quadratic design for mounting next to an electrical outlet.

Per serie of connected areas there is one GW required.
3 connection sockets.

Scope of delivery

Grounding plate 75 x 75 x 6 mm, covering cap 80 x 80 x 8 mm, 4 screws, 4 dowels, 3 solder plugs; Cable is not included, we recommend our pre-assembled cables GC.

GB - Grounding plate Baseboard

YSHIELD® GB

Grounding plate for shielding paints, nettings, fleeces, etc. for interior use. Slim design for mounting in the baseboard area.

Per serie of connected areas there is one GB required.
4 connection sockets.

Scope of delivery

Grounding plate 150 x 30 x 6 mm, covering cap 155 x 35 x 8 mm, 3 screws, 3 dowels, 4 solder plugs; Cable is not included, we recommend our pre-assembled cables GC.

GE - Grounding plate Exterior

YSHIELD® GE

Grounding plate for shielding paints for exterior use. The cover cap is glued waterproof on the underground.

Per serie of connected areas there are two GE required.
1 connection point for cables up to 6 mm².

Scope of delivery

Grounding plate 75 x 75 x 6 mm, covering cap 85 x 85 x 8 mm, seal adhesive, 4 screws, 4 dowels, 1 cable lug, cable is not included.

GT - Grounding plate Tube

YSHIELD® GT

Grounding plate for earthed installations (e.g. heating tubes).

Stable construction compared with strip earth bands. 3 connection sockets.

Scope of delivery

Grounding plate 80 x 46 x 6 mm, covering cap 85 x 60 x 8 mm, 2 worm drive clamps 12 to 25 mm, 3 solder plugs; Cable is not included, we recommend our pre-assembled cables GC.

GM - Grounding plate Magnet

YSHIELD® GM

Grounding plate for canopies, fabrics, fleeces, nettings, etc. The both plates are bound together from two strong magnets.

You dont need a hole in the material, if you tripping on the cable thin fabrics like Silver-Tulle dont tear. 4 connection sockets.

Scope of delivery

2 grounding plates 28 x 28 x 6/3 mm, 4 solder plugs; Cable is not included, we recommend our pre-assembled cables GC.

GS - Grounding plate Screw

YSHIELD® GS

Grounding plate for canopies, fabrics, fleeces, nettings, etc. The both plates are screwed together.

On this you have to make a hole in the material. 4 connection sockets.

Scope of delivery

2 grounding plates 28 x 28 x 6/3 mm, 4 solder plugs; Cable is not included, we recommend our pre-assembled cables GC.

GV - Grounding plate Velcro

YSHIELD® GV

Grounding plate with a silvered Velcro fastener "hook".

All our groundable products (canopied, floor mats, blanket, sleeping bag, bedding, etc.) have stiched on 2-4 pieces of a silvered Velcro fastener "loop". Press GV on it, ready. 3 connection sockets.

Scope of delivery

Grounding plate 34 x 28 mm with 5 cm silvered Velcro fastener „hook", 3 solder plugs. Cable is not included, we recommend our pre-assembled cables GC.

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GP - Grounding plug

YSHIELD® GP

Grounding plug for CEE-7/4 and CEE-7/7 socket-outlets. For German and French Schuko systems.

The plug can just be loose pushed in, but should be better screwed together with the socket cover. 4 connection sockets.

Scope of delivery

Grounding plug 38 x 26 mm, covering cap 55 x 42 x 8 mm, 2 screws for standard socket outlets, 4 solder plugs; Cable is not included, we recommend our pre-assembled cables GC.

GD - Grounding plug

YSHIELD® GD

Grounding plug for CEE-7/4 and CEE-7/7 socket-outlets. For German and French Schuko systems.

The plug becomes mechanically fixed due to the locking latch and can thus only be removed by using a screwdriver.

Scope of delivery

Grounding plug with CEE-plug and 4 mm plug, cable lenght 5 m;

GC - Grounding cables

YSHIELD® GC-500

Grounding cables to connect our grounding components.

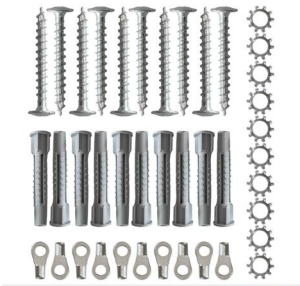
With soldered 4 mm gold plugs on both sides. This cables provide a protection against unplugging together with the cover caps.

Scope of delivery

Cable 2.5 mm transparent, highly flexible; Available lengths:

- GC-20 (20 cm)
- GC-100 (1 m)
- GC-200 (2 m)
- GC-500 (5 m)
- GC-1000 (10 m)

MCL - Grounding set



YSHIELD® MCL

YSHIELD® MCL

Grounding set for our magnetic shielding film MCL61. The MCL61 surface is electrically insulated. Whilst screwing down the cable lug, the chopper disks will perforate the polyester film and arrange electrical contact thereby.

Scope of delivery

10 x screw, 10 x dowel, 10 x chopper disk, 10 x cable lug 1.5-2.5 mm^2

EB1 - Grounding strap

YSHIELD® EB1

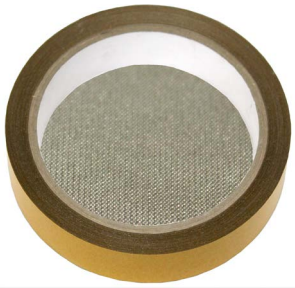
Self-adhesive grounding strap with conductive glue for application under and over nettings, fleeces.

On basis of our fleece HNV80. To electrically connect the limited width of the materials. The strap sticks relatively poor on difficult undergrounds (e.g. plasterboards), they have to be pretreated with a primer.

Technical data

- Adhesive force 3 N/cm
- Self-adhesive
- Corrosion resistant
- Width 2 cm
- Thickness 0.1 mm
- Length 10 m

EB2 - Grounding strap



YSHIELD® EB2

Self-adhesive grounding strap with non-conductive glue for application under shielding paints.

On basis of our netting HNG80. To bridge cracks in the underground. The strap sticks very well even on difficult undergrounds when painting over.

Technical data

- Adhesive force 10 N/cm
- Self-adhesive
- Corrosion resistant
- Width 2 cm
- Thickness 0.2 mm
- Length 10 m

EB3 - Grounding strap

YSHIELD® EB3

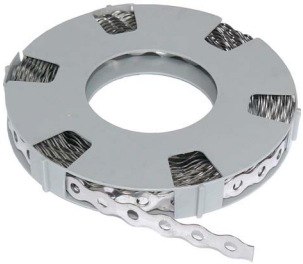
Self-adhesive fleece with conductive glue. Identical with EB1, but width of 10 cm.

Application like grounding straps EB1 or EB2 if a higher discharge capacity is needed, or as self-adhesive fleece for small-area shielding of slots, nothches, openings, cables, etc.. On basis of our fleece HNV80 with 80 dB, see the corresponding catalog page!

Technical data

- Adhesive force 3 N/cm
- Self-adhesive
- Corrosion resistant
- Width 10 cm
- Thickness 0.15 mm
- Length: by the linear meter

ELB - Perforated stainless steel tape



YSHIELD® ELB

Grounding tape for stainless steel gauzes under plaster or at drywall constructions.

To connect the single elements, this steel tape is fixed often as possible across the single elements on the underground, especially on the overlapping locations.

Technical data

- Resistant to corrosion
- Delivered in a convenient unwinding box
- Length 10 m
- Width 1.4 cm
- Thickness 0.7 mm
- Hole spacing 16 mm
- Hole diameter 6 mm;

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GR-40 - Grounding rod

YSHIELD® GR-40

Stainless steel grounding rod 40 cm for groundable fabric products.

This grounding rod is suitable for portable products (canopies Bxx, earthing-products Exx, etc.). It is not allowed to ground stationary shielding products (paints, nettings, fleeces, wallpapers, etc.) with this plugs.

We recommend this grounding rod especially for our earthing-products Exx.

Therewith you achieve a more real and natural earth contact.

Scope of delivery

Stainless steel rod 40 cm with connection plate, heat shrink tubing with a glue inside to seal the connections waterproof after mounting; Cable is not included, we recommend our pre-assembled cable GC-1000 (10 meters).

GR-50, GR-100 - Grounding rods

YSHIELD® GR-xxx

Stainless steel grounding rod to connect other grounding components.

In many countries without the network types TT or TNS a ground connection is hardly possible. This rod is hammered in the grounding earth outside a house. Stainless steel rod (t-form) in 2 lengths: GR-50 with a length of 50 cm (only recommended for mobile applications) and GR-100 with a length of 100 cm (for permanent mounting). 2 connection points (socket for cables GC, M6 screw for own grounding cables).

Scope of delivery

Stainless steel rod, heat shrink tubing with a glue inside to seal the connections waterproof after mounting, cable lug; Cable is not included, we recommend our pre-assembled cables GC.

GX - Grounding plugs

OUR RECOMMENDATION

YSHIELD® GX + GC + GV

Grounding plugs for groundable fabric products like earthing-products, canopies, sleeping bag, bedding, etc.

This plugs are suitable for portable products (canopies Bxx, earthing-products Exx, etc.). It is not allowed to ground stationary shielding products (paints, nettings, fleeces, wallpapers, etc.) with this plugs.

Subsequent you find the corresponding plug types for all countries. Please consider that in many countries some types are used simultaneously. If you are not sure, we recommend our set GX-W with all plug types and an adapter.

GX-W (Set for all countries)

Set with a basis and eight plug-on adapters:
Type B, D, EF, G, I, J, L, M.

GX-B (Type B, NEMA-5)

American Samoa, Antigua and Barbuda, Aruba, Bahamas, Barbados, Belize, Bermuda, British Virgin Islands, **Canada**, Cayman Islands, Colombia, Costa Rica, Cuba, Curaçao, Dominican Republic, Ecuador, El Salvador, French Polynesia, Guam, Guatemala, Guyana, Haiti, Honduras, Jamaica, **Japan**, Jordan, Lebanon, Liberia, Mexico, Micronesia, Montserrat, Nicaragua, Niger, Palau, Panama, Peru, Philippines, Puerto Rico, **Saudi Arabia**, **Taiwan**, Thailand, Trinidad &

Tobago, Turkmenistan, **United States**, Venezuela.

GX-D (Type D, IA6A3)

Bangladesh, Bhutan, Botswana, Chad, Congo, Dominica, French Guiana, Ghana, Guadeloupe, Guyana, **India**, Iraq, Jordan, Lebanon, Libya, Macau, Madagascar, Maldives, Martinique, **Monaco**, Myanmar, Namibia, Nepal, Niger, Nigeria, Pakistan, Qatar, Senegal, Sierra Leone, Sri Lanka, Sudan, Tanzania, **United Arab Emirates**, Yemen, Zambia, Zimbabwe.

