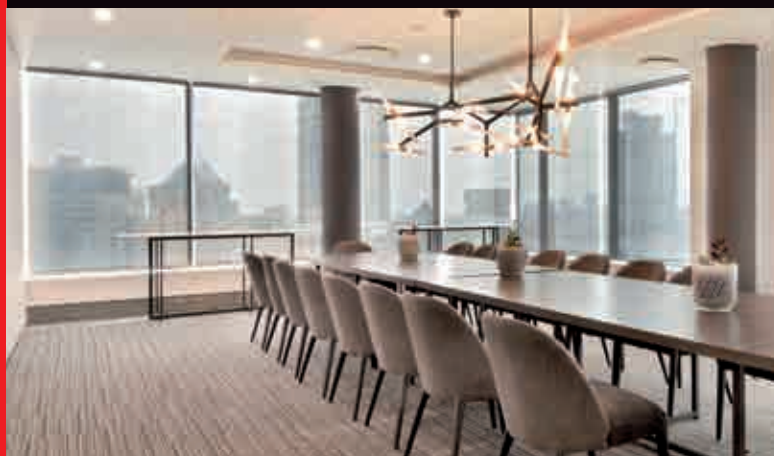


MERMET COLLECTION

# HIGH-TECH

HIGH-TECH



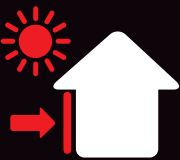
MERMET COLLECTION

INTELLIGENT FABRICS FOR SOLAR PROTECTION

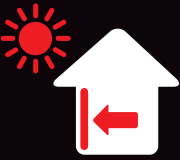


INTERNAL  
APPLICATION

# WHAT ABOUT SOLAR PROTECTION ?



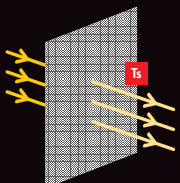
**Installed externally**, Mermet solar protection fabrics offer an **unrivalled thermal protection**. **Dark colours** provide a better heat control than light colours as they absorb more solar energy.



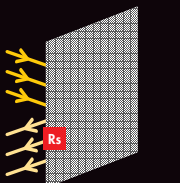
**On the contrary, for inside applications**, **light or reflective colours** are more efficient thermally as they absorb less heat and reflect more than darker ones.  
Dark colours guarantee an excellent view through and a perfect glare control. Light colours diffuse more natural light.

## HEAT MANAGEMENT - THERMAL FACTORS

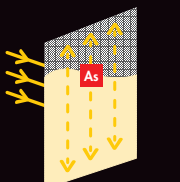
Solar radiation is always partially transmitted through, absorbed or reflected by the fabric. The sum of all 3 equals 100. **Ts + Rs + As = 100% OF SOLAR ENERGY.**



**Ts** **SOLAR TRANSMITTANCE:** proportion of solar energy transmitted through the fabric.  
 **$\tau_e$**  A low percentage means the fabric performs well at reducing solar energy.



**Rs** **SOLAR REFLECTANCE:** proportion of solar radiation reflected by the fabric.  
 **$\rho_e$**  A high percentage means the fabric performs well at reflecting solar energy.



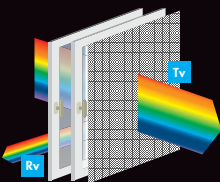
**As** **SOLAR ABSORPTANCE:** proportion of solar radiation absorbed by the fabric.  
 **$\alpha_e$**  A low percentage means the fabric absorbs little solar energy.

**gtot** **TOTAL SOLAR FACTOR:** percentage of solar energy which actually penetrates into a room through the blind and glazing. A low value means good thermal performance.

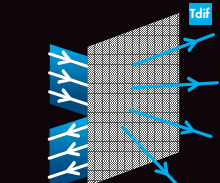
## VISUAL MANAGEMENT - OPTICAL FACTORS



**OF** **OPENNESS FACTOR (Tvnn):** relative area of the openings in the fabric (hole). It is considered as independent of the colour. For fabrics with the same weave, it should be measured using the darkest colour in the range.



**Tv** **VISIBLE LIGHT TRANSMITTANCE (Tvnh):** total percentage of light radiated through the fabric over a wavelength of 380 to 780 nm (nanometers), called the visible spectrum (total illumination).



**Rv** **VISIBLE LIGHT REFLECTANCE (Rvnh):** proportion of light reflected by the fabric.  
 **$\rho_v$**

**Tdif** **DIFFUSE TRANSMISSION FACTOR:** correlation of the two factors above:  $Tdif = Tv - OF$ .

The regulations value the **gtot factor** for thermal comfort and **Tv** for visual comfort.

