

visi

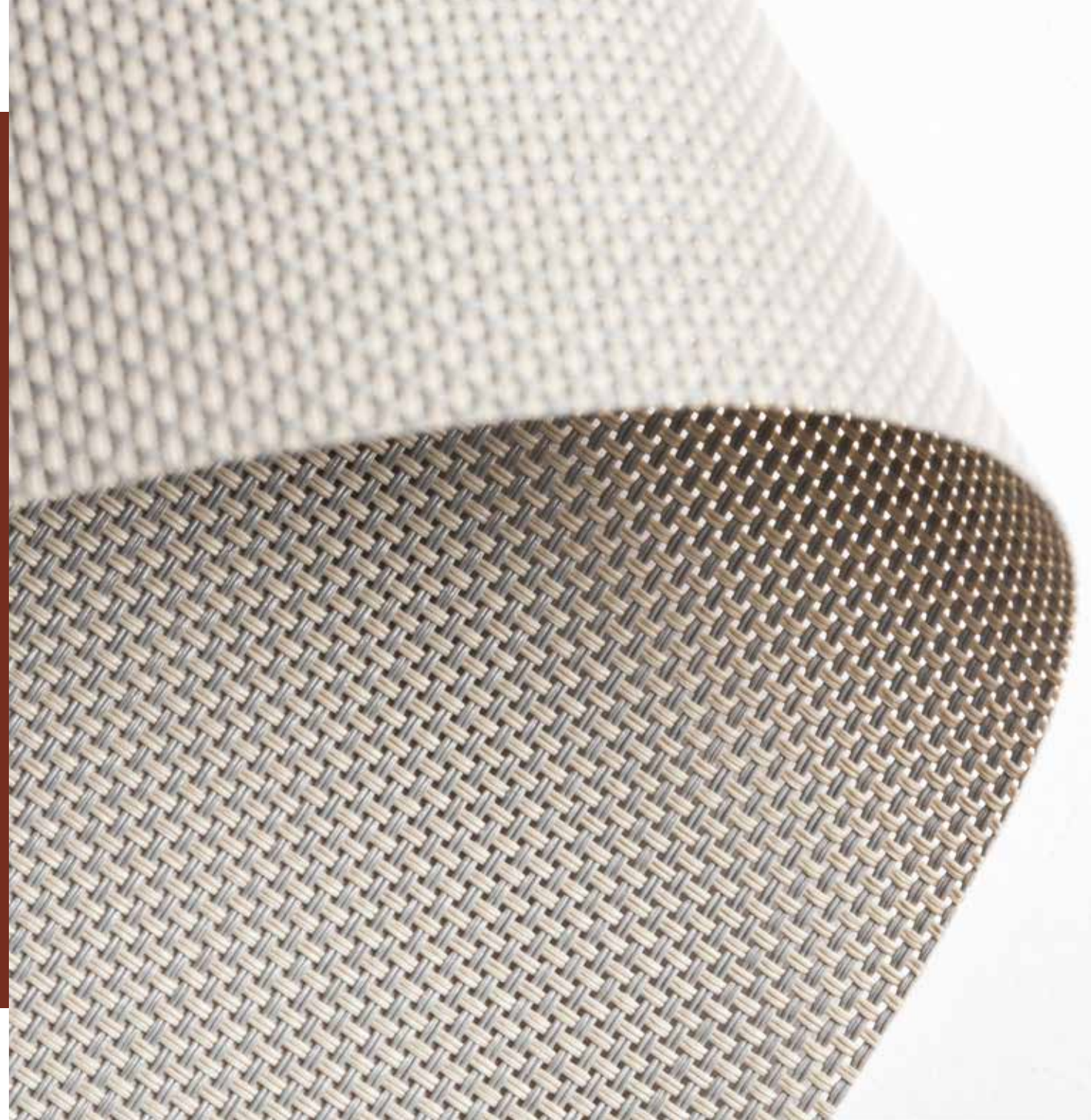
# Natté

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COLLECTION 2018-2021  
CLARITY & COMFORT  
GLASSFIBRE  
OF = 1-10%

screenprotectors<sup>®</sup>  
a brand of  
 **copaco**<sup>®</sup>  
screenweavers

**Your view is key.  
Maintain your  
privacy and filter  
out unnecessary  
sunlight.  
Meet Visi.**





# Natté



GLASSFIBRE

OF = 1-10%

Natté 300 002002 white | white



Natté 380 002002 white | white



Natté 390 002002 white | white



Natté 420 002002 white | white





# Natté



GLASSFIBRE

OF = 1-10%

Natté 300 010010 charcoal | charcoal

Natté 380 010010 charcoal | charcoal

Natté 390 010010 charcoal | charcoal

Natté 420 010010 charcoal | charcoal



# Natté 300

OF = 10%

# Natté 380

OF = 5%

## Technical specifications

TECHNICAL SPECIFICATION		UNITY		STANDARD	RESULT
composition				Glassfibre 36% - PVC 64%	
openness factor		%		NBN EN 410	10%
weight		g/m <sup>2</sup>		NF EN 12127	345
thickness		mm		ISO 2286-3	0,45
density		yarn/cm	warp	ISO 7211/2	18
			weft		18
colour fastness to artificial light				ISO 105 B02	>7
tear strength	original	daN	warp	ISO 4674-1 method 2	4,7
			weft		4,9
elongation up to break	original	%	warp	ISO 1421	2,7
			weft		2,7
breaking strength	original	daN/5 cm	warp	ISO 1421	140
			weft		135
elongation up to break	after colour fastness to artificial light	%	warp	ISO 1421	3,1
			weft		3,2
breaking strength	after colour fastness to artificial light	daN/5 cm	warp	ISO 1421	140
			weft		140
tear strength	after climatic chamber -30°C	daN	warp	ISO 4674-1 method 2	4,8
			weft		4,9
elongation up to break	after climatic chamber -30°C	%	warp	ISO 1421	3,1
			weft		2,7
breaking strength	after climatic chamber -30°C	daN/5 cm	warp	ISO 1421	135
			weft		130
tear strength	after climatic chamber +70°C	daN	warp	ISO 4674-1 method 2	4,8
			weft		4,9
elongation up to break	after climatic chamber +70°C	%	warp	ISO 1421	2,7
			weft		2,7
breaking strength	after climatic chamber +70°C	daN/5 cm	warp	ISO 1421	100
			weft		120
fire classification	Europe			UNE-EN 13501-1:2007	C-s3,d0
	France			NF P92-503	M2
	Italy			UNI 9177	Class 1
	UK			BS 5867	C
	USA			NFPA 701	FR
	Spain			UNE EN 13773-2003	Clase 1
roll length		<b>30 m</b>			
cleaning		with soapy water			
confection		by heat, high frequency or ultrasonic welding			