GX-EF (Type EF, CEE 7/7)

Afghanistan, Albania, Algeria, American Samoa, Andorra, Armenia, Aruba, **Austria**, Azerbaijan, Belarus, **Belgium**, Benin, Bhutan, Bosnia and Herzegovina, **Bulgaria**, Burkina Faso, Burundi, Cameroon, Cape Verde, Chad, Comoros, Congo, **Croatia**, **Czech Republic**, **Denmark**, Djibouti, Egypt, Equatorial Guinea, **Estonia**, Ethiopia, **Finland**, **France**, French Guiana, French Polynesia, Georgia, **Germany**, **Greece**, Greenland, Guadeloupe, Guinea, **Hungary**, Iceland, Indonesia, Iran, **Italy**, Jordan, Kazakhstan, Kosovo, Kyrgyzstan, Laos, Latvia, Liberia, Libya, Lithuania, Luxembourg, Macau, Macedonia, Madagascar, Mali, Martinique, Moldova, **Monaco**, Mongolia, Montenegro, Morocco, Mozambique, Myanmar, **Netherlands**, New Caledonia, Niger, North Korea, **Norway**, Portugal, Romania, **Russia**, Senegal, Serbia, Slovakia, Slovenia, South Africa, South Korea, **Spain**, Suriname, Sweden, Syria, Tajikistan, Thailand, Tunisia, Turkey, Turkmenistan, Ukraine, Uruguay.

GX-G (Type G, BS 1363)

Bahrain, Bangladesh, Belize, Bhutan, Botswana, Brunei, Cyprus, Dominica, Falkland Islands, Gambia, Ghana, Gibraltar, Grenada, Guernsey, Guyana, **Hong Kong**, Indonesia, Iraq, Ireland, Isle of Man, Jersey, Jordan, Kenya, Kuwait, Lebanon, Macau, Malawi, Malaysia, Maldives, Malta, Mauritius, Myanmar, Nigeria, Oman, Pakistan, Qatar, **Saudi Arabia**, Seychelles, Sierra Leone, Singapore, Solomon Islands, Sri Lanka, Tanzania, Uganda, **United Arab Emirates**, **United Kingdom**, Vanuatu, Vietnam, Yemen, Zambia, Zimbabwe.

GX-I (Type I, AS/NZS 3112, GB 1002, IRAM 2073)

American Samoa, **Australia**, **China**, Cook Islands, Fiji, Kiribati, Nauru, New Zealand, Papua New Guinea, Samoa, Solomon Islands, Tajikistan, Tonga, Tuvalu, Uruguay, Vanuatu.

GX-J (Type J, SEV 1011)

Jordan, Liechtenstein, Madagascar, Maldives, Rwanda, **Switzerland**.

GX-L (Type L, CEI 23-50)

Chile, Eritrea, Ethiopia, **Italy**, Libya, Maldives, San Marino, Syria, Uruguay.

GX-M (Type M, BS 546)

Bhutan, Botswana, **India**, **Israel**, Lesotho, Macau, Malaysia, Mozambique, Namibia, Nepal, Pakistan, South Africa, Sri Lanka, Swaziland.

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Measurement technique - We have the overall view

Customers with installed room shielding should verify the existing pollution in regular intervals anyway! New installed mobile phone base stations or new equipment in your house could belatedly change the load situation.

We have a good overview of all analyzers on the market and keep all relevant devices available, for tests at our site.

Tests show, how unbelievable strong the results of the analyzers differ, regarding test **reading, accuracy, quality and handling**. If one for example tries to measure a cordless phone under defined terms, one will obtain measurements between 0.0 µW/m² and 3000 µW/m². The accurate value, as measured with a spectrum analyzer, is 100 µW/m². **Devices from Gigahertz Solutions show the most accurate results when averaged by several sources**. This is why we favour to sell those devices.

Meters - Various manufacturers

Beyond Gigahertz-Solutions, there are particular **devices of other producers with special features**: Either they are very small and used e.g. for travelling, very low priced referring to a frequenccy of 8 GHz or they join EMF and RF measuring functions.

TM-190 - Meter (HF+LF)

TM-190 (YSHIELD® Edition)

Basic device for the measurement of high frequency electromagnetic fields (RF) in a frequency range of 50 MHz - 3.5 GHz and low frequency electric and magnetic fields (EMF) at 50-60 Hz. **Not recommended for electrosensitive persons, the sensitivity starts not until 30 µW/m²**. From our professional view not a real "measurement" device, because its limited accuracy and sensitivity. However this cheap device is anyhow cool and small enough for every baggage.

Important

There is only an english manual available. Don´t buy this device if you cannot understand and accept an english manual. **Item location Germany**. Inside the EU you dont have to pay customs duties or taxes.

Technical data

- Electromagnetic fields (HF) from 50 MHz bis 3.5 GHz
- Low-frequency electrical fields (LF) from 50-60 Hz
- Low-frequency magnetic fields (NF) from 50-60 Hz
- Displayable units for magnetic fields: mG und µT
- Displayable units for electrical fields: V/m
- Displayable units for electromagnetic fields: µW/m² - mW/m², µW/cm² - mW/cm², mV/m - V/m, dBm
- Battery: 3 x 1.5V AAA, 8 hours battery life time
- Size: 11.5 x 6 x 2.1 cm
- Weight: 120 g
- Scope of delivery: Meter TM-190, batteries, english manual

TM-195 - Meter (HF)

TM-195 (YSHIELD® Edition)

Basic device for the measurement of high frequency electromagnetic fields (RF) in a frequency range of 50 MHz - 3.5 GHz. **Not recommended for electrosensitive persons, the sensitivity starts not until at 10 µW/m²**. However a cheap alternative for little money.

Important

There is only an english manual available. Don´t buy this device if you cannot understand and accept an english manual. **Item location Germany**. Inside the EU you dont have to pay customs duties or taxes.

Technical data

- Frequency range: 50 MHz - 3.5 GHz
- Sensitivity: 4 µW/m² - 600,000 µW/m²
- Units: mV/m, V/m, µA/m, mA/m, µW/m2, mW/m2, µW/cm2
- Triple axis antenna (X, Y, Z)
- Data logger up to 200 samples
- Calibration factor
- Battery: 9 V, 10-15 hours runtime
- Dimensions: 6 x 6 x 19.5 cm
- Weight: 200 g
- Scope of delivery: Meter TM-195, battery 9 V, english manual, carrying bag

TM-196 - Meter (HF)

TM-196 (YSHIELD® Edition)

Basic device for the measurement of high frequency electromagnetic fields (RF) with an extra wide frequency range from 10 MHz - 8 GHz. **Not recommended for electrosensitive persons, the sensitivity starts not until at 10 µW/m²**. However a cheap alternative for 8 GHz.

Important

There is only an english manual available. Don´t buy this device if you cannot understand and accept an english manual. **Item location Germany**. Inside the EU you dont have to pay customs duties or taxes.

Technical data

- Frequency range: 10 MHz - 8 GHz
- Sensitivity: 4 µW/m² - 300,000 µW/m²
- Units: mV/m, V/m, µA/m, mA/m, µW/m2, mW/m2, µW/cm2
- Triple axis antenna (X, Y, Z)
- Data logger up to 200 samples
- Calibration factor
- Battery: 9 V, 10-15 hours runtime
- Dimensions: 7,7 x 8 x 38 cm
- Weight: 180 g
- Scope of delivery: Meter TM-196, battery 9 V, english manual, carrying case

ESI 24 - Indicator (HF+LF)

ESI 24 (YSHIELD® Edition)

Elementary analyzer for the use by laymen, to provide a **quick overview of the load situation**. Concrete measured values wont be displayed, the measurements are inticated with **LEDs in ample colors corresponding to the standard of building biology**.

ESI 24: The top-device of the series for HF+LF. During standard mode, the 3 types of fields (electric fields, magnetic fields, electromagnetic fields) are indicated with each 6 LEDs. Whilst using the high-definiton mode for high-frequency fields, all 18 LEDs will be available for a particularized display.

Technical data

- Low-frequency electrical fields (LF) from 16 Hz to 3 kHz
- Low-frequency magnetic fields (NF) from 16 Hz to 3 kHz
- Electromagnetic fields (HF) from 50 MHz to 10 GHz
- Operating modes: Standard mode, high resolution mode HF, location mode, hold mode
- Power supply: 9 V battery
- Operating time: 10 to 15 hours with a 9 V battery
- Size: 140 x 63 x 30 mm
- Scope of delivery: Detector, battery, operating manuals in German and English.

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Phone: 0049-8531-31713-0, Email: info@yshield.com, Web: www.yshield.com

ESI 23 - Indicator (HF+LF)

ESI 23 (YSHIELD® Edition)

Elementary analyzer for the use by laymen, to provide a **quick overview of the load situation**. Concrete measured values wont be displayed, the measurements are inticated with **LEDs in ample colors corresponding to the standard of building biology**.

ESI 23: The cheapest device of the series for HF+LF. The 3 types of fields (electric fields, magnetic fields, electromagnetic fields) are indicated with each 5 LEDs.

Technical data

- Low-frequency electrical fields (LF) from 16 Hz to 3 kHz
- Low-frequency magnetic fields (NF) from 16 Hz to 3 kHz
- Electromagnetic fields (HF) from 50 MHz to 6 GHz
- Operating mode: Standard.
- Power supply: 9 V battery
- Operating time: 10 to 15 hours with a 9 V battery
- Size: 140 x 63 x 30 mm
- Scope of delivery: Detector, battery, operating manuals in German and English.

ESI 22 - Indicator (LF)

ESI 22 (YSHIELD® Edition)

Elementary analyzer for the use by laymen, to provide a **quick overview of the load situation**. Concrete measured values wont be displayed, the measurements are inticated with **LEDs in ample colors corresponding to the standard of building biology**.

ESI 22: Cheap device for LF only. The 2 types of fields (electric fields, magnetic fields) are indicated with each 5 LEDs.

Technical data

- Low-frequency electrical fields (LF) from 16 Hz to 3 kHz
- Low-frequency magnetic fields (NF) from 16 Hz to 3 kHz
- Operating mode: Standard.
- Power supply: 9 V battery
- Operating time: 10 to 15 hours with a 9 V battery
- Size: 140 x 63 x 30 mm
- Scope of delivery: Detector, battery, operating manuals in German and English.

ESI 21 - Indicator (HF)

ESI 23 (YSHIELD® Edition)

Elementary analyzer for the use by laymen, to provide a **quick overview of the load situation**. Concrete measured values wont be displayed, the measurements are inticated with **LEDs in ample colors corresponding to the standard of building biology**.

ESI 21: Cheap device of the series for HF only. The field type (electromagnetic fields) is indicated with 10 LEDs.