S2 1% - SCREEN THERMIC

TECHNICALLY ADVANCED TEXTILE: DOUBLE-SIDED FABRICS



AVAILABLE IN 3% - 5%

GLARE CONTROL

- Good outward visibility and **PERFECT GLARE CONTROL** with the dark-coloured inside facing fabric: up to **97% OF LIGHT RAYS FILTERED** (Tv = 3%) comfort classification 3 (good effect) according to EN 14501 standard
- **MAXIMUM HEAT PROTECTION** with the white-coloured outside facing fabric that **REFLECTS SOLAR RADIATION**: up to 87% of solar energy eliminated (gtot = 0,13 / glazing g = 0,32 and U = 1,1 W/m²K)

TECHNICAL DATA

S2 1%		
Composition	36% Fibreglass - 64% PVC	
Fire, smoke classification and other official test reports*	<b>M1</b> (F) - NFP 92 503 <b>BS</b> (GB) - 476 Pt 6 & 7 Class 0 <b>BS</b> (GB) - 5867 <b>Euroclass C-s3-d0</b> (EU) - EN 13501-1 mounted according to EN 13823 & EN 14716	<b>B1</b> (DE) - DIN 4102-1 <b>CLASSE 1</b> (SP) - EN 13773 <b>C UNO</b> (IT) - UNI 9177 <b>FR</b> (US) - NFPA 701 <b>HHV</b> : 15,7 MJ/kg (706 MJ/m²)
Health, safety	<b>Greenguard® GOLD</b> : Guarantee of indoor air quality (VOC) <b>Antibacterial</b> : More than 99% of bacteria destroyed - ASTM E 2180	
Openness factor	1%	
Width	250 cm	
Weight/m²	450 g ± 5% - ISO 2286 - 2	
Thickness	0,58 mm ± 5% - ISO 2286 - 3	

This product's technical data are in conformity with this brochure as of the date of publication. MERMET SAS reserves the right to change the technical data; only those provided on the company's website [www.sunscreen-mermet.com](http://www.sunscreen-mermet.com) shall be deemed to be authentic. Where applicable, MERMET SAS also reserves the right to withdraw this product from sale should any of the technical properties or characteristics set out above prove to be inadequate or rendered impossible as a result of a change in regulations or in knowledge or understanding.  
\* Reports available on request, please contact Mermet

M-SCREEN ULTIMETAL® - SCREEN LOW E

THE HIGH-PERFORMANCE METALLIC SCREEN



**ERRATUM**

PRODUCT NOT AVAILABLE FOR SALE

Do you have a project? Contact us.

- Thanks to its metallic side, the fabric M-SCREEN ULTIMETAL® provides a technical combination of **HIGH SOLAR REFLECTION (83%)** and **EXCELLENT VISIBLE TRANSMISSION (Tv: from 3 to 4%)**, **IRRESPECTIVE OF THE COLOUR SELECTED** for the interior ambiance
- **VERY LOW EMISSIVITY OF 5%**. The fabric acts as a thermal insulator increasing **INTERIOR COMFORT IN BOTH THE SUMMER and WINTER**
- **TOTAL GLARE CONTROL**: up to 97% of light rays filtered, comfort classification 3 (good effect) according to EN 14501 standard

TECHNICAL DATA

M-SCREEN ULTIMETAL®		
Composition	36% Fibreglass - 64% Vinyl	
Fire, smoke classification and other official test reports*	<b>M1</b> (F) - NFP 92 503 <b>BS</b> (GB) - 476 Pt 6 & 7 Class 0 <b>Euroclass C-s3-d0</b> (EU) - EN 13501-1 mounted according to EN 13823 & EN 14716	<b>FR</b> (US) - NFPA 701 <b>CLASSE 1</b> (SP) - EN 13773 <b>C UNO</b> (IT) - UNI 9177 <b>F3 (F)</b> - NF F 16-101 <b>HHV</b> : 13,76 MJ/kg (5,57 MJ/m²)
Health, safety	<b>Greenguard® GOLD</b> : Guarantee of indoor air quality (VOC) <b>Antibacterial</b> : More than 99% of bacteria destroyed - ASTM E 2180	
Openness factor	3%	
Emissivity	0,05 - EN 12898	
Widths	200 - 285 cm	
Weight/m²	405 g ± 5% - ISO 2286 - 2	
Thickness	0,46 mm ± 5% - ISO 2286 - 3	