These properties are given as indicative and don't have any contractual value

## Technical specifications

TECHNICAL SPECIFICATION		UNITY		STANDARD	RESULT
composition				Glassfibre 36% - PVC 64%	
openness factor		%		NBN EN 410	5%
weight		g/m <sup>2</sup>		NF EN 12127	380
thickness		mm		ISO 2286-3	0,45
density		yarn/cm	warp	ISO 7211/2	20
			weft		20
colour fastness to artificial light				ISO 105 B02	>7
tear strength	original	daN	warp	ISO 4674-1 method 2	4,9
			weft		4,7
elongation up to break	original	%	warp	ISO 1421	3,7
			weft		3,2
breaking strength	original	daN/5 cm	warp	ISO 1421	160
			weft		160
elongation up to break	after colour fastness to artificial light	%	warp	ISO 1421	3,7
			weft		3
breaking strength	after colour fastness to artificial light	daN/5 cm	warp	ISO 1421	150
			weft		160
tear strength	after climatic chamber -30°C	daN	warp	ISO 4674-1 method 2	5,1
			weft		5,15
elongation up to break	after climatic chamber -30°C	%	warp	ISO 1421	4
			weft		3
breaking strength	after climatic chamber -30°C	daN/5 cm	warp	ISO 1421	150
			weft		140
tear strength	after climatic chamber +70°C	daN	warp	ISO 4674-1 method 2	5,3
			weft		4,8
elongation up to break	after climatic chamber +70°C	%	warp	ISO 1421	3,6
			weft		2,9
breaking strength	after climatic chamber +70°C	daN/5 cm	warp	ISO 1421	120
			weft		120
fire classification	Europe			UNE-EN 13501-1:2007	C-s3,d0
	France			NF P92-503	M2
	Italy			UNI 9177	Class 1
	UK			BS 5867	C
	USA			NFPA 701	FR
	Spain			UNE EN 13773-2003	Clase 1
roll length		<b>30 m</b>			
cleaning		with soapy water			
confection		by heat, high frequency or ultrasonic welding			

These properties are given as indicative and don't have any contractual value



# Natté 390

OF = 3%

# Natté 420

OF = 1%

## Technical specifications

TECHNICAL SPECIFICATION		UNITY		STANDARD	RESULT
composition				Glassfibre 36% - PVC 64%	
openness factor		%		NBN EN 410	3%
weight		g/m <sup>2</sup>		NF EN 12127	390
thickness		mm		ISO 2286-3	0,50
density		yarn/cm	warp	ISO 7211/2	25
			weft		15
colour fastness to artificial light				ISO 105 B02	>7
tear strength	original	daN	warp	ISO 4674-1 method 2	8,22
			weft		4,83
elongation up to break	original	%	warp	ISO 1421	7,05
			weft		4,45
breaking strength	original	daN/5 cm	warp	ISO 1421	259,2
			weft		178,5
elongation up to break	after colour fastness to artificial light	%	warp	ISO 1421	7,3
			weft		3,6
breaking strength	after colour fastness to artificial light	daN/5 cm	warp	ISO 1421	229,6
			weft		121,3
tear strength	after climatic chamber -30°C	daN	warp	ISO 4674-1 method 2	8,49
			weft		5,22
elongation up to break	after climatic chamber -30°C	%	warp	ISO 1421	7,21
			weft		4,33
breaking strength	after climatic chamber -30°C	daN/5 cm	warp	ISO 1421	252,7
			weft		174,7
tear strength	after climatic chamber +70°C	daN	warp	ISO 4674-1 method 2	8,09
			weft		4,9
elongation up to break	after climatic chamber +70°C	%	warp	ISO 1421	7,15
			weft		3,85
breaking strength	after climatic chamber +70°C	daN/5 cm	warp	ISO 1421	259,4
			weft		156,3
fire classification	Europe			UNE-EN 13501-1:2007	C-s3,d0
	France			NF P92-503	M2
	Italy			UNI 9177	Class 1
	UK			BS 5867	C
	USA			NFPA 701	FR
	Spain			UNE EN 13773-2003	Clase 1
roll length		<b>30 m</b>			
cleaning		with soapy water			
confection		by heat, high frequency or ultrasonic welding			

These properties are given as indicative and don't have any contractual value

## Technical specifications

TECHNICAL SPECIFICATION		UNITY		STANDARD	RESULT
composition				Glassfibre 36% - PVC 64%	
openness factor		%		NBN EN 410	1%
weight		g/m <sup>2</sup>		NF EN 12127	420
thickness		mm		ISO 2286-3	0,50
density		yarn/cm	warp	ISO 7211/2	25
			weft		18
colour fastness to artificial light				ISO 105 B02	>7
tear strength	original	daN	warp	ISO 4674-1 method 2	5,13
			weft		3,3
elongation up to break	original	%	warp	ISO 1421	6,71
			weft		4,46
breaking strength	original	daN/5 cm	warp	ISO 1421	244,1
			weft		190,9
elongation up to break	after colour fastness to artificial light	%	warp	ISO 1421	6,65
			weft		4,35
breaking strength	after colour fastness to artificial light	daN/5 cm	warp	ISO 1421	243,8
			weft		180
tear strength	after climatic chamber -30°C	daN	warp	ISO 4674-1 method 2	5,19
			weft		3,44
elongation up to break	after climatic chamber -30°C	%	warp	ISO 1421	6,93
			weft		4,02
breaking strength	after climatic chamber -30°C	daN/5 cm	warp	ISO 1421	266,8
			weft		175,8
tear strength	after climatic chamber +70°C	daN	warp	ISO 4674-1 method 2	5,47
			weft		3,59
elongation up to break	after climatic chamber +70°C	%	warp	ISO 1421	6,66
			weft		3,75
breaking strength	after climatic chamber +70°C	daN/5 cm	warp	ISO 1421	244,5
			weft		162,6
fire classification	Europe			UNE-EN 13501-1:2007	C-s3,d0
	France			NF P92-503	M2
	Italy			UNI 9177	Class 1
	UK			BS 5867	C
	USA			NFPA 701	FR
	Spain			UNE EN 13773-2003	Clase 1
roll length		<b>30 m</b>			
cleaning		with soapy water			
confection		by heat, high frequency or ultrasonic welding			

These properties are given as indicative and don't have any contractual value





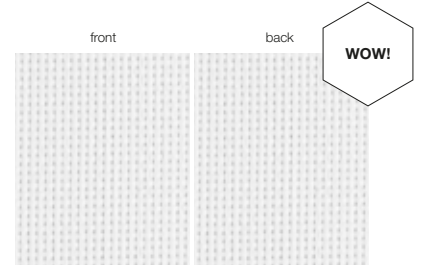
# Natté 300



GLASSFIBRE

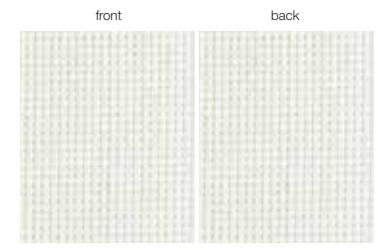
OF = 10%

## Colours & references



WOW!