Technical data

- Electromagnetic fields (HF) from 50 MHz to 8 GHz
- Operating mode: Standard.
- Power supply: 9 V battery
- Operating time: 10 to 15 hours with a 9 V battery
- Size: 140 x 63 x 30 mm
- Scope of delivery: Detector, battery, operating manuals in German and English.

FM10 - Meter (LF)

Fauser FM10 (YSHIELD® Edition)

The field strength measurement device with **innovative technique and revolutionary design** in shirt-pocket format.

- Simultaneous display of the electric and the magnetic field strength
- Isotropic measurement of alternating fields
- Potential-free and potential-related measurement of electric fields
- Frequency range from 10 Hz up to 400 kHz
- Resolution from 1 nT and 0.1 V/m without switching the measurement range
- Peak-Hold-Display and limit value alarm

Technical data

- Measurement range: 0 - 20,000 nT / 0 - 20,000 V/m
- Resolution: 1 nT / 0.1 V/m
- Frequency range: 10 Hz - 400 kHz
- Frequency filter: Bandpass 16.6 Hz / Hochpass 50 Hz / Hochpass 2 kHz
- Display: LCD illuminated
- Display functions: X-, Y-, Z-component, peak-hold
- Interface: USB 2.0
- Power supply: 2 x 1,5 V AA
- Dimensions: 120 x 79 x 28 mm
- Delivered multi-purpose probe FM10: 10 Hz - 400 kHz / Measurement accuracy < 5 % magnetic und < 10 % electric
- Scope of supply: Meter, probe FM10, batteries, plastic-case, manual in German/English

Frequency Master IV - Meter (HF)

Rom Elektronik FM IV (YSHIELD® Edition)

This new RF-meter from Rom-Elektronik ist **packed with many innovative features:**

- Wide frequency range from 900 MHz up to 10 GHz
- Backlit LC-display with 3 lines for simultaneous pulsed and non-pulsed measurement reading
- Indication of the detected signal namely
- Comfortable key operation: On/Off, volume control, display illumination, PeakHold

Technical data

- Measuring range: 0.1 µW/m² up to 50,000 µW/m².
- Frequency range: 900 MHz up to 10 GHz; With an optional antenna from 1 MHz up to 10 GHz
- Accuracy: +/- 3 dB
- Display: Backlit LC-display
- Interfaces: Headset output, USB-port
- Power supply: Built-in NiMH-accu for 24 hours of operation
- Delivery scope: Meter, antenna 900 MHz to 2.6 GHz, antenna 2.4 GHz to 11 GHz, mains adaptor, instruction manual in German and English

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Meters overview - Gigahertz-Solutions

Meters from Gigahertz-Solutions were developed and produced in Germany. No other manufacturer has such a wide and innovative product range.

We sell this devices preferably, because they measure most accurately and because they are standard in building biology. **This catalog will only show the most popular devices!** Please find more meters (extended frequency range) and suitable accessories in our online-shop at www.yshield.com -> Measurement.

Meters HF - Gigahertz-Solutions

HF32D - Meter (HF)

YSHIELD® HF 32D

It allows a straight forward assessment of the exposure, a determination of suitable remedial actions, as well as a control of their effectiveness. Simple handling for technical amateurs.

Technical data

- Measuring range: 1 µW/m² up to 1,999 µW/m².
- Frequency range: 800 MHz up to 2,500 MHz.
- Accuracy: 6 dB, 9 digit.
- Field strength proportional audio signal: The higher the measuring value, the faster the acoustic signal.
- Peak value indication.
- Included in delivery: EMR meter device, attachable, direction-finding log.-per. antenna incl. antenna cable, Alkaline Mangan battery, detailed instruction manual (english), factual background information issuing "electric smog".

HF35C - Meter (HF)

OUR RECOMMENDATION

YSHIELD® HF 35C

It allows a straight forward assessment of the exposure, a determination of suitable remedial actions, as well as a control of their effectiveness. Simple handling for technical amateurs.

Technical data

- Measuring range: 0.1 µW/m² up to 1,999 µW/m².
- Frequency range: 800 MHz up to 2,500 MHz.
- Accuracy: 6 dB, 9 digits.
- Identification of pulsed radiation sources (mobile radio: GSM, UMTS / G3, cordless telephones (DECT), WLAN (Bluetooth), radar surveillance stations, etc. by means of an acoustic signal proportional to the modulation frequency.
- Peak value as well as average value (switchable).
- Included in delivery: EMR meter device, attachable, direction-finding log.-per. antenna incl. antenna cable, Alkaline Mangan battery, detailed instruction manual (english), factual background information issuing "electric smog".

HF38B - Meter (HF)

YSHIELD® HF 38B

It allows a semi-professional assessment of the exposure, a determination of suitable remedial actions as well as a control of their effectiveness. Simple handling for users with basic knowledge.

Technical data

- Measuring range: 0.01 µW/m² up to 19,990 µW/m².
- Frequency range: 800 MHz up to 2,500 MHz (3,300 Mhz with additional tolerance).
- Accuracy: 6 dB, 7 digits.
- Improved antenna-h/v-decoupling and minimised ripple compared to HF35C.
- Clearly simplified measurements due to "peak-hold" function.
- Identification of pulsed radiation sources (mobile radio: GSM, UMTS / G3, cordless telephones (DECT), WLAN (Bluetooth), radar surveillance stations, etc. by means of an acoustic signal proportional to the modulation frequency.
- Peak value as well as average value (switchable).
- Included in delivery: EMR meter device, attachable, direction-finding log.-per. antenna incl. antenna cable, Alkaline Mangan battery, detailed instruction manual (english), factual background information issuing "electric smog".

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HF59B - Meter (HF)

YSHIELD® HF59B

It allows a professional assessment of the exposure, a determination of suitable remedial actions as well as a control of their effectiveness. Simple handling for professionals.

Technical data

- Measuring range: 0.01 µW/m² up to 19,999 µW/m².
- Frequency range: 800 MHz up to 2,500 MHz (3,300 Mhz with additional tolerance) with direction-finding decoupled log.-per antenna.
- Accuracy: 3 dB, 5 digits.
- Clearly simplified measurements with the help of the "peak-hold" function.
- Peak value as well as average value (switchable).
- Radar-/UMTS-optimisation (2 MHz video-bandwith) can be activated.
- DC-output for long-time records, audio-output, normalised AC-outputexit.
- Identification of pulsed radiation sources (mobile radio: GSM, UMTS / G3, cordless telephones (DECT), WLAN (Bluetooth), radar surveillance stations, etc. by means of an acoustic signal proportional to the modulation frequency.
- Included in delivery: Measurement device, log.-per. antenna, NiMH battery inside the meter, mains adaptor, battery charger, detailed instruction manual with factual background information issuing "electro smog".

HFEW59BD - Meter set (HF)

OUR RECOMMENDATION

YSHIELD® HFEW 59BD

Suitable for an extentsive analysis from 27 MHz to 10 GHz. The splitting-up of the extra wide frequency range on two devices has shown big advantages in practice, especially regarding the analysis of higher frequency ranges, as those often remain hidden under dominating frequency ranges (such as mobile and DECT-frequencies).

Technical data

- **The set is based on the professional HF analyzers HFE59B und HFW59D (see www.yshield.com -> Measurement), including appropriate accessories**.
- The frequency range covers amateur radio, radio, TV, TETRA, usual mobile services, DECT, radar (including the denser occupied band from 8.5 – 9.5 GHz as well as both WLAN-bands, WiMAX etc. and all frequencies in-between.
- For detailed information regarding the devices q.v.
- The included attenuator DG20_G10 is useable for both analyzers.
- Plastic case K2 for a secure transport of devices and antennas.

Meters NF - Gigahertz-Solutions

ME3030B - Meter (LF)

YSHIELD® ME 3030B

It allows an uncomplicated evaluation of the exposure, a determination of suitable remedial actions, as well as a control of their effectiveness. Simple handling for amateurs.

Technical data

- Measuring range: 1 nT/Vm up to 2,000 nT/Vm.
- Frequency range: 16 Hz up to 2 kHz.
- Accuracy: 2 %, 20 digits.

- An acoustic signal proportional to the field strength with "Geiger-counter-effect" helps identifying regions with increased exposure.
- Included in delivery: Measurement device, Alkaline Mangan battery, detailed instruction manual with factual background information issuing "electro smog".

ME3830B - Meter (LF)

OUR RECOMMENDATION

YSHIELD® ME 3830B

It allows an uncomplicated evaluation of the exposure according to construction biologist standard, a determination of suitable remedial actions, as well as a control of their effectiveness. Simple handling for amateurs.

Technical data

- Measuring range: 1 nT/Vm up to 2,000 nT/Vm.
- Frequency range: 16 Hz up to 100 kHz.
- Accuracy: 2 %, 14 digits.

- An acoustic signal proportional to the field strength with "Geiger-counter-effect" helps identifying regions with increased exposure.
- Included in delivery: Measurement device, Alkaline Mangan battery, detailed instruction manual with factual background information issuing "electro smog"

ME3840B - Meter (LF)

YSHIELD® ME 3840B

The link between amateur and professional instruments! This device is especially popular among medics and alternative practitioners, as it offers a perfect combination of easy handling and professional measurement possibilities. It allows an easy allocation of the electrosmog frequencies to the traction power or the mains power as well as to the artificial harmonics, thus facilitating an especially precise consultation of remedial actions and an easy control of their effectiveness.

A switchable internal filter module as in the professional devices, allowing a numeric differentiation of traction power and mains supply as well as the artificial higher frequencies. A useful aspect considering the even lower precautionary values for higher frequencies.

Technical data

- Measuring range: 1 nT/Vm up to 2,000 nT/Vm.
- Frequency range: 5 Hz up to 100 kHz.
- Switchable internal filter module as in the professional devices (16 Hz, 50 Hz high-pass, 2 kHz high-pass).
- Accuracy: 2 %, 14 digits.
- An acoustic signal proportional to the field strength with "Geiger-counter-effect" helps identifying regions with increased exposure.
- Included in delivery: Measurement device, Alkaline Mangan battery, detailed instruction manual with factual background information issuing "electro smog".

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NFA400 - Meter (LF)

YSHIELD® NFA 400

3D-LF-Analyser with Data Logger NFA400 for an in-depth analysis. The NFA400 also comprises all common technical parameters of the NFA series.

In addition to the three-dimensional magnetic field measurement:

- ONE-dimensional potential-free measurement of the electric field (Y-axis).
- Non-isolated electric field measurement possible with integrated sensor or with the optionally available TCO conform probe TCO3.
- An integrated voice recorder facilitates the measurement analysis.