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\* Reports available on request, please contact Mermet

THERMAL AND OPTICAL FACTORS in the European standard EN 14501

S2 - OF 1%	Thermal factors					Optical factors
	Fabric			Fabric + Glazing / gtot internal blind		Tv
Colours (clear side factors)	Ts	Rs	As	C : gv = 0,59	D : gv = 0,32	
0202 White	19	69	12	0,29 2	0,13 3	19
0220 White Linen	17	64	19	0,32 2	0,15 2	15
0207 White Pearl	12	59	29	0,33 2	0,16 2	11
0210 White Sable	12	59	29	0,33 2	0,17 2	9
0201 White Grey	9	54	37	0,35 1	0,18 2	6
0206 White Bronze	4	48	48	0,36 1	0,19 2	4
0230 White Charcoal	3	46	51	0,38 1	0,19 2	3

gv = 0,59: Solar factor of standard glazing (C), low-emission 4/16/4 double glazing filled with Argon (U value thermal transmittance = 1,2 W/m²K).  
gv = 0,32: Solar factor of standard glazing (D), reflecting low-emission 4/16/4 double glazing filled with Argon (U value thermal transmittance = 1,1 W/m²K).  
Comfort classification according to EN 14501 standard: 1 very little effect 2 little effect 3 moderate effect 4 good effect 5 very good effect  
Samples tested according to EN 14500 standard defining the measurements and calculation methods as specified in the standard EN 13363-2 "Solar protection devices combined with glazing calculation of solar and light transmittance - part 2: EN 13363-2 detailed method" and EN 410 "Glass in building - Determination of luminous and solar characteristics of glazing".

THERMAL AND OPTICAL FACTORS in the European standard EN 14501

M-SCREEN ULTIMETAL® OF 3%	Thermal factors					Optical factors
	Fabric			Fabric + Glazing / gtot internal blind		Tv
Colours (metalized side factors)	Ts	Rs	As	C : gv = 0,59	D : gv = 0,32	
0202 White	4	83	13	0,23 2	0,11 3	4
0220 White Linen	4	83	13	0,23 2	0,10 3	4
0702 Pearl White	4	83	13	0,24 2	0,11 3	4
0707 Pearl	4	83	13	0,24 2	0,12 3	4
3001 Charcoal Grey	4	83	13	0,23 2	0,11 3	3
3010 Charcoal Sable	4	83	13	0,23 2	0,11 3	3
3030 Charcoal	4	83	13	0,23 2	0,11 3	3

gv = 0,59: Solar factor of standard glazing (C), low-emission 4/16/4 double glazing filled with Argon (U value thermal transmittance = 1,2 W/m²K).  
gv = 0,32: Solar factor of standard glazing (D), reflecting low-emission 4/16/4 double glazing filled with Argon (U value thermal transmittance = 1,1 W/m²K).  
Comfort classification according to EN 14501 standard: 1 very little effect 2 little effect 3 moderate effect 4 good effect 5 very good effect  
Samples tested according to EN 14500 standard defining the measurements and calculation methods as specified in the standard EN 13363-2 "Solar protection devices combined with glazing calculation of solar and light transmittance - part 2: EN 13363-2 detailed method" and EN 410 "Glass in building - Determination of luminous and solar characteristics of glazing".



# SATINÉ 5500 LOW E - SCREEN LOW E

## THE DOUBLE-SIDED METALLIC SCREEN



LOW E

## 75% OF SOLAR REFLECTANCE

### EXCELLENT VISUAL COMFORT

■ **EXCELLENT HEAT PROTECTION THANKS TO ITS DOUBLE-SIDED METALLIZATION.** The fabric alone **REFLECTS 88% OF SOLAR ENERGY** (gtot = 0,12 / glazing g = 0,32 and U = 1,1 W/m<sup>2</sup>K)

■ Unequalled **EMISSIONITY LEVEL** of **9%** to minimize transmission of heat or cold from the glazing. The fabric acts as an **INSULATOR** for the glazing, increasing **INTERIOR COMFORT IN BOTH THE SUMMER and WINTER**

■ **EXCELLENT VISUAL COMFORT:** maintains view to the outside, optimisation of incoming natural light and **TOTAL GLARE CONTROL**, comfort classification 3 (good effect) according to EN 14501 standard