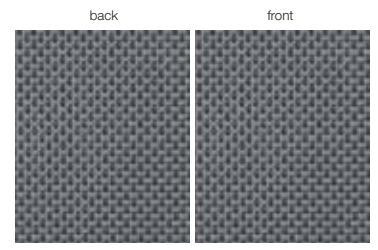
Natté 300 092092 WOW white



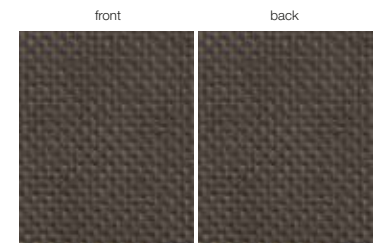
Natté 300 002002 white | white



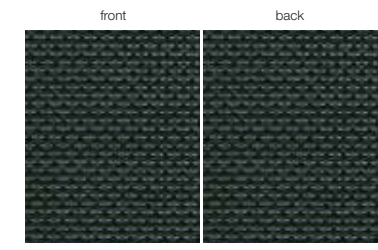
Natté 300 002008 white | linen



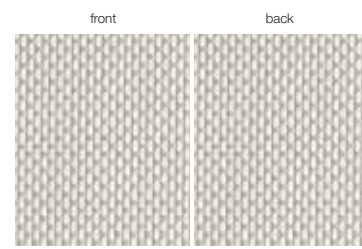
Natté 300 010001 charcoal | grey



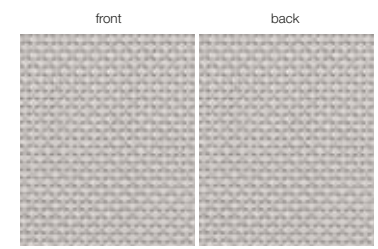
Natté 300 010011 charcoal | bronze



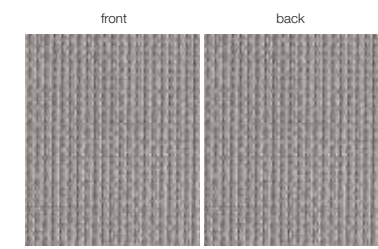
Natté 300 010010 charcoal | charcoal



Natté 300 002007 white | pearl grey



Natté 300 007008 pearl grey | linen



Natté 300 007007 pearl grey | pearl grey

Natté 300	200 cm	250 cm	320 cm
092092 WOW white		•	
002002 white   white	•	•	•
002008 white   linen	•	•	•
002007 white   pearl grey	•	•	•
007008 pearl grey   linen	•	•	•
007007 pearl grey   pearl grey	•	•	•
010001 charcoal   grey	•	•	•
010011 charcoal   bronze	•	•	•
010010 charcoal   charcoal	•	•	•

# Natté 300



GLASSFIBRE

OF = 10%

## Solar energetic properties

Natté 300 European Standard EN 14501 Calculation G-value according to EN13363-1 version 7.0			SOLAR ENERGETIC PROPERTIES										VISUAL PROPERTIES	
			FABRIC		FABRIC + GLAZING									
					INTERIOR									
					G-factor = total solar energy transmittance									
references	colours	front	back	As = Solar Absorptance %	Rs = Solar Reflectance %	Ts = Solar Transmittance %	Glazing A - Gv = 0,85 - U = 5,8	Glazing B - Gv = 0,76 - U = 2,9	Glazing C - Gv = 0,59 - U = 1,2	Glazing D - Gv = 0,32 - U = 1,1	Tv = Visible Light Transmittance %	Tuv = UV Transmittance %		
092092	WOW white	front		10,1	65	24,9	0,37	0,38	0,36	0,25	23,6	10,7		
		back		10,1	65	24,9	0,37	0,38	0,36	0,25	23,6	10,7		
002002	white   white	front		11,6	64,0	24,4	0,37	0,38	0,36	0,25	23,6	10,7		
		back		11,6	64,0	24,4	0,37	0,38	0,36	0,25	23,6	10,7		
002008	white   linen	front		19,8	57,7	22,5	0,41	0,41	0,38	0,26	20,4	11,8		
		back		19,9	57,6	22,5	0,41	0,41	0,38	0,26	20,4	11,8		
002007	white   pearl grey	front		33,1	46,6	20,3	0,47	0,47	0,42	0,27	17,7	11,8		
		back		33,5	46,2	20,3	0,47	0,47	0,42	0,27	17,7	11,8		
007008	pearl grey   linen	front		41,2	38,7	20,1	0,49	0,49	0,44	0,27	17,3	13,8		
		back		41,2	38,7	20,1	0,49	0,49	0,44	0,27	17,3	13,8		

Natté 300 European Standard EN 14501 Calculation G-value according to EN13363-1 version 7.0			SOLAR ENERGETIC PROPERTIES										VISUAL PROPERTIES	
			FABRIC		FABRIC + GLAZING									
					INTERIOR									
					G-factor = total solar energy transmittance									
references	colours	front	back	As = Solar Absorptance %	Rs = Solar Reflectance %	Ts = Solar Transmittance %	Glazing A - Gv = 0,85 - U = 5,8	Glazing B - Gv = 0,76 - U = 2,9	Glazing C - Gv = 0,59 - U = 1,2	Glazing D - Gv = 0,32 - U = 1,1	Tv = Visible Light Transmittance %	Tuv = UV Transmittance %		
007007	pearl grey   pearl grey	front		48,2	33,6	18,2	0,54	0,53	0,46	0,28	15,4	13,0		
		back		48,4	33,4	18,2	0,54	0,53	0,46	0,28	15,4	13,0		
010001	charcoal   grey	front		77,0	10,0	13,0	0,62	0,62	0,53	0,30	12,7	12,7		
		back		77,0	10,0	13,0	0,62	0,62	0,53	0,30	12,7	12,7		
010011	charcoal   bronze	front		79,5	6,7	13,8	0,64	0,64	0,54	0,30	13,6	13,6		
		back		79,5	6,7	13,8	0,64	0,64	0,54	0,30	13,6	13,6		
010010	charcoal   charcoal	front		81,5	5,7	12,8	0,70	0,67	0,55	0,30	12,7	12,7		
		back		81,5	5,7	12,8	0,70	0,67	0,55	0,30	12,7	12,7		

GLAZING A = clear single glazing 4 mm	Gv = 0,85
GLAZING B = clear double glazing (4/12/4), space filled with air	Gv = 0,76
GLAZING C = double glazing (4/16/4), with a low emissivity coating in position 3, space filled with argon	Gv = 0,59
GLAZING D = reflective double glazing (4/16/4), with a low emissivity coating in position 2, space filled with argon	Gv = 0,32