Technical data

- Frequency Range: 5 Hz to 400 KHz (compensated)
- Measurement Range: Magnetic flux densitiy 1 - 19999 nT / Electrical field strength: 0.1-1999 V/m
- Accuracy: 50 / 60 Hz: +/- 5 % / 16 Hz - 30 kHz: +/- 1 dB / 5Hz - 400 kHz: +/- 2 dB / Isotropical deviation: +/- 1.5 dB / Offset +/- 5 Digits
- Sensor: Electrical field strength, potential-free, 1D
- Electrical field strength, non-isolated
- Magnetic flux density, 3D
- Audio Analysis: Field-strength-proportional acoustic signal (with "Geiger counter" effect), switchable
- Electric power supply: 7.4-Volt Li-ion high quality battery pack (included) / Average operating life in the logging mode 36 h / Low-batt indication / Auto-Power-Off function (saves capacity and is deactivated during longterm measurements) / Power supply unit included
- Signal Rating: trueRMS, Peak, Peak Hold
- Weight: 3,3 kg
- Scope of delivery: Meter with silicone holster, 4 GB SDHC SD-card, USB-cable, NFAsoft analysis software, highly flexible grounding cable with 1mm² copper diameter, grounding clamp, internal Li-ion battery pack, power supply unit, manual, plastic case

NFA1000 - Meter (LF)

OUR RECOMMENDATION

YSHIELD® NFA 1000

For the most in-depth analysis - the masterpiece on the market! Innovative alternative to the ME series based on a superior concept for efficient data acquisition of electric and magnetic fields, extensive long-term recordings of all relevant parameters and facilitated interpretation and documentation of the acquired data.

Technical data

- **Real 3D potential-free electric field measurement**, patent pending.
- **3D measurement of the magnetic field** in a truly isotropic point.
- Separate recordings of railway and grid frequencies as well as higher harmonics with true RMS valuation (16.6 Hz | 50/60 Hz | 100/120 Hz plus even harmonics | 150/180 Hz plus uneven harmonics | other frequencies < 2 kHz | all > 2kHz)
- Measures 110,000 samples per second, the maxima of which are recorded up to 10 times per second on the 4 GB SDHC memory card supplied. Due to the simultaneous and continuous sampling of frequency and axis information you won't miss even the smallest peaks.
- Voice recording of audio notes to facilitate measurement and interpretation of recordings.
- Broadband peak measurements (genuine peak of a wave) as a firmware update in preparation.
- Optional, in preparation: Wireless data transfer to external display unit /PC.
- Supplied with revolutionary PC evaluation software: Super fast real-time presentation, statistic functions (e.g. 95. percentile), analysis tool for "Dirty Power".
- Delivery with all neccessary acessories in the plastic case K5
- Li-Ion rechargeable batteries for up to 48 hours of continuous recordings. External power supply possible (power adaptor included).

Meter sets HF+LF - Gigahertz-Solutions

MK10 - Meter set (HF+LF)

YSHIELD® MK 10

Basic devices. Set from two devices for EMF and RF.
- Low frequency (EMF): 16 Hz - 2 kHz
- High frequency (RF): 800 MHz - 2.7 GHz

The **basic equippment containing the HF32D and ME3030B** in a rugged plastic case, allows an easy evaluation of the personal exposure to HF- and LF- electrosmog according to the guidelines and recommended safe values of the "Standard of Building Biology Measuring Techniques".

MK20 - Meter set (HF+LF)

OUR RECOMMENDATION

YSHIELD® MK 20

Standard devices. According to the building biology standard. Set of two devices for EMF and RF.
- Low frequency (EMF): 16 Hz - 100 kHz
- High frequency (RF): 800 MHz - 2.7 GHz

Contains the instruments **ME3830B and HF35C in a rugged plastic case and allows an easy evaluation of the personal exposure to HF- and LF-electrosmog** according to the guidelines and recommended safe values of the "Standard of Building Biology Measuring Techniques". With the very useful feature of an acoustic analysis for a reliable identification of various HF-sources.

MK30 - Meter set (HF+LF)

YSHIELD® MK 30

Standard devices. Link between standard and prof. devices. Set of two devices for EMF and RF.
- Low frequency (EMF): 5 Hz - 100 kHz
- High frequency (RF): 800 MHz - 3.3 GHz

The both devices contained in this measuring kit are a perfect combination of the easily operated devices for technical amateurs with the **additional analytical possibilities offered by the devices for professional evaluations**. This is the top-selling kit for doctors and healers looking for a competent overview over the total emf-pollution either for themselves or for their patients, but who neither have the daily practice nor the time to get acquainted in the necessary manner with the technology of a professional measurement device.

The **HF38B**, for instance, already features the frequency range, the peak-hold function and the antenna of the professional series. And the **ME3840B** is already equipped with the switchable frequency filter for a clear differentiation of traction supply and mains supply as well as the corresponding artificial harmonics. The devices come well protected in a plastic case with shaped foam filler for a safe transportation.

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MK70-3D - Meter set (HF+LF)

OUR RECOMMENDATION

YSHIELD® MK 70-3D

High-end devices. Set of two devices for EMF and RF.

- Low frequency (EMF): 5 Hz - 1000 kHz (potential free, 3D)
- High frequency (RF): 27 MHz - 3,3 GHz

Professional equipment with a worthwhile price point. This set consists of our two top models, the **NFA1000** and the **HFE59B**. The quasiisotropic antenna of the HF-device has special advantages for the building biology immission measurements, the identification of so-called hot spots, and additionally extends the analysed frequency range down to 27 MHz. It therefore also includes the TV- and radio-frequencies, as well as the TETRA standards which are to be introduced all over Europe. The NFA1000 with its 3D sensors for E & M, FFT analysis, and data logger is definitely a convincing instrument.

Accessories - Gigahertz-Solutions

Plastic case K5

YSHIELD® K5

Plastic case 33 x 27 x 8 cm for HF32D, HF35C, HFW35C and all LF-devices. To our HF-devices, an additional LF-device fits in the case!

Plastic case K2

YSHIELD® K2

Plastic case 33 x 27 x 16 cm for all HF- and LF-devices. 2 devices fits in the case!

Attenuator DG20

YSHIELD® DG20

Allows a measurement of major exposures. For high exposures.

- Reduces the sensitivity of the measuring device by a factor of 100 (= 20 dB).
- Adaptor plug to be connected to the antenna input socket.

TCO3 probe (NFA)

YSHIELD® TCO3

For measurements of E-fields in line with the regulations at locations of difficult access, such as bedroom measurements or low-field electrical installation inspections. Only for NFA1000.

(N)YM(St)-J - Shielded sheathed cable

YSHIELD® (N)YM(St)-J

Wire count /cross section	Outer diameter	Weight
3 x 1.5 mm²	10.5 mm	154 g/m
3 x 2.5 mm²	12.0 mm	217 g/m
5 x 1.5 mm²	12.0 mm	208 g/m
5 x 2.5 mm²	13.5 mm	280 g/m

Application

Low priced shielded installation cables for the protection against low-frequency electric fields (LF). For installations over, up, in and under finery, in dry, moistens and wet areas, as well as in the brick-work and concrete. Also suitable for use outside, if protected against sun exposure. Excluded for direct imbedding in vibration, shaking and ramming concrete.

Technical data

- **Shielded PVC-sheathed cable** (Adapted to DIN VDE 0250 part 204/209)
- **PVC self-extinguishing and flame retardant** according to VDE 0482-332-1-2, DIN EN 60332-1-2 / IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B)
- CE = This product is conform with the EC Low-Voltage Directive 2006/95/EG
- Direct current resistance to DIN VDE 0295
- Operating temperature -40°C to +70°C, cabling temperature -5°C to +70°C
- Nominal voltage U_o/U: 300/500 V, current load according to VDE 0100
- Test procedures according to DIN VDE 0472, test ac voltage 50 Hz, 2000 V
- Bending radius accoording to DIN VDE 0298: 4 x D
- Radiation resistance: Up to 80x106 cJ/kg (up to 80 Mrad)

Information on installing

Connect the **ground wiring of the junction box with the ground wiring of the cable** during installation! **Always connect green-yellow with green-yellow**, in no case connect it with the continuity wire! **Protect the bare continuity wire and the foil with insulating tube**. There must not be any conductive components in the junction box! Connect the shield connector = **continuity wire on one side to the earth circuit connector**. Do not use shielded and unshielded cables at the same time.

Construction

❶ Solid copper conductor
❷ Insulation: cross linked polyethylene
❸ Common PVC core covering
❹ (St)-Screen: Coated aluminium foil with 1.5 mm wire
❺ PVC outer sheath

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(N)HXMH(St)-J - Shielded sheathed cable

YSHIELD® (N)HXMH(St)-J

Wire count / cross section	Outer diameter	Weight	Calorific potential
3 x 1.5 mm²	10.2 mm	148 g/m	0.43 kWh/m
3 x 2.5 mm²	11.0 mm	187 g/m	0.50 kWh/m
5 x 1.5 mm²	11.5 mm	196 g/m	0.58 kWh/m

Application

Shielded installation cables for the protection against low-frequency electric fields (LF). With improved properties in the event of fire. For installations over, up, in and under finery, in dry, moistens and wet areas, as well as in the brick-work and concrete. Also suitable for use outside, if protected against sun exposure. Excluded for direct imbedding in vibration, shaking and ramming concrete.

Technical data

- **No PVC because of halogen-free polymer mixture** (according to DIN VDE 0250 part 214)
- **Free of plasticizers for ecological constructions**
- Fire retardant according to EN 50266-2-4, EN 60332-1, IEC 60332-3 cat. C
- Nominal voltage U_o/U: 300/500 V, current load according to VDE 0100
- Construction according to DIN VDE 0250 part 204/209, marking according to DIN VDE 0293
- Test procedures according to DIN VDE 0472, test ac voltage 50 Hz, 3500 V
- Bending radius accoording to DIN VDE 0298: 4 x D
- Operating temperature -30°C to +70°C, cabling temperature -5°C to +70°C

Information on installing

Connect the **ground wiring of the junction box with the ground wiring of the cable** during installation! **Always connect green-yellow with green-yellow**, in no case connect it with the continuity wire! **Protect the bare continuity wire and the foil with insulating tube**. There must not be any conductive components in the junction box! Connect the shield connector = **continuity wire on one side to the earth circuit connector**. Do not use shielded and unshielded cables at the same time.

Construction

❶ Solid conductor
❷ Insulation: cross linked polyethylene
❸ Common inner covering
❹ (St)-Screen: foil with 1.13 mm wire
❺ Outer sheath: halogen free polymer compund;

(H)05VV-F3G - Shielded flexible cable

YSHIELD® (H)05VV-F3G

Wire count / cross section	Outer diameter	Color	Current load acc. to IEC 320-1
3 x 0.75 mm²	6.6 mm	Weiß	6 A
3 x 1.5 mm²	8.4 mm	Weiß	16 A

Application

Shielded, very flexible cable for non-fixed electrical devices for the protection against low-frequency electric fields (LF). To reduce the magnetic field, the conductors are twisted 15 times per meter!