### TECHNICAL DATA

SATINÉ 5500 LOW E	
Composition	42% Fibreglass - 58% PVC
Fire, smoke classification and other official test reports*	M1 (F) - NFP 92 503 B1 (DE) - DIN 4102-1 Euroclass C-s3-d0 (EU) - EN 13501-1 mounted according to EN 13823 & EN 14716 FR (US) - NFPA 701 HHV: 13,5 MJ/kg (7,02 MJ/m <sup>2</sup> )
Health, safety	Greenguard® GOLD: Guarantee of indoor air quality (VOC) Antibacterial: More than 99% of bacteria destroyed - ASTM E 2180
Openness factor	3%
Emissivity	0,09 - EN 12898
Width	240 cm
Weight/m <sup>2</sup>	520 g ± 5% - ISO 2286 - 2
Thickness	0,65 mm ± 5% - ISO 2286 - 3

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\* Reports available on request, please contact Mermet

### THERMAL AND OPTICAL FACTORS in the European standard EN 14501

SATINÉ 5500 LOW E OF 3%	Thermal factors					Optical factors
	Fabric			Fabric + Glazing / gtot internal blind		Tv
Colour	Ts	Rs	As	C : gv = 0,59	D : gv = 0,32	
Satiné 5500 Low E - Side A	4	75	21	0,26 ②	0,12 ③	4
Satiné 5500 Low E - Side B	4	72	24	0,27 ②	0,12 ③	4

gv = 0,59: Solar factor of standard glazing (C), low-emission 4/16/4 double glazing filled with Argon (U value thermal transmittance = 1,2 W/m<sup>2</sup>K).

gv = 0,32: Solar factor of standard glazing (D), reflecting low-emission 4/16/4 double glazing filled with Argon (U value thermal transmittance = 1,1 W/m<sup>2</sup>K).

Comfort classification according to EN 14501 standard: ① very little effect ② little effect ③ moderate effect ④ good effect ⑤ very good effect

Samples tested according to EN 14500 standard defining the measurements and calculation methods as specified in the standard EN 13363-2 "Solar protection devices combined with glazing calculation of solar and light transmittance - part 2: EN 13363-2 detailed method" and EN 410 "Glass in building - Determination of luminous and solar characteristics of glazing".

SCREEN NATURE ULTIMETAL<sup>®</sup> - SCREEN NATURE

MINERAL COMPOSITION: INCOMBUSTIBLE



74% OF SOLAR REFLECTANCE

EXCELLENT TRANSPARENCY

- **TRANSPARENT THERMAL SHIELD:** the **METALIZED SIDE**, facing the window, rejects up to 88% of solar energy **IN ALL COLOURS** (gtot = 0,12 / glazing g = 0,32 and U = 1,1 W/m²K)
- **VERY LOW EMISSIVITY OF 10%.** The fabric acts as a **THERMAL INSULATOR**, delivering interior comfort in summer and winter
- Excellent **GLARE CONTROL**

TECHNICAL DATA

SCREEN NATURE ULTIMETAL <sup>®</sup>		
Composition	Glass fabric with fire-proof PVC-free and halogen-free coating (contains fluorine)	
Fire, smoke classification and other official test reports*	M0-M1 (F) - NFP 92 503 B1 (DE) - DIN 4102-1 BS (GB) - 476 Pt 6 & 7 Class 0 Euroclass A2-s1-d0 (EU) - EN 13501-1 mounted according to 13823 & EN 14716	C UNO (IT) - UNI 9177 FR (US) - NFPA 701 FO - NF F 16-101 HHV: 1,59 MJ/kg (0,26 MJ/m²)
Health, safety	Greenguard <sup>®</sup> GOLD: Guarantee of indoor air quality (VOC) Antibacterial: More than 99% of bacteria destroyed - ASTM E 2180	
Openness factor	4 %	
Emissivity	0,10 - EN 12898	
Widths	180 - 240 cm (depending on colours*)	
Weight/m²	165 g ± 5% - ISO 2286 - 2	
Thickness	0,21 mm ± 5% - ISO 2286 - 3	

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THERMAL AND OPTICAL FACTORS in the European standard EN 14501