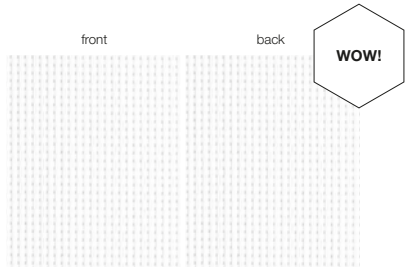
# Natté 380



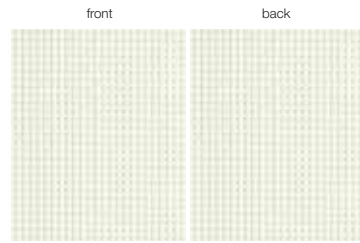
GLASSFIBRE

OF = 5%

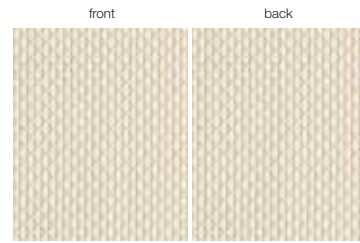
## Colours & references



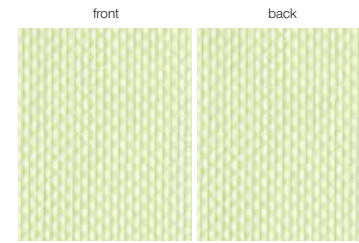
Natté 380 092092 WOW white



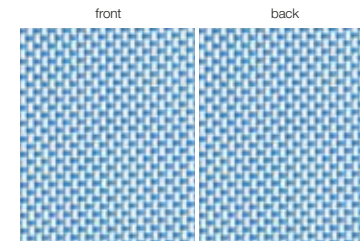
Natté 380 002002 white | white



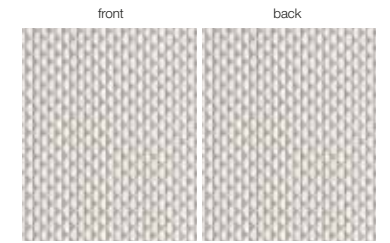
Natté 380 002008 white | linen



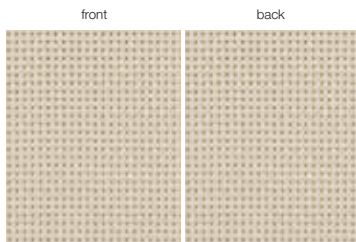
Natté 380 002017 white | pistache



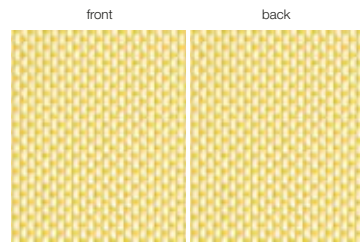
Natté 380 002014 white | turquoise



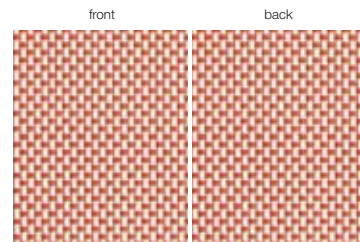
Natté 380 002007 white | pearl grey



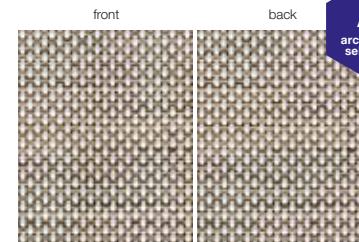
Natté 380 008008 linen | linen



Natté 380 002006 white | yellow



Natté 380 002005 white | mandarine



Natté 380 bicolor 002048 white | sand-bronze



Natté 380	A' architects' selection		
	200 cm	250 cm	320 cm
092092 WOW white		•	
002002 white   white	•	•	•
002008 white   linen	•	•	•
008008 linen   linen			•
002006 white   yellow			•
002005 white   mandarine			•
002017 white   pistache			•
002014 white   turquoise			•
002007 white   pearl grey	•	•	•
002048 white   sand-bronze	•	•	•

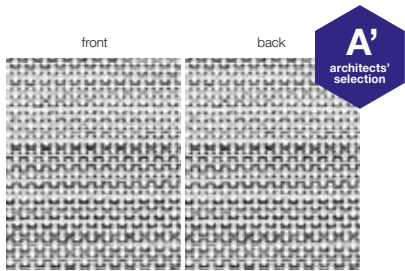


# Natté 380

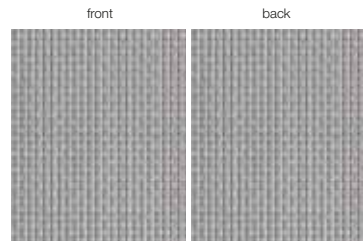


GLASSFIBRE

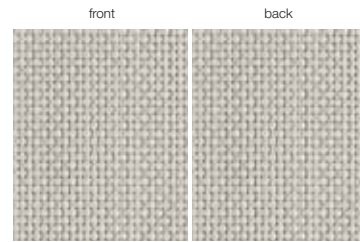
OF = 1-10%



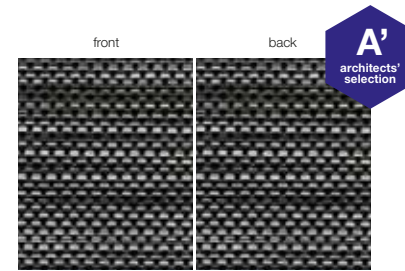
Natté 380 bicolor 002049 white | white-charcoal



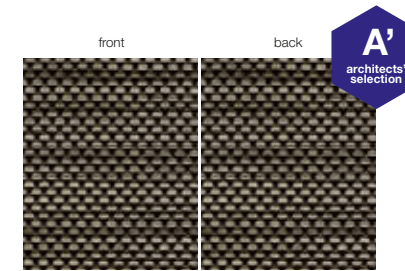
Natté 380 007007 pearl grey | pearl grey



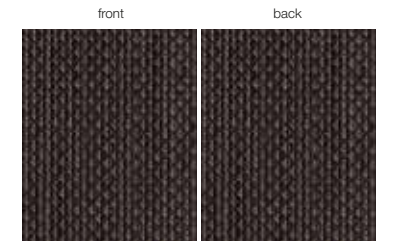
Natté 380 007008 pearl grey | linen



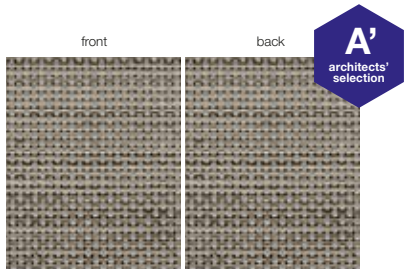
Natté 380 bicolor 010049 charcoal | white-charcoal



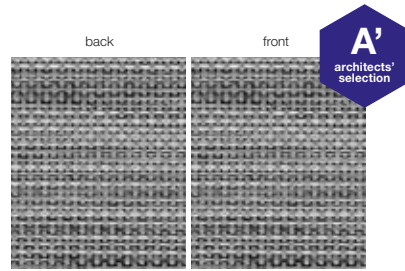
Natté 380 bicolor 010048 charcoal | sand-bronze



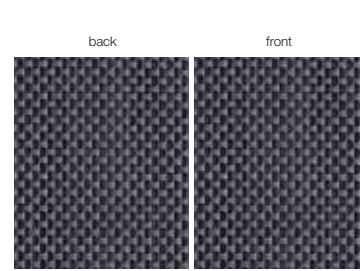
Natté 380 010011 charcoal | bronze



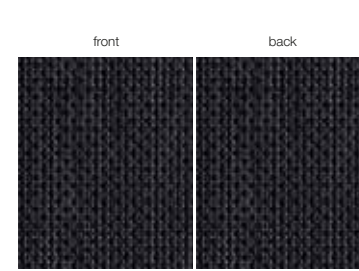
Natté 380 bicolor 007048 pearl grey | sand-bronze



Natté 380 bicolor 007049 pearl grey | white-charcoal



Natté 380 010001 charcoal | grey



Natté 380 010010 charcoal | charcoal

Natté 380	200 cm	250 cm	320 cm
002049 white   white-charcoal	•	•	•
007007 pearl grey   pearl grey	•	•	•
007008 pearl grey   linen	•	•	•
007048 pearl grey   sand-bronze	•	•	•
007049 pearl grey   white-charcoal	•	•	•
010001 charcoal   grey	•	•	•
010049 charcoal   white-charcoal	•	•	•
010048 charcoal   sand-bronze	•	•	•
010011 charcoal   bronze	•	•	•
010010 charcoal   charcoal	•	•	•

