



Automotive Window Film Selector Guide

# Magnum

BLACK

# CX



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## Elenco dei termini

### Luce Visibile

TR (%)	Trasmessa
TR (%) @550 nm	Trasmessa a 550 nm
Re (%)	Riflessa esterna
Ri (%)	Riflessa interna
GR (%)	Riduzione dell'abbagliamento

### Energia solare

TSER (%)	Energia solare totale respinta
SHGR (%)	Riduzione del coefficiente di ombreggiatura
IR (%)	Riduzione raggi IR da 780 a 2500 nm
SIRR (%)	Energia IR riflessa selectiva 280-2500nm
IRER (%)	Energia IR riflessa 780-2500nm
UV (%)	UV respinti da 300 a 380 nm
Tdw (%)	Controllo dello scolorimento UV Tdw-ISO da 300 a 700 nm
FR (%)	Controllo dello scolorimento UV Tdw-K @300 à 500 nm

### Proprietà fisiche

Tnom / T(μm)	Spessore nominale/in totale
ABR (%)	Resistenza all'abrasione (cambiamento dopo 100 cicli)
TS - kg/cm <sup>2</sup>	Resistenza alla trazione
PUNC - kg	Forza di puntura
PEEL - g/cm	Resistenza al distaccamento
YIELD - kg/cm <sup>2</sup>	Resa dello stress (ad 5%)
BREAK - kg/cm	Resistenza alla rottura
TEAR - kg	Resistenza allo strappo
EPD	Dichiarazione ambientale del prodotto

## ТЕХНИЧЕСКИЕ ХАРАКТЕРИСТИКИ

### Видимый спектр

TR (%)	Коэффициент светопропускания
TR (%) at 550 nm	Коэффициент светопропускания при длине волны 550 nm
Re (%)	Коэффициент отражения внешний
Ri (%)	Коэффициент отражения внутренний
GR (%)	Коэффициент уменьшения бликов

### Солнечная энергия

TSER (%)	Суммарный коэффициент отражения солнечной энергии
SHGR (%)	Коэффициент уменьшения солнечной энергии
IR (%)	Отражение лучей ИК спектра 780 - 2500 nm
SIRR (%)	Избирательная ИК энергия отклонена 280 - 2500 nm
IRER (%)	ИК энергия отклонена 780 - 2500 nm
UV (%)	Коэффициент пропускания в УФ-спектре 300 - 380 nm
Tdw (%)	Коэффициент выцветания в УФ-спектре 300 - 700 nm
FR (%)	Увядание снижение

### Физические свойства

Tnom / T(μm)	Номинальная толщина
ABR (%)	Абразивная стойкость (после 100 циклов)
TS - kg/cm <sup>2</sup>	Предел прочности
PUNC - kg	Усилие на прокол
PEEL - g/cm	Усилие на отрыв
YIELD - kg/cm <sup>2</sup>	Предел текучести (при 5%)
BREAK - kg/cm	Усилие на отрыв (при 5%)
TEAR - kg	Усилие на разрыв
EPD	Сертификат EPD

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# CX Magnum Black S2

## Performance Results

3 mm glass

### Visible Light

TR (%)	Transmittance	3
Re (%)	Reflectance Exterior	5
Ri (%)	Reflectance Interior	5
GR (%)	Glare Reduction	97

### Solar Energy

TSER (%)	Total Solar Energy Rejected	58
SHGR (%)	Solar Heat Gain Reduction	51
SIRR (%)	Average IR Rejection 780 - 2500nm	64
IRER (%)	IR Energy Rejected 780 - 2500nm	50
UV (%)	Ultraviolet light blocked @300 - 380 nm	>99
SPF	Solar Protection Factor	>1000

## Physical Properties

Tnom / T(μm)	Thickness Nominal / Overall	38/50
ABR (%)	Abrasion Resistance (change after 100 cycles)	<5
TS - kg/cm <sup>2</sup>	Tensile strength	2100
PUNC - kg	Puncture Strength	22,7

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# CX Magnum Black 5

## Performance Results

3 mm glass

### Visible Light

TR (%)	Transmittance	5
Re (%)	Reflectance Exterior	5
Ri (%)	Reflectance Interior	5
GR (%)	Glare Reduction	94

### Solar Energy

TSER (%)	Total Solar Energy Rejected	55
SHGR (%)	Solar Heat Gain Reduction	48
SIRR (%)	Average IR Rejection 780 - 2500nm	59
IRER (%)	IR Energy Rejected 780 - 2500nm	47
UV (%)	Ultraviolet light blocked @300 - 380 nm	>99
SPF	Solar Protection Factor	>1000

## Physical Properties

Tnom / T(μm)	Thickness Nominal / Overall	38/50
ABR (%)	Abrasion Resistance (change after 100 cycles)	<5
TS - kg/cm <sup>2</sup>	Tensile strength	2100
PUNC - kg	Puncture Strength	22,7

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# CX Magnum Black 20

## Performance Results

3 mm glass

### Visible Light

TR (%)	Transmittance	17
Re (%)	Reflectance Exterior	6
Ri (%)	Reflectance Interior	5
GR (%)	Glare Reduction	81