Technical data

- Nominal voltage : 250 V / 50 Hz
- **Protection class 1 (with ground wire)**

Construction

❶ Copper conductors fine-stranded
❷ Insulation: Polyvinylchloride
❸ Drain wire: Copper: 0.34 mm²
❹ Screen: Plastic-coated aluminum band
❺ Outer sheath: Polyvinylchloride;

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Shielded installation cables

With cables **(H)05VV-F3G** for the protection against low-frequency electric fields (LF). To reduce the magnetic field, the conductors are twisted 15 times per meter!

Common technical data

- **Nominal voltage : 250 V / 50 Hz**
- **Protection class 1 (with ground wire)**
- Current load **0.75 mm²: 6 A**
- Current load **1.0 mm²: 10 A**
- Current load **1.5 mm²: 16 A**

For the following countries

All **cables, power cords, multiple socket outlets and wall installation sockets** are usable in the following „Schuko" countries:

CEE-7/4 (German system): Afghanistan, Algeria, Andorra, Austria, Bosnia-Herzegovina, Bulgaria, Croatia, Estonia, Finland, Germany, Greece, Hungary, Iceland, Indonesia, Italy, Korea, Latvia, Lithuania, Luxembourg, Macedonia, Moldova, Montenegro, Netherlands, Norway, Portugal, Romania, Russia, Serbia, Slovenia, South Korea, Spain, Sweden, Syria, Turkey, Ukraine;

CEE-7/7 (French system): Belgium, Czech Republic, France, Monaco, Morocco, Poland, Slovakia, Tunisia;

Power cord D2806

Length 2 m, Color black, wire diameter 1.0 mm²

Power cord D3662

Length 3 m, Color white, wire diameter 1.0 mm²

Adapter D3223

Adapter (for D2806) C13 to two pole C7

Adapter D3245

Adapter (for D2806) C13 to three pole C5

Extension cable D3640

Length 3 m, Color black, wire diameter 1.5 mm²

Extension cable D3425

Length 5m, Color white, wire diameter 1.5 mm²

Plug with free end D2828

Length 2 m, Color black, wire diameter 1.0 mm²

Plug with free end D3368

Length 3 m, Color black, wire diameter 0.75 mm²

Plug with free end D3381

Length 2 m, Color white, wire diameter 0.75 mm²

Plug with free end D2920

Length 4 m, Color white, wire diameter 0.75 mm²

Spiral extension cable D3785

Usable length 2 m, (cable length 10 m), **Color black**, wire diameter 1.5 mm²

Shielded installation boxes

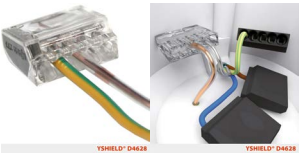
Cavity-wall box 59 mm D4461

Shielded with conductive vacuum coating. Connection wire 1.5 mm², solid, isolated. One gang box or switch box for plate thickness from 7-35 mm. Standard mounting distances.

Lamp connection box D4606

Shielded with conductive vacuum coating. Connection wire 1.5 mm², solid, isolated. Connection box for lamps. Diameter 35 mm, Depth 45 mm. Standard mounting distances.

Push-wire connector D4628



5 x 1.0 mm² up to 2.5 mm². Transparent. 50 pieces. Quick attachement.

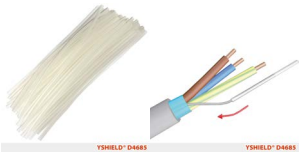
Cavity wall box 47 mm D4483

Shielded with conductive vacuum coating. Connection wire 1.5 mm², solid, isolated. One gang box or switch box for plate thickness from 7-35 mm. Standard mounting distances.

In-wall box 61 mm D4426

Shielded with conductive vacuum coating. Connection wire 1.5 mm², solid, isolated. With snap-lock coupling, as one gang box or switch box under plaster. Standard mounting distances.

Insulation sleeve D4685



Length 10 cm. Transparent for drain wire. 100 pieces. For insulation of the blank drain wire of the installation cables.

Junction case D4505

Shielded with conductive vacuum coating. Connection wire 1.5 mm², solid, isolated. Junction casing for hollow or brick walls. 107 x 107 x 53 mm. Standard mounting distances.

In-wall box 41 mm D4448

Shielded with conductive vacuum coating. Connection wire 1.5 mm², solid, isolated. With snap-lock coupling, as one gang box or switch box under plaster. Standard mounting distances.

YSHIELD GmbH & Co. KG, Am Schulplatz 2, 94099 Ruhstorf, Germany
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Shielded Multiple socket outlet 4x

YSHIELD® D6700

Professional quality! 4 schuko inserts switched. Casing: Robust anodized aluminium frame. 2-poled switch. Socket outlets black, 45° positioned with children protection. Shielded **power connection cord: 2 meter, 3 x 1.0 mm²**. Integrated decoupling filter. Connection voltage: 250 V / 50 Hz. Current load: 10 A. Size: 317 x 52 x 45 mm.

Optional feature is the mounting angle D6867!

Shielded Multiple socket outlet 6x

YSHIELD® D6744

Professional quality! 9 schuko inserts switched. Casing: Robust anodized aluminium frame. 2-poled switch. Socket outlets black, 45° positioned with children protection. Shielded **power connection cord: 2 meter, 3 x 1.5 mm²**. Integrated decoupling filter. Display for over voltage protection funktion. Connection voltage: 250 V / 50 Hz. Current load: 16 A. Size: 572 x 52 x 45 mm.

Optional feature is the mounting angle D6867!

Shielded Multiple socket outlet 9x

YSHIELD® D6788

Professional quality! 4 schuko inserts switched, 2 schuko inserts unswitched. Casing: Robust anodized aluminium frame. 2-poled switch. Socket outlets black, 45° positioned with children protection. Shielded **power connection cord: 2 meter, 3 x 1.0 mm²**. Integrated decoupling filter. Display for over voltage protection funktion PRO-TECTOR:

Line filter with an attenuation of 50 dBm; HF-filter over 80 MHz. Connection voltage: 250 V / 50 Hz. Current load: 10 A. Size: 572 x 52 x 45 mm.

Optional feature is the mounting angle D6867!

D6867 - Mounting angle

YSHIELD® D6867

With this mounting angles, all our professional multiple socket outlets D6700, D6766 and D6788 can be **fixed easy in different angles**.

Demand switch

Electricity has become indispensable for every day life. The use of electricity inevitably causes alternating electrical and magnetic fields. The effect of these electrical and magnetic fields on the human oraganism has been the subject-matter of many international studies with some concerning results. At present, the "safe" levels of electric and magnetic fields are still to be determined, but it is now agreed by many doctors and scientists that the levels should be reduced on the principle of ALARA (As Low As Reasonably Achievable). Magnetic fields should be measured and any wiring faults corrected. Electric fields can only be reduced by using electrically screened cables or using a "Demand Switch" whichremove the high (230 volt) supply when there is no load on the circuit that needs power. This is particularly useful at night-time.

A reliable demand switch optimised according to building biology criteria can substantially reduce your daily exposure without your being inconvenienced. It is for this reason that many experts recommend the decoupling from the mains (often also called "isolation") as a first and important technical step to be implemented when reducing alternating electrical and magnetic fields.

NA7 - Demand switch

OUR TOP-SELLING DEMAND SWITCH WITH VDE MARK

YSHIELD® NA 7

- Innovation: Various granted and pending patents are an impressive proof of our technical superiority in comparison with the state-of-the-art compared with other devices on the market.
- Safety: The Demand Switch NA7 comfort was the first "decoupler" ever to be certified the VDE (the Association for Electrical, Electronic & Information Technologies) certificate for fulfilling the severe safety regulations. VDE identification number: 40000677.
- Practical efficiency: The Gigahertz Solutions Demand Switches have been installed by many experienced electrical engineering technicians for many years. They are on the recommendation lists of renowned building biologists and are in use in thousands of households every day.

Technical data

- Nominal voltage / capacity: 230 VAC +/- 10 %, 16 Amp., 2300 watt filament lamp load.
- Mechanical durability of the relay: approx. 15.000.000 operating cycles.
- Residual ripple (nominal/ typical/maximum): < 2 mV / < 4 mV / < 8 mV.
- Monitoring voltage: Building biology compatible DC voltage (max. 8mA / 230 VDC).
- Single-poled disconnection for optimum operator protection. A minimum residual ripple is quaranteed by a low resistance PTC connection to the terminal "neutral".
- Warranty: 2 years.
- Included in delivery: Demand Switch, control lamp, detailed instructions manual.

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Price list 16.08.2016

Shielding paints	Unit	1) Net €	2) Gross €	Base price € Net
HF-Paint **HSF44**	1 liter	50,34	**59,90**	50,34 / l
	5 liter	210,00	**249,90**	42,00 / l
HF-Paint **HSF54**	1 liter	50,34	**59,90**	50,34 / l
	5 liter	210,00	**249,90**	42,00 / l
HF-Paint **HSF64**	1 liter	50,34	**59,90**	50,34 / l
	5 liter	210,00	**249,90**	42,00 / l
HF-Paint **HSF74**	1 liter	50,34	**59,90**	50,34 / l
	5 liter	210,00	**249,90**	42,00 / l
LF-Paint **NSF34**	1 liter	41,93	**49,90**	41,93 / l
	5 liter	167,98	**199,90**	33,60 / l
HF-Paints **Sample set**	4 x 0.1 liter	8,32	**9,90**	20,80 / l
Fiber additive **AF3**	0.09 liter	16,72	**19,90**	185,81 / l
Conductive glue **DKL90**	5 liter	58,74	**69,90**	11,75 / l
Paint stirrer **AR40**	1 piece	3,28	**3,90**	