# Natté 380



GLASSFIBRE

OF = 5%

## Solar energetic properties

Natté 380 European Standard EN 14501 Calculation G-value according to EN 13363-1 version 7.0			SOLAR ENERGETIC PROPERTIES										VISUAL PROPERTIES	
			FABRIC		FABRIC + GLAZING									
					INTERIOR									
					G-factor = total solar energy transmittance									
references	colours	front	back	As = Solar Absorbance %	Rs = Solar Reflectance %	Ts = Solar Transmittance %	Glazing A - Gv = 0,85 - U = 5,8	Glazing B - Gv = 0,76 - U = 2,9	Glazing C - Gv = 0,59 - U = 1,2	Glazing D - Gv = 0,32 - U = 1,1	Tv = Visible Light Transmittance %	Tuv = UV Transmittance %		
092092	WOW white	front		7,9	63,6	28,5	0,37	0,38	0,37	0,25	26,3	17,5		
		back		7,9	63,6	28,5	0,37	0,38	0,37	0,25	26,3	17,5		
002002	white   white	front		10,0	66,6	23,4	0,36	0,37	0,36	0,25	21,8	10,9		
		back		9,9	66,8	23,4	0,35	0,37	0,36	0,25	21,8	10,9		
002008	white   linen	front		21,3	59,8	18,9	0,39	0,40	0,38	0,26	16,9	7,9		
		back		21,5	59,7	18,9	0,39	0,40	0,38	0,26	16,9	7,9		
008008	linen   linen	front		41,2	41,1	17,7	0,50	0,50	0,44	0,27	15,2	10,2		
		back		41,2	41,1	17,7	0,50	0,50	0,44	0,27	15,2	10,2		
002006	white   yellow	front		35,6	45,5	18,9	0,47	0,47	0,42	0,27	17,9	11,0		
		back		35,6	45,5	18,9	0,47	0,47	0,42	0,27	17,9	11,0		
002005	white   mandarine	front		50,8	36,4	12,8	0,52	0,52	0,45	0,28	10,0	7,9		
		back		50,6	36,4	12,8	0,52	0,52	0,45	0,28	10,0	7,9		
002017	white   pistache	front		39,3	45,7	15,0	0,47	0,47	0,42	0,27	11,9	8,2		
		back		39,2	45,8	15,0	0,47	0,47	0,42	0,27	11,9	8,2		
002014	white   turquoise	front		58,0	29,3	12,7	0,56	0,55	0,47	0,28	10,7	9,5		
		back		58,0	29,3	12,7	0,56	0,55	0,47	0,28	10,7	9,5		
002007	white   pearl grey	front		35,2	48,8	16,1	0,45	0,45	0,41	0,27	13,6	8,5		
		back		35,4	48,5	16,1	0,45	0,46	0,41	0,27	13,6	8,5		
002048	white   sand-bronze	front		41,2	41,1	17,7	0,50	0,50	0,44	0,27	15,2	10,2		
		back		41,2	41,1	17,7	0,50	0,50	0,44	0,27	15,2	10,2		
002049	white   white-charcoal	front		35,6	45,5	18,9	0,47	0,47	0,42	0,27	17,9	11,0		
		back		35,6	45,5	18,9	0,47	0,47	0,42	0,27	17,9	11,0		

Natté 380 European Standard EN 14501 Calculation G-value according to EN 13363-1 version 7.0			SOLAR ENERGETIC PROPERTIES										VISUAL PROPERTIES	
			FABRIC		FABRIC + GLAZING									
					INTERIOR									
					G-factor = total solar energy transmittance									
references	colours	front	back	As = Solar Absorbance %	Rs = Solar Reflectance %	Ts = Solar Transmittance %	Glazing A - Gv = 0,85 - U = 5,8	Glazing B - Gv = 0,76 - U = 2,9	Glazing C - Gv = 0,59 - U = 1,2	Glazing D - Gv = 0,32 - U = 1,1	Tv = Visible Light Transmittance %	Tuv = UV Transmittance %		
007007	pearl grey   pearl grey	front		50,8	36,4	12,8	0,52	0,52	0,45	0,28	10,0	7,9		
		back		50,6	36,7	12,8	0,52	0,51	0,45	0,28	10,0	7,9		
007008	pearl grey   linen	front		39,3	45,7	15,0	0,47	0,47	0,42	0,27	11,9	8,2		
		back		39,2	45,8	15,0	0,47	0,47	0,42	0,27	11,9	8,2		
007048	pearl grey   sand-bronze	front		58,0	29,3	12,7	0,56	0,55	0,47	0,28	10,7	9,5		
		back		58,0	29,3	12,7	0,56	0,55	0,47	0,28	10,7	9,5		
007049	pearl grey   white-charcoal	front		55,6	30,8	13,6	0,55	0,54	0,47	0,28	12,2	10,3		
		back		55,6	30,8	13,6	0,55	0,54	0,47	0,28	12,2	10,3		
010001	charcoal   grey	front		80,9	11,3	7,8	0,66	0,64	0,53	0,30	7,7	7,4		
		back		81,0	11,2	7,8	0,66	0,64	0,53	0,30	7,7	7,4		
010049	charcoal   white-charcoal	front		71,2	17,9	10,9	0,53	0,53	0,46	0,28	10,6	9,7		
		back		71,2	17,9	10,9	0,53	0,53	0,46	0,28	10,6	9,7		
010048	charcoal   sand-bronze	front		75,7	14,8	9,5	0,64	0,62	0,52	0,30	9,0	8,7		
		back		75,7	14,8	9,5	0,64	0,62	0,52	0,30	9,0	8,7		
010011	charcoal   bronze	front		84,8	7,3	7,9	0,68	0,66	0,55	0,30	7,6	7,5		
		back		84,8	7,3	7,9	0,68	0,66	0,55	0,30	7,6	7,5		
010010	charcoal   charcoal	front		88,0	5,7	6,3	0,69	0,67	0,55	0,30	6,3	6,3		
		back		88,0	5,7	6,3	0,69	0,67	0,55	0,30	6,3	6,3		

GLAZING A = clear single glazing 4 mm	Gv = 0,85
GLAZING B = clear double glazing (4/12/4), space filled with air	Gv = 0,76
GLAZING C = double glazing (4/16/4), with a low emissivity coating in position 3, space filled with argon	Gv = 0,59
GLAZING D = reflective double glazing (4/16/4), with a low emissivity coating in position 2, space filled with argon	Gv = 0,32



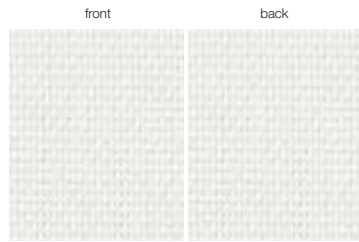
# Natté 390



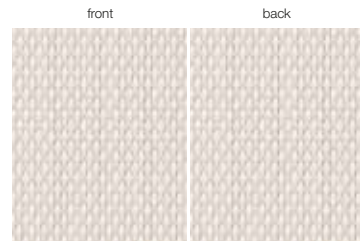
GLASSFIBRE

OF = 3%

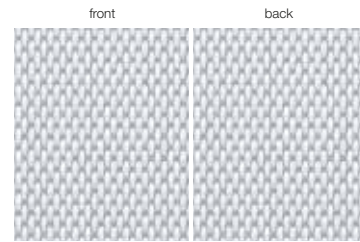
## Colours & references



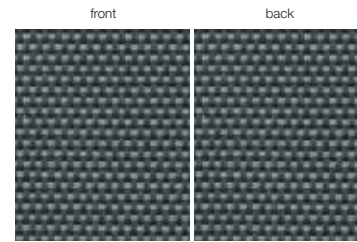
Natté 390 002002 white | white



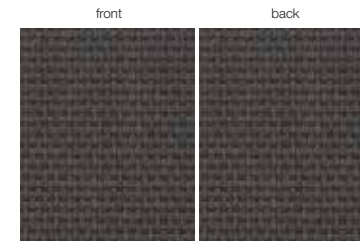
Natté 390 002008 white | linen



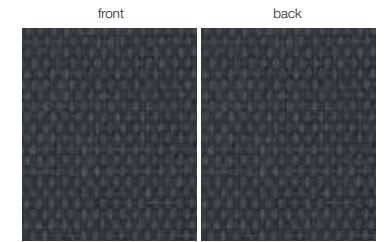
Natté 390 002007 white | pearl grey



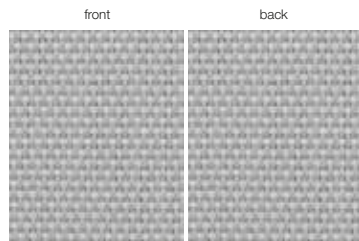
Natté 390 010001 charcoal | grey



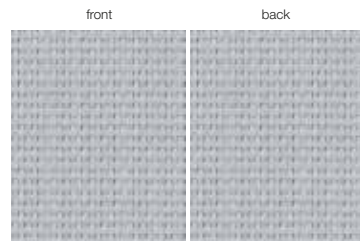
Natté 390 010011 charcoal | bronze



Natté 390 010010 charcoal | charcoal



Natté 390 007008 pearl grey | linen



Natté 390 007007 pearl grey | pearl grey

Natté 390	200 cm	250 cm	320 cm
002002 white   white	•	•	•
002008 white   linen	•	•	•
002007 white   pearl grey	•	•	•
007008 pearl grey   linen	•	•	•
007007 pearl grey   pearl grey	•	•	•
010001 charcoal   grey	•	•	•
010011 charcoal   bronze	•	•	•
010010 charcoal   charcoal	•	•	•