SCREEN NATURE ULTIMETAL <sup>®</sup> - OF 4%	Thermal factors					Optical factors
	Fabric			Fabric + Glazing/gtot internal blind		Tv
	Colours (metalized side factors)	Ts	Rs	As	C : gv = 0,59    D : gv = 0,32	
1301 Titanium		6	74	20	0,28 2    0,13 3	6
1303 Platinum		6	74	20	0,27 2    0,13 3	6
1302 Inox		6	74	20	0,29 2    0,14 3	5
1304 Iron		5	74	21	0,27 2    0,13 3	5
1305 Carbon		5	74	21	0,28 2    0,14 3	5
1306 Bronze		5	74	21	0,28 2    0,14 3	5
1307 Black Diamond		4	73	23	0,27 2    0,12 3	4

gv = 0,59: Solar factor of standard glazing (C), low-emission 4/16/4 double glazing filled with Argon (U value thermal transmittance = 1,2 W/m²K).  
gv = 0,32: Solar factor of standard glazing (D), reflecting low-emission 4/16/4 double glazing filled with Argon (U value thermal transmittance = 1,1 W/m²K).  
Comfort classification according to EN 14501 standard: 1 very little effect 2 little effect 3 moderate effect 4 good effect 5 very good effect  
Samples tested according to EN 14500 standard defining the measurements and calculation methods as specified in the standard EN 13363-2 "Solar protection devices combined with glazing calculation of solar and light transmittance - part 2: EN 13363-2 detailed method" and EN 410 "Glass in building - Determination of luminous and solar characteristics of glazing".

# THE BENEFITS OF HIGH-TECH FABRICS

By controlling the effect the sun exerts on buildings, our fabrics guarantee:

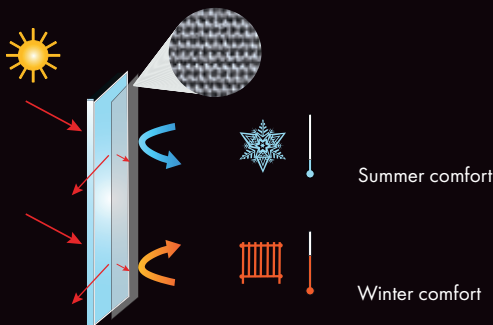
- **Thermal comfort:** summer and winter temperature control
- **Very low emissivity:** **HIGH-TECH fabrics** act as a thermal insulator
- **Visual comfort:** glare control, natural light and total or partial blackout
- **Energy savings:** reduce the use of heating, air conditioning and artificial lighting
- **Aestheticism:** excellent transparency, maintain view to the outside

Compliant with the EN 14501 standard, Mermet® fabrics are suitable for the bio-climatic facades of low-energy or HEQ buildings and meet the requirements of RT 2012 thermal regulations in France as well as international. They play a major role in the ability to obtain credits for eco-efficient or eco-design building certifications such as LEED®, BREEAM®, DGNB®.

Thanks to our technology based on the use of **glass fibre**, our fabrics combine **efficiency and durability**:

- **Chemically inert, non-flammable:** they meet the highest fire safety standards
- **Dimensional stability, durability, mechanical resistance:** they offer a perfect flatness even in large dimensions
- **Any dangerous substances:** they are conform to standard requirements for buildings open to the public

## EMISSIVITY IN FOCUS



The emissivity of a material is its ability to re-emit the energy received through conduction (heat/cold).

A fabric with low emissivity minimises transmission of heat or cold from the glazing.