Fleeces, nettings, wallpapers	Unit	Net €	Gross €	Base price
Wallpapers **YCF/YCP-40-100**	LM/1.0m width	9,16	**10,90**	9,16 / m^2
	Roll/20 LM	167,98	**199,90**	8,40 / m^2
	Roll/100 LM	756,22	**899,90**	7,56 / m^2
Wallpapers **YCF/YCP-60-100**	LM/1.0m width	10,84	**12,90**	10,84 / m^2
	Roll/20 LM	201,60	**239,90**	10,08 / m^2
	Roll/100 LM	924,29	**1099,90**	9,24 / m^2
Wallpapers **YCF/YCP-80-100**	LM/1.0m width	12,52	**14,90**	12,52 / m^2
	Roll/20 LM	235,21	**279,90**	11,76 / m^2
	Roll/100 LM	1092,35	**1299,90**	10,92 / m^2
Wallpapers **YCF/YCP-100-100**	LM/1.0m width	16,72	**19,90**	16,72 / m^2
	Roll/20 LM	319,24	**379,90**	15,96 / m^2
	Roll/50 LM	756,22	**899,90**	15,12 / m^2
PP fleece **YMC-50-150**	LM/1.5m width	16,72	**19,90**	16,72 / m^2
	Roll/20 LM	319,24	**379,90**	15,96 / m^2
	Roll/50 LM	756,22	**899,90**	15,12 / m^2
Stainless steel gauze **V4A10-100**	LM/1.0m width	10,00	**11,90**	10,00 / m^2
	Roll/25 LM	210,00	**249,90**	8,40 / m^2
Stainless steel gauze **HEG10-100**	LM/1.0m width	8,32	**9,90**	8,32 / m^2
	Roll/25 LM	167,98	**199,90**	6,72 / m^2
Stainless steel gauze **HEG03-100**	LM/1.0m width	11,68	**13,90**	11,68 / m^2
	Roll/25 LM	252,02	**299,90**	10,08 / m^2
Stainless steel gauze **HEG03-150**	LM/1.5m width	20,92	**24,90**	13,95 / m^2
	Roll/25 LM	462,10	**549,90**	12,32 / m^2
Polyester netting **HNG80-66**	LM/0.66m width	11,68	**13,90**	17,70 / m^2
	Roll/20 LM	210,00	**249,90**	15,91 / m^2
	Roll/100 LM	1008,32	**1199,90**	15,28 / m^2
Polyester netting **HNG80-130**	LM/1.30m width	25,13	**29,90**	19,33 / m^2
	Roll/20 LM	462,10	**549,90**	17,77 / m^2
	Roll/100 LM	2184,79	**2599,90**	16,81 / m^2
Polyester netting **HNG100-66**	LM/0.66m width	20,08	**23,90**	30,43 / m^2
	Roll/20 LM	378,07	**449,90**	28,64 / m^2
	Roll/100 LM	1848,66	**2199,90**	28,01 / m^2
Polyester netting **HNG100-130**	LM/1.30m width	41,93	**49,90**	32,26 / m^2
	Roll/20 LM	798,24	**949,90**	30,70 / m^2
	Roll/100 LM	3865,46	**4599,90**	29,73 / m^2
Nylon fleece **HNV80**	LM/1.0m width	18,40	**21,90**	18,40 / m^2
	Roll/20 LM	336,05	**399,90**	16,80 / m^2
Nylon fleece **NCV95**	LM/0.95m width	10,00	**11,90**	10,53 / m^2
	Roll/20 LM	167,98	**199,90**	8,84 / m^2

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Magnetic shielding	Unit	1) Net €	2) Gross €	Base price € Net
Magnetic shielding film **MCL61**	LM/0.61m width	83,95	**99,90**	137,62 / m²
Magnetic shielding film **MCF5**	LM/5 cm width	16,72	**19,90**	334,45 / m²
	Roll/20 LM	167,98	**199,90**	167,98 / m²
	Roll/100 LM	630,17	**749,90**	126,03 / m²
Shielding window films	Unit	Net €	Gross €	€ Net
Window film **RDF62-Clear**	LM/1.52m width	50,34	**59,90**	33,12 / m²
	LM/0.76m width	25,13	**29,90**	33,06 / m²
Window film **RDF72-Premium**	LM/1.52m width	142,77	**169,90**	93,93 / m²
	LM/0.76m width	71,34	**84,90**	93,87 / m²
Mounting concentrate **FMK30**	1 piece / 30 ml	4,12	**4,90**	137,25 / l
Bonding scraper 10 cm **FVR10**	1 piece	6,64	**7,90**	
Edge sealant **FKV50**	1 piece / 50 ml	16,72	**19,90**	334,45 / l
Grounding accessories	Unit	Net €	Gross €	€ Net
Grounding plate Wall **GW**	1 piece	16,72	**19,90**	
Grounding plate Baseboard **GB**	1 piece	16,72	**19,90**	
Grounding plate Exterior **GE**	1 piece	25,13	**29,90**	
Grounding plate Tubel **GT**	1 piece	16,72	**19,90**	
Grounding plate Magnet **GM**	1 piece	16,72	**19,90**	
Grounding plate Screw **GS**	1 piece	16,72	**19,90**	
Grounding plate Velcro **GV**	1 piece	12,52	**14,90**	
Grounding plug **GP**	1 piece	16,72	**19,90**	
Grounding plug **GD**	1 piece	33,53	**39,90**	
Grounding plug **GX (B to M)**	1 piece	16,72	**19,90**	
Grounding plug **GX-W**	1 piece	33,53	**39,90**	
Grounding set **MCL**	1 piece	8,32	**9,90**	
Grounding rod 40 cm **GR-40**	1 piece	16,72	**19,90**	
Grounding rod 50 cm **GR-50**	1 piece	33,53	**39,90**	
Grounding rod 100 cm **GR-100**	1 piece	41,93	**49,90**	
Grounding strap **EB1**	10 m/width 2 cm	16,72	**19,90**	1,67 / m
Grounding strap **EB2**	10 m/width 2 cm	16,72	**19,90**	1,67 / m
Grounding strap **EB3**	1 LM/width 10 cm	8,32	**9,90**	8,32 / m
Perforated stainless steel tape **ELB**	10 meter	16,72	**19,90**	1,67 / m
Grounding cable 20 cm **GC-20**	1 piece	7,48	**8,90**	37,39 / m
Grounding cable 100 cm **GC-100**	1 piece	8,32	**9,90**	8,32 / m
Grounding cable 200 cm **GC-200**	1 piece	9,16	**10,90**	4,58 / m
Grounding cable 500 cm **GC-500**	1 piece	10,00	**11,90**	2,00 / m
Grounding cable 1000 cm **GC-1000**	1 piece	12,52	**14,90**	1,25 / m
Shielding fabrics	Unit	Net €	Gross €	Base price
Fabric SwissShield **Voile**	LM/2.5m width	92,35	**109,90**	36,94 / m²
Fabric SwissShield **Naturell**	LM/2.5m width	92,35	**109,90**	36,94 / m²
Fabric SwissShield **Naturell Ultra**	LM/2.5m width	100,76	**119,90**	40,30 / m²
Fabric SwissShield **Ultima**	LM/2.5m width	100,76	**119,90**	40,30 / m²
Fabric SwissShield **Evolution**	LM/2.5m width	79,75	**94,90**	31,90 / m²
Fabric SwissShield **Evo-Ultra**	LM/2.0m width	83,95	**99,90**	41,97 / m²
Fabric SwissShield **New-Daylite**	LM/2.5m width	67,14	**79,90**	26,86 / m²
Fabric SwissShield **Wear**	LM/1.5m width	58,74	**69,90**	39,16 / m²
Fabric **Silver-Twin**	LM/1.5m width	83,95	**99,90**	55,97 / m²
Fabric **Organic**	LM/3.0m width	92,35	**109,90**	30,78 / m²
Fabric **Silver-Tulle**	LM/1.4m width	75,55	**89,90**	53,96 / m²
Fabric **Silver-Tricot**	LM/1.4m width	75,55	**89,90**	53,96 / m²
Fabric **Black-Tricot**	LM/1.37m width	62,94	**74,90**	45,94 / m²
Fabric **Silver-Elastic**	LM/1.6m width	92,35	**109,90**	57,72 / m²
Fabric **Polyshield**	LM/2.2m width	50,34	**59,90**	22,88 / m²
Fabric **Steel-Twin**	LM/1.5m width	33,53	**39,90**	22,35 / m²
Fabric **Steel-Gray**	LM/1.5m width	33,53	**39,90**	22,35 / m²
Fabric **Silver-Silk**	LM/1.3m width	58,74	**69,90**	45,18 / m²
Fabric **Silver-Grid**	LM/1.5m width	33,53	**39,90**	22,35 / m²
Curtains sewing to your size	1 piece	0,00	**0,00**	
Liquid detegent TEXCARE	1 liter	12,52	**14,90**	12,52 / l
Powder detegent TEXCARE	1 kg	12,52	**14,90**	12,52 / kg

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Shielding canopys	Unit	1) Net €	2) Gross €	Base price € Net
New-Daylite, pyramidal	1 piece	672,18	**799,90**	
New-Daylite, box single	1 piece	798,24	**949,90**	
New-Daylite, box double	1 piece	966,30	**1149,90**	
Voile, pyramidal	1 piece	798,24	**949,90**	
Voile, box single	1 piece	966,30	**1149,90**	
Voile, box double	1 piece	1218,40	**1449,90**	
Naturell, pyramidal	1 piece	798,24	**949,90**	
Naturell, box single	1 piece	966,30	**1149,90**	
Naturell, box double	1 piece	1218,40	**1449,90**	
Naturell-Ultra, pyramidal	1 piece	882,27	**1049,90**	
Naturell-Ultra, box single	1 piece	1050,34	**1249,90**	
Naturell-Ultra, box double	1 piece	1302,44	**1549,90**	
Ultima, pyramidal	1 piece	882,27	**1049,90**	
Ultima, box single	1 piece	1050,34	**1249,90**	
Ultima, box double	1 piece	1302,44	**1549,90**	
Silver-Tricot, pyramidal	1 piece	882,27	**1049,90**	
Silver-Tricot, box single	1 piece	1092,35	**1299,90**	
Silver-Tricot, box double	1 piece	1428,49	**1699,90**	
Silver-Tulle, pyramidal	1 piece	882,27	**1049,90**	
Silver-Tulle, box single	1 piece	1092,35	**1299,90**	
Silver-Tulle, box double	1 piece	1428,49	**1699,90**	
Evo-Ultra, box single	1 piece	1218,40	**1449,90**	
Evo-Ultra, box double	1 piece	1470,50	**1749,90**	
Floor mat U1S from **Steel-Twin**	1 piece	109,16	**129,90**	
Floor mat U2S from **Steel-Twin**	2 pieces	210,00	**249,90**	124,95 / pc.
Floor mat U1M from **YMC-50-150**	1 piece	67,14	**79,90**	
Floor mat U2M from **YMC-50-150**	2 pieces	125,97	**149,90**	74,95 / pc.
Spare ring for pyramidal canopies	1 piece	25,13	**29,90**	

Textile products	Unit	Net €	Gross €	Base price
Sleeping bag Steel-Gray **TSB**	2 pieces	294,03	**349,90**	
Bedding Steel-Gray **TBL**	2 pieces	184,03	**219,00**	
Headgear Silver-Elastic **TKE**	1 piece	29,33	**34,90**	
Headscarfs Steel-Gray **TKG**	1 piece	29,33	**34,90**	
Headscarfs Wear **TKW**	1 piece	41,93	**49,90**	
Blanket Steel-Gray **TDG**	1 piece	83,95	**99,90**	
Hoodie Silver-Elastic **TEO**	1 piece	235,21	**279,90**	
Underpants Silver-Elastic **TEU**	1 piece	167,98	**199,90**	
Fitted sheet 100x200 **TLG100**	1 piece	67,14	**79,90**	