# Natté 390



GLASSFIBRE

OF = 3%

## Solar energetic properties

Natté 390 European Standard EN 14501 Calculation G-value according to EN 13363-1 version 7.0			SOLAR ENERGETIC PROPERTIES										VISUAL PROPERTIES	
			FABRIC		FABRIC + GLAZING									
					INTERIOR									
					G-factor = total solar energy transmittance									
references	colours	front	back	As = Solar Absorptance %	Rs = Solar Reflectance %	Ts = Solar Transmittance %	Glazing A - Gv = 0,85 - U = 5,8	Glazing B - Gv = 0,76 - U = 2,9	Glazing C - Gv = 0,59 - U = 1,2	Glazing D - Gv = 0,32 - U = 1,1	Tv = Visible Light Transmittance %	Tuv = UV Transmittance %		
													002002	white   white
		back		12,5	61,4	26,1	0,38	0,39	0,37	0,25	25,2	8,3		
002008	white   linen	front	back	20,4	55,8	23,8	0,40	0,42	0,39	0,26	21,6	9,4		
		back		20,4	55,8	23,8	0,40	0,42	0,39	0,26	21,6	9,4		
002007	white   pearl grey	front	back	32,2	51,4	16,4	0,41	0,43	0,40	0,26	14,3	5,5		
		back		32,2	51,4	16,4	0,41	0,43	0,40	0,26	14,3	5,5		
007008	pearl grey   linen	front	back	51,4	37,7	10,9	0,47	0,49	0,44	0,27	8,1	5,8		
		back		51,4	37,7	10,9	0,47	0,49	0,44	0,27	8,1	5,8		

Natté 390 European Standard EN 14501 Calculation G-value according to EN 13363-1 version 7.0			SOLAR ENERGETIC PROPERTIES										VISUAL PROPERTIES	
			FABRIC		FABRIC + GLAZING									
					INTERIOR									
					G-factor = total solar energy transmittance									
references	colours	front	back	As = Solar Absorptance %	Rs = Solar Reflectance %	Ts = Solar Transmittance %	Glazing A - Gv = 0,85 - U = 5,8	Glazing B - Gv = 0,76 - U = 2,9	Glazing C - Gv = 0,59 - U = 1,2	Glazing D - Gv = 0,32 - U = 1,1	Tv = Visible Light Transmittance %	Tuv = UV Transmittance %		
													007007	pearl grey   pearl grey
		back		57,6	33,4	9,0	0,49	0,51	0,45	0,28	6,7	5,1		
010001	charcoal   grey	front	back	83,2	8,5	8,3	0,62	0,62	0,53	0,30	8,2	8,3		
		back		83,2	8,5	8,3	0,62	0,62	0,53	0,30	8,2	8,3		
010011	charcoal   bronze	front	back	87,5	6,8	5,7	0,62	0,63	0,53	0,30	5,7	5,7		
		back		87,5	6,8	5,7	0,62	0,63	0,53	0,30	5,7	5,7		
010010	charcoal   charcoal	front	back	88,2	6,0	5,8	0,62	0,63	0,54	0,30	5,8	5,9		
		back		88,2	6,0	5,8	0,62	0,63	0,54	0,30	5,8	5,9		

GLAZING A = clear single glazing 4 mm	Gv = 0,85
GLAZING B = clear double glazing (4/12/4), space filled with air	Gv = 0,76
GLAZING C = double glazing (4/16/4), with a low emissivity coating in position 3, space filled with argon	Gv = 0,59
GLAZING D = reflective double glazing (4/16/4), with a low emissivity coating in position 2, space filled with argon	Gv = 0,32



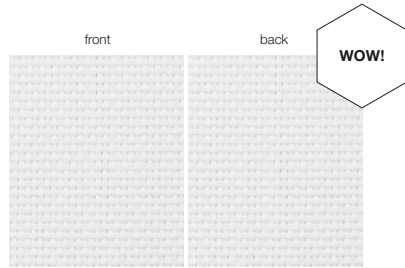
# Natté 420



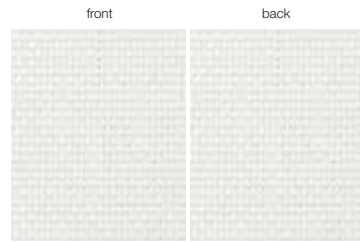
GLASSFIBRE

OF = 1%

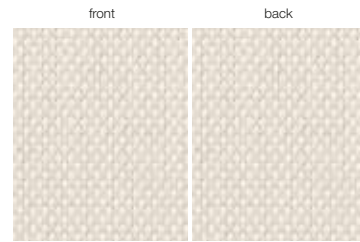
## Colours & references



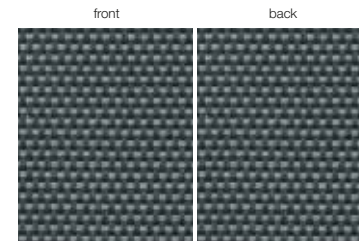
Natté 420 092092 WOW white



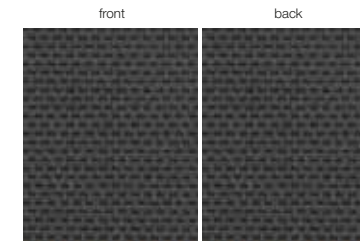
Natté 420 002002 white | white



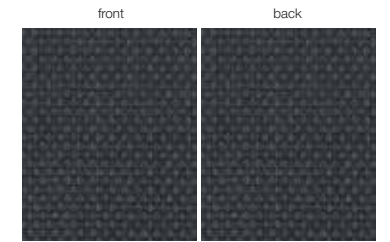
Natté 420 002008 white | linen



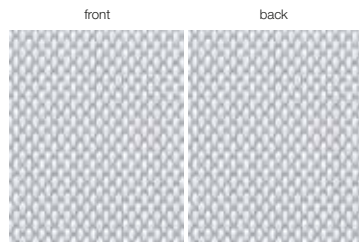
Natté 420 010001 charcoal | grey



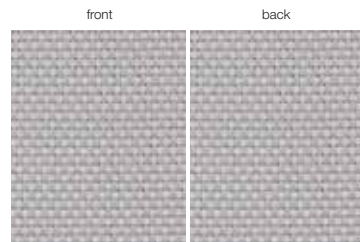
Natté 420 010011 charcoal | bronze



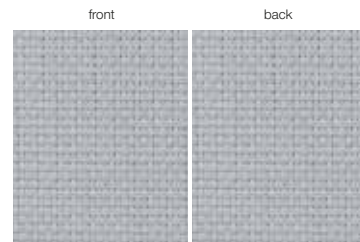
Natté 420 010010 charcoal | charcoal



Natté 420 002007 white | pearl grey



Natté 420 007008 pearl grey | linen



Natté 420 007007 pearl grey | pearl grey

Natté 420	200 cm	250 cm	320 cm
092092 WOW white		•	
002002 white   white	•	•	•
002008 white   linen	•	•	•
002007 white   pearl grey	•	•	•
007008 pearl grey   linen	•	•	•
007007 pearl grey   pearl grey	•	•	•
010001 charcoal   grey	•	•	•
010011 charcoal   bronze	•	•	•
010010 charcoal   charcoal	•	•	•