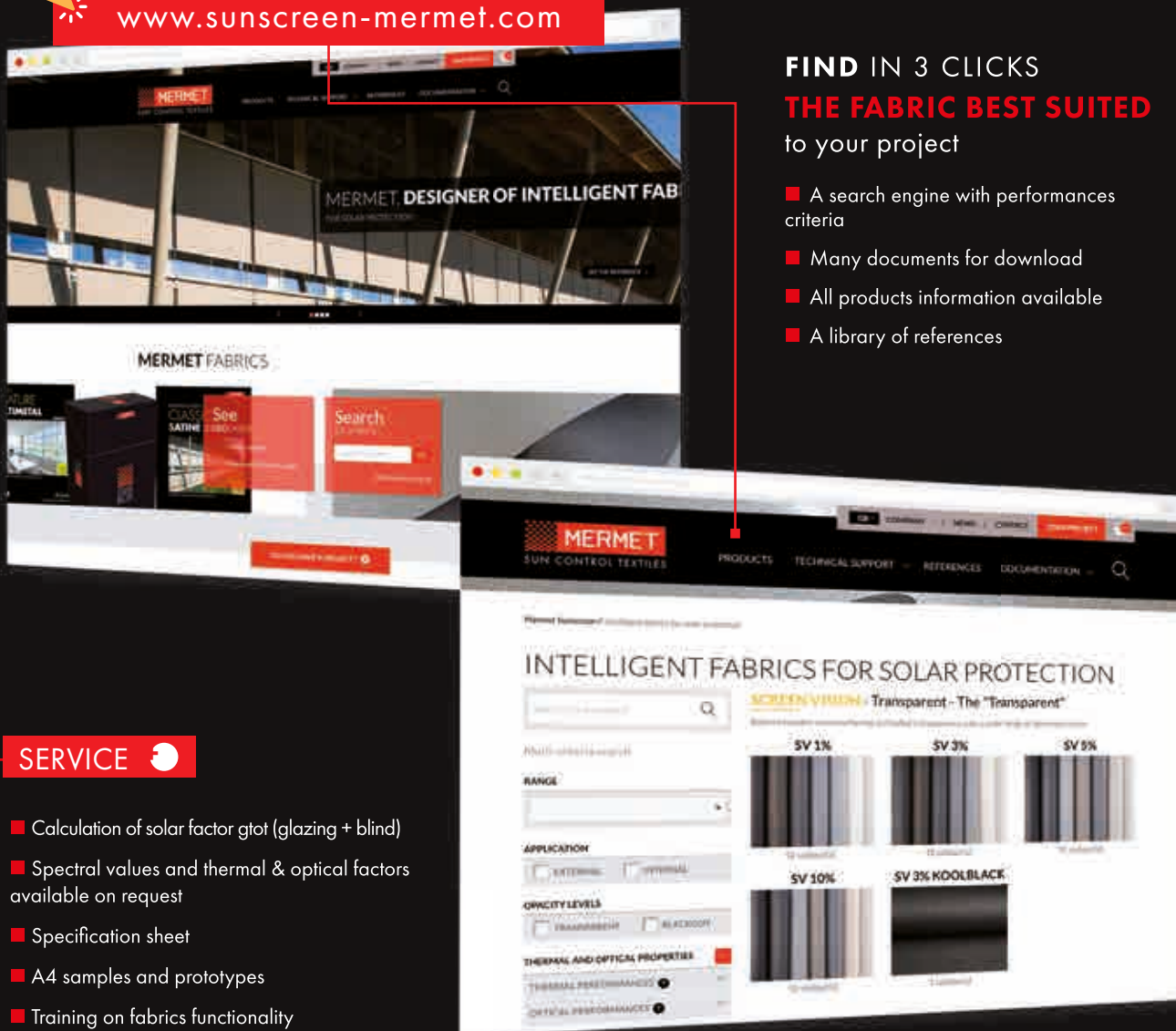
It acts as an insulator to ensure comfort in both summer and winter, and allows to optimize the energy consumption of buildings.

## COMPARISON OF THERMAL AND OPTICAL PERFORMANCES

Fabrics tested		S2 1% 0210 White Sable	M-Screen Ultimetel® 3030 Charcoal	Satiné 5500 LOW E	Screen Nature Ultimetel® 1307 Black Diamond	Metalized polyester fabric
Measurement of heat point by thermal camera after 3 minutes of exposure						
Rs		59	83	75	73	70
Emissivity		0,89	0,05	0,09	0,10	0,35
g <sub>tot</sub> internal blind	C : gv = 0,59	0,33	0,23	0,26	0,27	0,28
	D : gv = 0,32	0,17	0,11	0,12	0,12	0,13
Tv		9	3	4	4	4
OF		1	3	3	4	2



[www.sunscreen-mermet.com](http://www.sunscreen-mermet.com)



## FIND IN 3 CLICKS THE FABRIC BEST SUITED to your project

- A search engine with performances criteria
- Many documents for download
- All products information available
- A library of references

## SERVICE

- Calculation of solar factor gtot (glazing + blind)
- Spectral values and thermal & optical factors available on request
- Specification sheet
- A4 samples and prototypes
- Training on fabrics functionality

**MERMET COLLECTION** offers a **wide choice of fabrics** for external and internal application, from transparency to total darkness, for thermal and optical comfort. To receive other brochures from the collection, **contact us**.



SCREEN VISION / DESIGN / THERMIC / LOW E

EXTERNAL SCREEN CLASSIC

SCREEN NATURE

BLACKOUT 100 %

ACOUSTICS



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[www.sunscreen-mermet.com](http://www.sunscreen-mermet.com).