Earthing products	Unit	Net €	Gross €	Base price
Sheet single bed **ES2**	1 piece	100,76	**119,90**	
Sheet double bed **ES3**	1 piece	167,98	**199,90**	
Duvet cover ED1	1 piece	167,98	**199,90**	
Pillow cover normal **EP1**	1 piece	109,16	**129,90**	
Pillow cover small **EP2**	1 piece	83,95	**99,90**	
Blanket ESB	1 piece	83,95	**99,90**	
Sleeping cover ESC	1 piece	167,98	**199,90**	
Sofa cushion big **EU1**	1 piece	62,94	**74,90**	
Sofa cushion small **EU2**	1 piece	58,74	**69,90**	
Seat cushion EU3	1 piece	58,74	**69,90**	

Sewing accessories	Unit	Net €	Gross €	Base price
Silvered **twisted yarn Y300**	14625 LM	252,02	**299,90**	0,02 / m
Silvered **hook-and-loop 30 mm**	LM/30 mm width	50,34	**59,90**	50,34 / m
Silvered **zip fastener 32 mm**	LM/32 mm width	25,13	**29,90**	25,13 / m
Slider for zip fastener / **Fulda**	1 piece	0,84	**1,00**	
Slider for zip fastener / **Werra**	1 piece	1,43	**1,70**	
Slider for zip fastener / **Illner**	1 piece	1,60	**1,90**	

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EMR-Meters	Unit	1) Net €	2) Gross €	Base price € Net
LF Analyser **ME3030B**	1 piece	125,63	**149,50**	
LF Analyser **ME3830B**	1 piece	192,86	**229,50**	
LF Analyser **ME3840B**	1 piece	250,00	**297,50**	
LF Analyser **ME3951A**	1 piece	475,00	**565,25**	
LF-Analyser **NFA-30M**	1 piece	550,00	**654,50**	
LF-Analyser **NFA-400**	1 piece	1172,10	**1394,80**	
LF-Analyser **NFA-1000**	1 piece	1625,00	**1933,75**	
LF -TCO probe **TCO3**	1 piece	218,40	**259,90**	
RF Analyser **HF32D**	1 piece	209,66	**249,50**	
RF Analyser **HF35C**	1 piece	293,70	**349,50**	
RF Analyser **HFE35C**	1 piece	629,75	**749,40**	
RF Analyser **HFW35C**	1 piece	330,00	**392,70**	
RF Analyser **HFEW35C**	1 piece	939,50	**1118,01**	
RF Analyser **HF38B**	1 piece	419,75	**499,50**	
RF Analyser **HF59B**	1 piece	980,00	**1166,20**	
RF Analyser **HFE59B**	1 piece	1550,00	**1844,50**	
RF Analyser **HFW59D plus**	1 piece	1214,29	**1445,01**	
RF Analyser **HFEW59BD plus**	1 piece	2687,90	**3198,60**	
Set **MK10**	1 piece	335,71	**399,49**	
Set **MK20**	1 piece	461,76	**549,49**	
Set **MK30**	1 piece	659,24	**784,50**	
Set **MK70-3D**	1 piece	3105,04	**3695,00**	
Set **MK70-3D plus 2.1**	1 piece	4470,59	**5320,00**	
Plastic case **K5 small**	1 piece	21,60	**25,70**	
Plastic case **K2 Big**	1 piece	36,30	**43,20**	
Electrosmog Indicator **ESI 21**	1 piece	94,96	**113,00**	
Electrosmog Indicator **ESI 22**	1 piece	94,96	**113,00**	
Electrosmog Indicator **ESI 23**	1 piece	150,42	**179,00**	
Electrosmog Indicator **ESI 24**	1 piece	200,00	**238,00**	
RF/EMF Meter **TM-190**	1 piece	142,77	**169,90**	
RF Meter **TM-195**	1 piece	117,56	**139,90**	
RF Meter **TM-196**	1 piece	252,02	**299,90**	
RF Meter **Frequency Master IV**	1 piece	1295,00	**1541,05**	
LF Meter **FM10**	1 piece	619,00	**736,61**	
LF Meter **FM10-LS**	1 piece	758,00	**902,02**	
Light meter **LM10**	1 piece	528,00	**628,32**	
Light meter **LM10-LS**	1 piece	758,00	**902,02**	
Electrostatic sensor **STS1**	1 piece	388,00	**461,72**	
IR-probe **IR10** for LM10(LS)	1 piece	102,50	**121,98**	
UV-probe **UV10** for LM10(LS)	1 piece	118,00	**140,42**	
US-probe **US10** for LM10(LS)	1 piece	36,00	**42,84**	
Light flicker meter **LiFli**	1 piece	198,00	**235,62**	

Demand switches	Unit	Net €	Gross €	Base price
Comfort NA1 with VDE	1 piece	104,40	**124,24**	
Comfort NA5 with VDE	1 piece	126,90	**151,01**	
Comfort NA7 with VDE	1 piece	158,10	**188,14**	
Comfort NA8 with VDE	1 piece	195,60	**232,76**	
Ultima 8	1 piece	175,60	**208,96**	
Ultima 8 Time	1 piece	242,50	**288,58**	

1) For **all customers outside the EU**.
For **business customers** with sales tax identification number **inside the EU**.
2) For **private customers inside the EU**.

YSHIELD GmbH & Co. KG, Am Schulplatz 2, 94099 Ruhstorf, Germany
Phone: 0049-8531-31713-0, Email: info@yshield.com, Web: www.yshield.com

Price list 16.08.2016

		1)	2)	Base price
Multiple socket outlets	Unit	Net €	Gross €	€ Net
Professional 4x **D6700**	1 piece	41,60	**49,50**	
Professional 6x **D6744**	1 piece	83,61	**99,50**	
Professional 9x **D6788**	1 piece	79,83	**95,00**	
Mounting brackets for D67... **D6867**	2 pieces	5,38	**6,40**	
2-pole switch **D3460**	1 piece	19,08	**22,70**	
Prefabricated cables	Unit	Net €	Gross €	Base price
Power cord 2 m black **D2806**	1 piece	15,13	**18,00**	
Power cord 3 m white **D3662**	1 piece	18,07	**21,50**	
Adapter C13-C7 (2-pol.) **D3223**	1 piece	10,34	**12,30**	
Adapter C13-C5 (3-pol.) **D3245**	1 piece	10,34	**12,30**	
Extension cable 3 m black **D3640**	1 piece	18,57	**22,10**	
Extension cable 5 m white **D3425**	1 piece	23,45	**27,90**	
Free end 2 m black **D2828**	1 piece	12,69	**15,10**	
Free end 3 m black **D3368**	1 piece	13,87	**16,50**	
Free end 2 m white **D3381**	1 piece	12,35	**14,70**	
Free end 4 m white **D2920**	1 piece	17,90	**21,30**	
Spiral extension **D3785**	1 piece	60,50	**72,00**	
Shielded cables	Unit	Net €	Gross €	Base price
(N)YM(ST)-J **3x1.5 mm²**	1-49 meter	1,51	**1,80**	1,51 / m
(Including copper addition)	50 meter ring	67,14	**79,90**	1,34 / m
(N)YM(ST)-J **3x2.5 mm²**	1-49 meter	1,85	**2,20**	1,85 / m
(Including copper addition)	50 meter ring	83,95	**99,90**	1,68 / m
(N)YM(ST)-J **5x1.5 mm²**	1-49 meter	1,85	**2,20**	1,85 / m
(Including copper addition)	50 meter ring	83,95	**99,90**	1,68 / m
(N)YM(ST)-J **5x2.5 mm²**	1-49 meter	2,52	**3,00**	2,52 / m
(Including copper addition)	50 meter ring	117,56	**139,90**	2,35 / m
(N)HXMH(ST)-J **3x1.5 mm²**	1-49 meter	2,10	**2,50**	2,10 / m
(Including copper addition)	50 meter ring	83,95	**99,90**	1,68 / m
(N)HXMH(ST)-J **3x2.5 mm²**	1-49 meter	2,77	**3,30**	2,77 / m
(Including copper addition)	50 meter ring	117,56	**139,90**	2,35 / m
(N)HXMH(ST)-J **5x1.5 mm²**	1-49 meter	2,94	**3,50**	2,94 / m
(Including copper addition)	50 meter ring	125,97	**149,90**	2,52 / m
H05VV-F3G **0.75 mm² white**	1-49 meter	2,97	**3,54**	2,97 / m
	50 meter ring	125,97	**149,90**	2,52 / m
H05VV-F3G **1.5 mm² white**	1-49 meter	3,46	**4,12**	3,46 / m
	50 meter ring	146,97	**174,90**	2,94 / m
Shielded installation boxes	Unit	Net €	Gross €	Base price
Cavity-wall box 59 mm **D4461**	1 piece	7,65	**9,10**	
Cavity-wall box 47 mm **D4483**	1 piece	6,76	**8,05**	
Cavity-wall junction casing **D4505**	1 piece	23,03	**27,40**	
Cavity-wall lamp box **D4606**	1 piece	9,33	**11,10**	
In-wall box 61 mm **D4426**	1 piece	5,55	**6,60**	
In-wall box 41 mm **D4448**	1 piece	5,04	**6,00**	
Push-wire connector **D4628**	50 pieces	8,99	**10,70**	0,18 / pc(s)
Insulation sleeve **D4685**	100 pieces	7,65	**9,10**	0,08 / pc(s)

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Revocation instructions & TOC

Instructions on Withdrawal

Right of withdrawal

You have the right to withdraw from this contract within 14 days without giving any reason. The withdrawal period will expire after 14 days from the day on which you acquire, or a third party other than the carrier and indicated by you acquires, physical possession of the goods. To exercise the right of withdrawal, you must inform us (YSHIELD GmbH & Co. KG, Am Schulplatz 2, 94099 Ruhstorf, Germany, email info@yshield.com, phone 0049-8531-31713-0) of your decision to withdraw from this contract by an unequivocal statement (e.g. a letter sent by post, fax or e-mail). You may use the withdrawal form at www.yshield.com/withdrawalform but it is not obligatory. To meet the withdrawal deadline, it is sufficient for you to send your communication concerning your exercise of the right of withdrawal before the withdrawal period has expired.

Effects of withdrawal

If you withdraw from this contract, we shall reimburse to you all payments received from you, including the costs of delivery (with the exception of the supplementary costs resulting from your choice of a type of delivery other than the least expensive type of standard delivery offered by us), without undue delay and in any event not later than 14 days from the day on which we are informed about your decision to withdraw from this contract. We will carry out such reimbursement using the same means of payment as you used for the initial transaction, unless you have expressly agreed otherwise; in any event, you will not incur any fees as a result of such reimbursement. We may withhold reimbursement until we have received the goods back or you have supplied evidence of having sent back the goods, whichever is the earliest. We may withhold reimbursement until we have received the goods back or you have supplied evidence of having sent back the goods, whichever is the earliest. You shall send back the goods or hand them over to us, without undue delay and in any event not later than 14 days from the day on which you communicate your withdrawal from this contract to us. The deadline is met if you send back the goods before the period of 14 days has expired. You will have to bear the direct cost of returning the goods. You are only liable for any diminished value of the goods resulting from the handling other than what is necessary to establish the nature, characteristics and functioning of the goods.