# Natté 420



GLASSFIBRE

OF = 1%

## Solar energetic properties

Natté 420 European Standard EN 14501 Calculation G-value according to EN 13363-1 version 7.0			SOLAR ENERGETIC PROPERTIES										VISUAL PROPERTIES	
			FABRIC		FABRIC + GLAZING									
					INTERIOR									
					G-factor = total solar energy transmittance									
references	colours	front	back	As = Solar Absorptance %	Rs = Solar Reflectance %	Ts = Solar Transmittance %	Glazing A - Gv = 0,85 - U = 5,8	Glazing B - Gv = 0,76 - U = 2,9	Glazing C - Gv = 0,59 - U = 1,2	Glazing D - Gv = 0,32 - U = 1,1	Tv = Visible Light Transmittance %	Tuv = UV Transmittance %		
		092092	WOW white										front	back
		back	front	8,5	68,2	23,3	0,34	0,36	0,35	0,25	21,1	11,8		
002002	white   white	front	back	13,1	66,2	20,7	0,34	0,36	0,35	0,25	19,4	3,5		
		back	front	13,1	66,2	20,7	0,34	0,36	0,35	0,25	19,4	3,5		
002008	white   linen	front	back	23,0	59,1	17,9	0,38	0,39	0,38	0,26	15,0	4,2		
		back	front	23,0	59,1	17,9	0,38	0,39	0,38	0,26	15,0	4,2		
002007	white   pearl grey	front	back	36,4	48,9	14,7	0,42	0,44	0,41	0,26	12,2	5,1		
		back	front	36,4	48,9	14,7	0,42	0,44	0,41	0,26	12,2	5,1		
007008	pearl grey   linen	front	back	52,6	39,7	7,7	0,45	0,48	0,43	0,27	5,0	3,2		
		back	front	52,6	39,7	7,7	0,45	0,48	0,43	0,27	5,0	3,2		

Natté 420 European Standard EN 14501 Calculation G-value according to EN 13363-1 version 7.0			SOLAR ENERGETIC PROPERTIES										VISUAL PROPERTIES	
			FABRIC		FABRIC + GLAZING									
					INTERIOR									
					G-factor = total solar energy transmittance									
references	colours	front	back	As = Solar Absorptance %	Rs = Solar Reflectance %	Ts = Solar Transmittance %	Glazing A - Gv = 0,85 - U = 5,8	Glazing B - Gv = 0,76 - U = 2,9	Glazing C - Gv = 0,59 - U = 1,2	Glazing D - Gv = 0,32 - U = 1,1	Tv = Visible Light Transmittance %	Tuv = UV Transmittance %		
		007007	pearl grey   pearl grey										front	back
		back	front	60,1	33,9	6,0	0,48	0,50	0,45	0,27	4,0	2,9		
010001	charcoal   grey	front	back	86,8	9,8	3,4	0,60	0,61	0,52	0,29	3,3	3,3		
		back	front	86,8	9,8	3,4	0,60	0,61	0,52	0,29	3,3	3,3		
010011	charcoal   bronze	front	back	89,6	7,1	3,3	0,61	0,62	0,53	0,30	3,2	3,3		
		back	front	89,6	7,1	3,3	0,61	0,62	0,53	0,30	3,2	3,3		
010010	charcoal   charcoal	front	back	90,6	6,2	3,2	0,62	0,63	0,54	0,30	3,2	3,2		
		back	front	90,6	6,2	3,2	0,62	0,63	0,54	0,30	3,2	3,2		

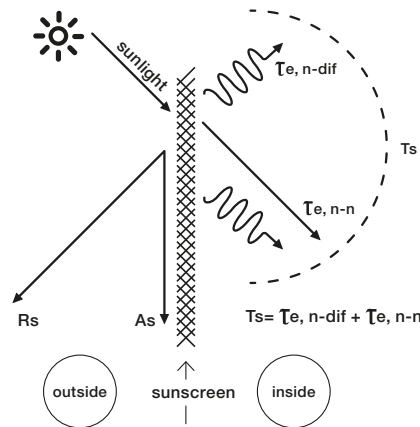
GLAZING A = clear single glazing 4 mm	Gv = 0,85
GLAZING B = clear double glazing (4/12/4), space filled with air	Gv = 0,76
GLAZING C = double glazing (4/16/4), with a low emissivity coating in position 3, space filled with argon	Gv = 0,59
GLAZING D = reflective double glazing (4/16/4), with a low emissivity coating in position 2, space filled with argon	Gv = 0,32

# Working of a sunscreen



## Sunscreen = protection against sunrays

Sunscreen means protection against the sunrays, so the function is the protection against light and heat, which is expressed in several properties.



<b><math>R_s</math></b>	Solar reflectance
<b><math>A_s</math></b>	Solar absorptance
<b><math>T_s</math></b>	Solar transmittance
<b><math>T_{e,n-dif}</math></b>	Diffuse solar transmittance
<b><math>T_{e,n-n}</math></b>	Normal solar transmittance

## Classes indicate effect of a sunscreen

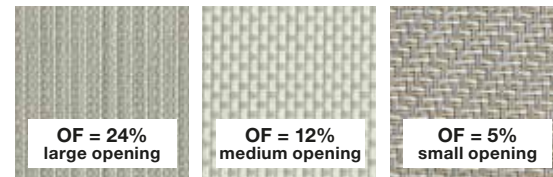
Based on certain properties, the screen can be split up in classes, from 0 to 4. Those classes are used, starting from the norm EN 14501, to indicate the effect of a certain sunscreen.

influence on thermal and visual comfort	
<b>Class 0</b>	very little effect
<b>Class 1</b>	little effect
<b>Class 2</b>	moderate effect
<b>Class 3</b>	good effect
<b>Class 4</b>	very good effect

## Visual properties

### Openness factor

The openness of a screen is indicated by the openness factor = **OF**. The openness coefficient is the relative area of the openings in the fabric seen under a given incidence. The openness factor is seen under a normal incidence.



The sunrays are subdivided in: **Visible light**, **UV-light** and **IR-light**.

**Visible light** (55% of the sun-energy) is that part for which our eyes are most sensitive. How larger the light intensity, how more detrimental for our eyes.

The factor Visible Light Transmittance = **Tv**, is the ratio of visible light that will be transmitted. How lower this factor can be kept, how better for the eyes.

**UV-light** (3% of the sun-energy) is the part of radiation which is detrimental for our health. This factor is indicated by the UV Transmittance = **Tuv**. This is the quantity UV-light transmitted by the sunscreen.

**IR-light** is invisible. This is however 42% of the sun-energy. These rays care for the reheating of solid substances and gases.