### Solar Energy

TSER (%)	Total Solar Energy Rejected	46
SHGR (%)	Solar Heat Gain Reduction	37
SIRR (%)	Average IR Rejection 780 - 2500nm	46
IRER (%)	IR Energy Rejected 780 - 2500nm	37
UV (%)	Ultraviolet light blocked @300 - 380 nm	>99
SPF	Solar Protection Factor	>1000

## Physical Properties

Tnom / T(μm)	Thickness Nominal / Overall	38/50
ABR (%)	Abrasion Resistance (change after 100 cycles)	<5
TS - kg/cm <sup>2</sup>	Tensile strength	2100
PUNC - kg	Puncture Strength	22,7

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# CX Magnum Black 35

## Performance Results

3 mm glass

### Visible Light

TR (%)	Transmittance	39
Re (%)	Reflectance Exterior	6
Ri (%)	Reflectance Interior	6
GR (%)	Glare Reduction	57

### Solar Energy

TSER (%)	Total Solar Energy Rejected	35
SHGR (%)	Solar Heat Gain Reduction	24
SIRR (%)	Average IR Rejection 780 - 2500nm	33
IRER (%)	IR Energy Rejected 780 - 2500nm	27
UV (%)	Ultraviolet light blocked @300 - 380 nm	>99
SPF	Solar Protection Factor	>400

## Physical Properties

Tnom / T(μm)	Thickness Nominal / Overall	38/50
ABR (%)	Abrasion Resistance (change after 100 cycles)	<5
TS - kg/cm <sup>2</sup>	Tensile strength	2100
PUNC - kg	Puncture Strength	22,7

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# CX Magnum Black 50

## Performance Results

3 mm glass

### Visible Light

TR (%)	Transmittance	56
Re (%)	Reflectance Exterior	7
Ri (%)	Reflectance Interior	7
GR (%)	Glare Reduction	38

### Solar Energy

TSER (%)	Total Solar Energy Rejected	28
SHGR (%)	Solar Heat Gain Reduction	16
SIRR (%)	Average IR Rejection 780 - 2500nm	28
IRER (%)	IR Energy Rejected 780 - 2500nm	23
UV (%)	Ultraviolet light blocked @300 - 380 nm	>99
SPF	Solar Protection Factor	>400

## Physical Properties

Tnom / T(μm)	Thickness Nominal / Overall	38/50
ABR (%)	Abrasion Resistance (change after 100 cycles)	<5
TS - kg/cm <sup>2</sup>	Tensile strength	2100
PUNC - kg	Puncture Strength	22,7



# Solar Energy Technical Definitions

## Visible light transmittance (VLT)

The percent of total visible light that is transmitted through the window film/glass system. The lower the number, the less visible light transmitted.

## Visible light reflectance out

The percent of total visible light that is reflected by the window film/glass system. The lower the number, the less visible light reflected.

## Total solar energy rejected (TSER)

The percent of total solar energy (heat) rejected by the window film/glass system. The higher the number, the more total solar energy (heat) rejected.

## Ultraviolet light blocked

The percent of ultraviolet (UV) that is blocked by the window film/glass system. The higher the number, the less UV transmitted.

## Infrared energy rejection (IRER)

The percent of infrared energy (780 nm to 2500 nm) that is directly reflected and absorbed and radiated outwards. Calculated as 1 – SHGC (780 nm to 2,500 nm) using Lawrence Berkeley National Laboratory (LBNL) Window software and NFRC 200 solar spectrum from 780 nm to 2500 nm. The higher the number the more infrared energy is reflected and absorbed and released outwards.

## Selective infrared rejection (SIRR)

Calculated as 1 - average unweighted transmittance from 780 nm to 2,500 nm using ASTM E 903. The higher the number the less infrared directly transmitted.

## Sun protection factor (SPF)

The SPF rating is a measure of the protection from UVB ultraviolet radiation caused by exposure to the sun. It is calculated by comparing the amount of time needed to produce a sunburn on protected skin to the amount of time needed to cause a sunburn on unprotected skin. Solar Gard window films block up to 99% of both UVA and UVB.

## UV Tdw-ISO @ 300 to 700 nm

One of two recognized calculations to determine fading. Covers fading caused by wavelengths/energy from 300 nm to 700 nm. The lower the value the less fading.

## Fade Reduction Factor

Relative reduction of the fading (Tdw-ISO) obtained by applying film on reference glass (in this case: 3 mm clear glass).



## Performance Notes

Performance results were generated with LBNL Windows 7.6 applied to 3mm (1/8") clear glass and have been calculated and reported in accordance with NFRC standards. Solar Gard® is a participating member of AIMCAL and the IWFA.

Performance results are based on film applied to a representative automotive glass with a base visible light transmission of 75%. Due to variations in glass performance, these values should not be used to comply with local tinting laws.

Performance results are subject to variations within industry standards and should be used for comparative purposes only.

**Important:** Solar Gard is not responsible for automotive window film installation compliance with the laws of your state, or the laws of any other state where the vehicle may be utilized. You must therefore determine whether such window film is in compliance with any such laws.

**Do not install any window film product in violation of any law.**






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*We're On It!*

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