General Terms & Conditions

General information

All business transactions with YSHIELD GmbH & Co. KG, hereinafter referred to as YSHIELD are executed solely under the following terms and conditions; they shall be considered accepted when the order is placed and at the latest upon acceptance of delivery. Any agreement shall not take effect in the event there is an objection to the validity of these terms in response to an offer made by YSHIELD. Without the express written approval of any deviating conditions for the customer made by YSHIELD, such conditions shall not be part of the agreement even if YSHIELD does not explicitly object.

Brochures, drawings and other illustrations or descriptions do not constitute a warranty of quality. Written order confirmation shall prevail for the content of the agreement and any deviations become effective only upon written confirmation. All offers are subject to change.

Prices

All prices apply to delivery without installation or assembly ex works, excluding packaging. Otherwise, (in general in the case of ongoing business relations) the price is calculating with the prices valid on the day of delivery.

Shipment size, use

YSHIELD reserves the right to undertake partial deliveries on a reasonable scale and a 10 % variance from the shipment quantity shall be deemed in conformance with the agreement.

In the case of call orders YSHIELD is authorised to procure materials for the entire order and produce the entire quantity ordered immediately. Changes requested by the customer can not be considered after the start of order processing unless that right has been explicitly agreed in writing.

YSHIELD may refuse delivery if the customer has open liabilities, even if they are from previous orders.

If, after conclusion of agreement there appear reasonable doubts concerning the credit-worthiness of the customer, YSHIELD is entitled to make the delivery contingent on payment of cash in advance or withdraw from the agreement. The entitlement to payment for services already provided shall remain unaffected.

Delivery times

Delivery times are only binding if expressly agreed in writing. The term for delivery begins with the date of order confirmation, but not before the customer has submitted all required documents. If a deposit has been agreed upon, the term for delivery shall not begin before the deposit is paid.

The delivery time shall be deemed met if the merchandise leaves the production facility before it expires or the customer has been notified the merchandise is ready for shipment.

If the merchandise is not accepted by the customer, the customer will be invoiced for costs resulting from the storage of the merchandise after notification of readiness for shipment or at least 1 % of contract value. In addition, YSHIELD is entitled to otherwise dispose of the merchandise after a reasonable period.

If YSHIELD is prevented from meeting its shipment obligations due to circumstances of force majeure, operational disruptions, delays in delivery or non-delivery of essential raw materials and supplies, labour shortages, strikes or labour disputes, the delivery term is extended to a reasonable extent, at least for the duration the disturbance.

If there are unreasonable delays YSHIELD reserves the right to withdraw from the agreement completely or in part.

If the customer can verify damages caused by late delivery he can claim not more than 5 % of the value of the merchandise in the late shipment. This does not apply if it is proven YSHIELD acted with intent or gross negligence.

Transfer of risk and cost bearing

The delivery of merchandise ordered from YSHIELD is at the risk and expense of the customer.

The risk of accidental destruction and accidental deterioration of the merchandise is in any event transferred to the customer with the handing over of the merchandise to the shipping agent and no later than when the merchandise leaves the premises of YSHIELD, regardless of the obligation to provide freight. If the transfer to the shipping agent is delayed for reasons customer is responsible for, the risk is transferred to the customer one week from the date of the notice of readiness for shipment.

YSHIELD is not obliged to insure the merchandise. At the written request of the customer, YSHIELD will insure the merchandise at the customer's cost for storage damage, breakage, transport damage and fire damage.

The method of dispatch shall be left to YSHIELD. Special customer requests can only be considered if they have been expressed when placing the order and YSHIELD has confirmed in writing. The additional cost for special delivery requests shall in all cases be borne by the customer. Supplementary and additional orders cannot be considered special requests, but are deemed new orders for which YSHIELD shall issue a separate order confirmation. Calculating freight is also a separate process.

Terms of payment

Payments are to be transferred to one of the bank accounts stated in the YSHIELD invoice without any costs for the recipient.

The customer must pay YSHIELD invoices within two weeks of billing (invoice date). If the term of payment is exceeded the customer is considered in default and will be required to pay statutory default interest. For customers not considered consumers pursuant to § 13 German Civil Code (BGB), this is eight 8, otherwise 5 percentage points above the base rate. YSHIELD reserves the right to claim higher damages.

In the event of payment by invoice, YSHIELD shall only grant a 2 % discount on the gross invoice total if this is expressly stated in writing on the invoice.

Payments by cheque or bill of exchange are accepted only on account of performance. YSHIELD will charge the customer for all associated costs

The customer may only offset against YSHIELD claims or make use of the right of retention if the counterclaims are acknowledged or legally binding.

Retention of title

The delivered merchandise remains the property of YSHIELD until all claims YSHIELD has against the customer have been met. In an ongoing business relationship retention of title applies to all deliveries until full payment of the current account balance has been made. Als Käufer gelten auch dem konkreten Kunden zuzurechnende Konzernunternehmen. Group companies affiliated with the specific customer may also be considered a customer.

The customer may sell the merchandise only in the normal course of business transactions until such time as the current account balance is paid. Pledges and transfer by way of security are expressly excluded from the customer's right of disposal. If the merchandise is resold the customer has an obligation to YSHIELD to agree to an additional retention of title with his customer.

The customer shall relinquish claims against its customers arising from the resale of the property subject to retention until complete fulfilment of the rights cited in point 1. The customer is obliged to disclose all information and to hand over all documents that YSHIELD requires to assert the rights of the prolonged retention of title to the customer of the customer.

If the value of securities pledged to YSHIELD exceeds outstanding claims against the customer pursuant to point 1 by more than 20%, YSHIELD agrees upon the customer's request to release securities exceeding this amount. YSHIELD selects the securities to be released. For the assessment of outstanding claims YSHIELD has against the customer and the securities provided, the nominal purchase prices according to YSHIELD's invoice and the customer's nominal purchase price prices from his invoices to his customer shall prevail.

YSHIELD must be informed immediately of any interference with the merchandise subject to retention of title by third parties, for example pledges or confiscation. All costs associated with such an intervention that YSHIELD incurs will be reimbursed by the customer.

If YSHIELD takes back merchandise subject to retention of title in accordance with the collateral agreements cited above, crediting of the outstanding claims will be in the nominal amounts cite indicated in the sales invoices. YSHIELD, however, reserves the right to assert claims separately for damages, in particular for lost profits.

Liability

YSHIELD is not liable for damages resulting from improper use of products. The customer is responsible for ensuring that the suitability of the product is provided in terms of the use or further processing of the materials and chemical additives. The customer is obliged to establish the suitability of the merchandise on the basis of sample processing.

The customer agrees in the case of further processing and transfer of the product to clearly state to individual customers the scope of permitted use and the hazards of improper use.

YSHIELD is exempted from any claims by third parties.

Guarantee

Any claims with regard to the quantity and/or quality of a delivery, provided they are considered open defects must be reported immediately (within one week after receipt of the merchandise) to YSHIELD.

In the even there are concealed defects, written claims must be made promptly upon their detection, but no later than one year after the arrival of the merchandise; the statutory limitation periods remain unaffected. The burden of proof that there is a hidden defect lies with the customer. If the customer is a consumer according to § 13 BGB then § 476 BGB applies.

For legitimate claims a rectification of a defect or replacement is provided at the customer's option, provided the customer is a consumer as defined by § 13 BGB, otherwise the choice is made by YSHIELD. Should YSHIELD be unable to provide rectification of a defect or replacement or pursuant to § 439 section 3 BGB entitled to refuse rectification of a defect or replacement or if YSHIELD is responsible for the delay of a rectification of a defect or replacement exceeding a reasonable period, or if rectification of a defect or replacement fails twice, the customer shall be entitled at his discretion, to withdraw from the agreement or to demand a reduction of the purchase price.

The customer is only entitled to take legal recourse against YSHIELD if the legal requirements are met. Therefore, there is no recourse if the customer has made agreements with his customer which go beyond the statutory claims for defects within the framework of a guarantee or as a guarantee of goodwill.

A one year warranty period shall apply if the legal provisions on the sale of consumer goods (§§ 474 et seq. BGB) particularly with regard to recourse liability (§§ 478 et seq.) do not apply because the statutory requirements have not been met.

The legal consequences of a breach of the commercial obligation of examination and notification of defect (pursuant to § 377 German Commercial Code HGB) remain unaffected.

Damage claims of the customer for whatever legal reason, especially due to the breach of obligations arising from the debt relationship or from unauthorised action, shall be excluded, provided that no compelling legal liability exists in accordance with product liability law, in the case liability for intentional or grossly negligent behaviour, claims arising from death and injury to body and health or in case of breach of fundamental obligations in the agreement.

The claim for compensation for the infringement of essential agreement commitments is, however, limited to agreement-typical, foreseeable damage unless a limitation is excluded for other reasons due to intentional or grossly negligent behaviour as well as claims arising from death and injury to body and health.

Returns that are not based on a customer's right of cancellation under its warranty rights shall be accepted only with prior consent of YSHIELD. If this has not been granted, YSHIELD may refuse to accept returned merchandise or return the merchandise at the expense of the party that shipped the goods.

When faultless merchandise is authorised for return and provided YSHIELD is not responsible for the return of the merchandise the price valid at the time of invoicing is used for calculating repayment and the freight and processing costs are deducted.

YSHIELD does not grant a warranty that exceeds the statutory warranty.

Agreement documents

All YSHIELD documents are copyright protected. These documents may be disclosed to third parties only after prior written consent. Documents that are part of a quotation must be returned to YSHIELD if requested, especially if no agreement is concluded.

YSHIELD provided by the customer receives documents, YSHIELD is entitled to make documents it has received from the customer available to third parties that are commissioned or should be commissioned to provide supplies or services.

Privacy policy

YSHIELD is entitled to store in an automated file and process for business processes the personal data received on the customer during the business relationship, regardless of whether this data was provided by the customer himself or by third parties, in accordance with the German Data Protection Act.

The customer agrees to the processing of its personal data that becomes known to YSHIELD directly or indirectly via third parties.

Place of fulfilment, court of jurisdiction

The place of fulfilment and court of jurisdiction is the headquarters of the company YSHIELD provided the party to the agreement is a qualified merchant, a legal entity under public law or a public-law special fund. German law shall apply. Application of the Uniform Law on the International Sale of Goods and the Uniform Law on the Formation of Contracts for the International Sale of Goods - both dated July 17, 1973 - and of the UN Agreement on the Sale of Goods of April 11, 1980 shall be excluded.