### Influence of colours

The choice of the colour has direct influence on the criteria which justify the use of sunscreen protection:

- Protection against visible light, expressed by the factor **Tv**.
- Protection against sun-energy, expressed by the **G** value.
- Protection against secondary heat, expressed by the factor **Qi**.
- Protection against UV-light, expressed by the factor **Tuv**.

## Visual properties: classes

### Glare control

The capacity of the solar protection device to control the luminance level of openings and to reduce the luminance contrasts between different zones within the field.

$T_{v,n-n}$	$T_{v,n-dif}$			
	$T_{v,n-dif} < 0,02$	$0,02 \leq T_{v,n-dif} < 0,04$	$0,04 \leq T_{v,n-dif} < 0,08$	$T_{v,n-dif} \geq 0,08$
$T_{v,n-n} > 0,10$	0	0	0	0
$0,05 < T_{v,n-n} \leq 0,10$	1	1	0	0
$T_{v,n-n} \leq 0,05$	3	2	1	1
$T_{v,n-n} = 0,00$	4	3	2	2

### Privacy at night

Night privacy is the capacity of an internal or external blind or a shutter in the fully extended position or fully extended and closed position to protect persons, at night in normal light conditions from external view. External views means the ability of an external observer located 5m from the fully extended and closed product, to distinguish a person or object standing 1m behind the protection device in the room.

$T_{v,n-n}$	$T_{v,n-dif}$		
	$0 < T_{v,n-dif} \leq 0,04$	$0,04 < T_{v,n-dif} \leq 0,15$	$T_{v,n-dif} > 0,15$
$T_{v,n-n} > 0,10$	0	0	0
$0,05 < T_{v,n-n} \leq 0,10$	1	1	1
$T_{v,n-n} \leq 0,05$	2	2	2
$T_{v,n-n} = 0,00$	4	3	2

### Visual contact with the outside

Visual contact with the outside is the capacity of the solar protection device to allow an exterior view when it is fully extended. This function is affected by different light conditions during the day.

$T_{v,n-n}$	$T_{v,n-dif}$		
	$0 < T_{v,n-dif} \leq 0,04$	$0,04 < T_{v,n-dif} \leq 0,15$	$T_{v,n-dif} > 0,15$
$T_{v,n-n} > 0,10$	4	3	2
$0,05 < T_{v,n-n} \leq 0,10$	3	2	1
$T_{v,n-n} \leq 0,05$	2	1	0
$T_{v,n-n} = 0,00$	0	0	0

### Daylight utilisation

Daylight utilisation is characterised by:

- the capacity of the solar protection device to reduce the time period during the artificial light is required.
- the capacity of the solar protection device to optimise the daylight which is available.

CLASS	0	1	2	3	4
$T_{v,dif-h}$	$T_{v,dif-h} < 0,02$	$0,02 \leq T_{v,dif-h} < 0,10$	$0,10 \leq T_{v,dif-h} < 0,25$	$0,25 \leq T_{v,dif-h} < 0,40$	$T_{v,dif-h} \geq 0,40$






# Working of a sunscreen



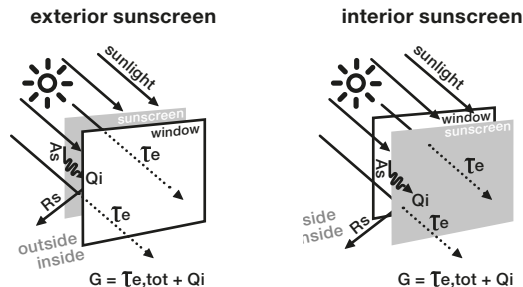
## Thermal comfort

### Fabric

Energy radiated by the sun, will be split up in 3 factors:

factor 1:	factor 2:	factor 3:
 <p><b>As = Solar absorptance</b> is the ratio of the absorbed flux to the incident flux.</p>	 <p><b>Rs = Solar reflectance</b> is the fraction of the incident solar radiation that is directly reflected by the component.</p>	 <p><b>Ts = Solar transmittance</b> is the sum of the (normal) direct solar transmittance and the diffuse solar transmittance. This is the fraction of the total transmitted energy to the total incident solar radiation.</p>
<b>These 3 factors together are always 100%</b>		

### The G-factor



<b>Rs</b>	Solar reflectance
<b>As</b>	Solar absorptance
<b>Te</b>	Direct solar transmittance
<b>Qi</b>	Secondary heat transfer factor
<b>G</b>	G-factor = total solar energy transmittance

Sunscreens are always used in combination with a glazing. These together will prevent a large quantity of energy, sent by the sun to the earth, which is indicated by the: Total Solar Energy Transmittance, or **G-factor**.

The **G** value is the ratio between the total solar energy transmitted into a room through a window and the incident solar energy on the window. The **G<sub>tot</sub>** is the solar factor of the combination of glazing and solar protection device.

The **G<sub>v</sub>** is the solar factor of the glazing alone. The shading coefficient is defined as the ratio of the solar factor of the combined glazing and solar protection device **G<sub>tot</sub>** to that of the glazing alone **G<sub>v</sub>**.

The total solar energy transmitted through a window consists of two parts:

- 1) Radiation: measured by the solar transmittance: **T<sub>e,tot</sub>**
- 2) Heat: measured by the secondary heat transfer: **Qi**

$$G = T_{e,tot} + Q_i$$

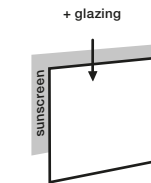
The factor **T<sub>e,tot</sub>**, is the quantity of energy, which will pass the combination solar protection device and window.

The factor **Qi** is the quantity of heat which is released by the absorption of energy in the sunscreen protection system = combination sunscreen + glazing.

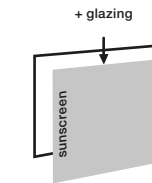
The **G-factor** is the most important factor to explain the efficiency of a combination sunscreen + glazing, as protection against the energy of the sun. The **G-factor** divided into his components explains the difference in efficiency between exterior and interior sunscreen.

$$G = T_{e,tot} + Q_i$$

### exterior sunscreen



### interior sunscreen



The direct solar transmittance **T<sub>e,tot</sub>** is the same for interior and exterior use of sunscreens.

The secondary heat factor **Qi** for interior sunscreen is bigger then for exterior sunscreen. For interior use, the heat, produced by the absorption of energy, will be transmitted to the room inside. By exterior use, the heat will be transmitted to the outside, without any inconvenience at the inside.

Also the colour of the sunscreen has an influence on the **G-factor**. Dark colours will absorb a lot of sun energy and will transmit this to heat. If the screen is used for exterior, heat will have no influence inside the room, contrary to a screen used for interior. This is why a darker screen is ideal for exterior use and a lighter screen for interior use.

## Thermal comfort: classes

### Total Solar energy Transmittance = G-factor

CLASS	0	1	2	3	4
G <sub>tot</sub>	G <sub>tot</sub> ≥ 0,50	0,35 ≤ G <sub>tot</sub> < 0,50	0,15 ≤ G <sub>tot</sub> < 0,35	0,10 ≤ G <sub>tot</sub> < 0,15	G <sub>tot</sub> < 0,10

### Secondary Heat transfer = Qi

CLASS	0	1	2	3	4
Qi	Qi ≥ 0,30	0,20 ≤ Qi < 0,30	0,10 ≤ Qi < 0,20	0,03 ≤ Qi < 0,10	Qi < 0,03

### Normal Solar transmittance = protection against direct transmission

The ability of a solar protection device to protect persons and surroundings from direct irradiation is measured by the direct/direct solar transmittance of the device in combination with the glazing. **T<sub>e,n-n</sub>** is used as measure for this property.

# clarity & visual comfort





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