

Clear solutions for dark spaces



Since 1978



PLASTICOS Y CLARABOYAS MATILLA





Plásticos y Claraboyas **Matilla**[®]

A company with experience since 1978, **Plásticos Matilla**[®] has been the leader on the market for Domes and Skylights not only in Spain, but also abroad. Skylights are the perfect product as far as making the most of natural day light given their low cost and high value advantages they offer. Decorative, lasting and resistant, they provide a greater and more even light distribution.

The Matilla Skylight set consists of three main elements:

- The dome, made of methacrylate, a highest quality plastic material, extremely sun resistant.
- The base, made of polyester reinforced with fiberglass which allows for the better fitting of the dome to the roof where the skylight is installed.
- As an option, the skylight may come with various opening systems (e.g. crank and spindle, or and electric one, among others) which are the perfect choice for the ventilation of spacious industrial spaces, vast shopping malls, schools, detached and semidetached buildings, etc.



Base

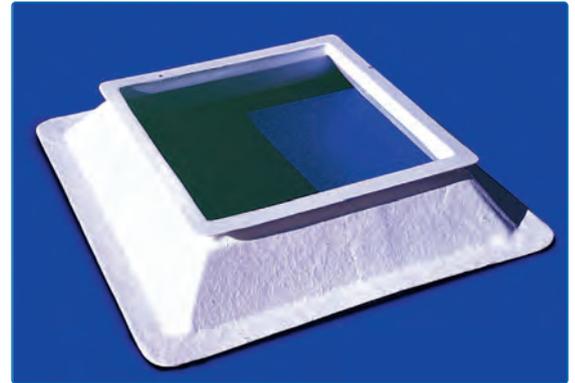
It is fabricated from polyester resins reinforced with fiberglass (FRP) and has a Sandwich type side thermal insulation which is based on polyurethane foam aimed at providing a better resistance and a higher degree of insulation.

The bases are available in any length between 15 and 25 cm , depending on the size of the flashing. The best ways to insure a maximum transparency have been precisely studied and applied.

Despite the somewhat rigid structure, the sitting skirt or flap is as soft as possible, so it easily adapts to the peculiarities of the rooftop and fits very well the various waterproofing layers.

The inner finish of the base-flashings is made of white Gel-Coat.

Upon request, we can also provide base-flashings that could be fitted to metallic rooftops, as well as metal sheet flashings.



PHYSICAL CHARACTERISTICS				
BASE-PRFV		VALUE	UNIT	NORM
MECHANICAL CHARACTERISTICS				
Weight		1.5	Gr/cm ³	DIN 53479
Resistance	Endurance	1000	Kg/cm ²	DIN53455
	Compression	2000	Kg/cm ²	DIN 53454
	Flexion	1600	Kg/cm ²	DIN 53452
	Impact	1000	cm.Kg/cm ²	DIN 53453
THERMAL PROPERTIES				
Linear expansion		0,2x10 ⁻⁶	mm/mm°C	DIN 53572
Softening point		125	°C	DIN 57302
Thermal conduction		0.2	Kcal/m.°C	DIN 52612

Shopping centre with ventilators system and skylights.

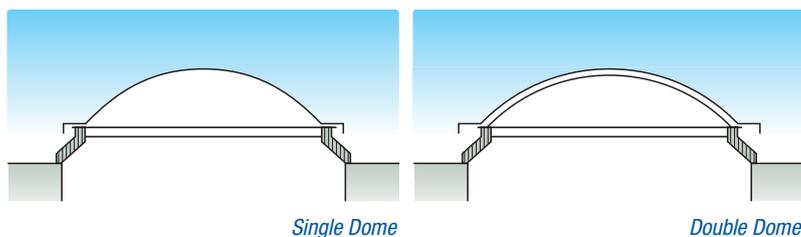


Domes

Made of cast or extruded methacrylate, come in clear sheet or opal sheet, and depending on the make and the measurements the walls could be 3 or 4 mm thick.

The domes feature high impact resistance (17 times higher than glass). Ice white color which is usually used for their manufacturing allows for light diffusion, preventing the concentration of solar rays that impede clear vision.

Upon request they may be manufactured in any other color.



Single Dome

Double Dome

PHYSICAL PROPERTIES			
PMMA DOME	VALUE	UNIT	NORM
MECHANICAL PROPERTIES			
Density	1,187	gr/cm ³	UNE-EN ISO 1183-1
Tensile strength	82,3	M Pa	UNE-EN ISO 527-2
Endurance	27,9	M Pa	UNE-EN ISO 604
Strain	1,2	%	UNE-EN ISO 604
Flexural Elasticity	3110	M Pa	UNE-EN ISO 178
Flexural Strength	111	M Pa	UNE-EN ISO 178
Max. Strength	7	mm.	UNE-EN ISO 178
Impact Resistance	17	KJ/m ²	UNE-EN ISO 179-1
Elasticity	3010	M Pa	UNE-EN ISO 527-2
Breaking Elongation	6,1	%	UNE-EN ISO 527-2
Water absorption	0,38	%	UNE-EN ISO 62
THERMAL PROPERTIES			
VICAT Softening Point	100,3	°C	UNE-EN ISO 306
Thermal Conduction	0,18	W/mK	DIN 52612
Linear Expansion	4,15x10 ⁻⁵	°C	UNE 53126
Bending Load	86,8	°C	UNE-EN ISO 75-2
Monovalve Heat Transmission	5,16	Kcal/m ² h°C	
Bivalve Heat Transmission	2,28	Kcal/m ² h°C	
Trivalve Heat Transmission	1,72	Kcal/m ² h°C	
OPTICAL FEATURES			
Clear Light Transmission	93	%	
White Light Transmission	75	%	
Refractive Index	1,492	nD20	ISO 489
ACOUSTIC FEATURES			
Single Dome	12	dB (A)	
Double Dome	20	dB (A)	
Triple Dome	22	dB (A)	

Bilvalve - Trivalve Domes

The specific shape of these domes and the air circulation slot between dome and flashing prevents water condense. However, when there is a high level of humidity and sudden temperature drop, it is strongly advisable to have bivalve or trivalve skylights. Their higher insulation decreases significantly the risk of condense in the inner side of the dome thus preventing from rapid coolings. Skylights can come with one, two or more domes, which ensures a higher insulation through interconnected air chambers.

Bivalve or trivalve skylights are always advisably installed in air-conditioned premises, coastal areas (because of the high level of humidity), mountainous areas and whenever additional care for the thermal and acoustic insulation of the building is needed.

Shapes of the Domes

There are two possible shapes: parabolic and pyramidal.

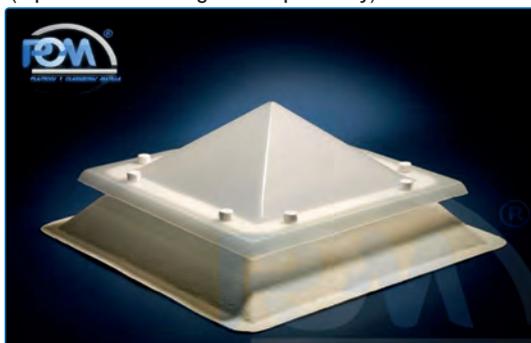
Parabolic

Shaped by means of air pressure and slow cooling off process, that turns the dome into a sphere, well known for its rigidness and mechanical resistance to any type of strains.



Section of Double Dome

Pyramidal. Shaped through cupping, research on the inclination of their walls has been conducted in order to obtain high indexes of light dispersion. They could be manufactured with one or two vertexes (square and rectangular respectively).

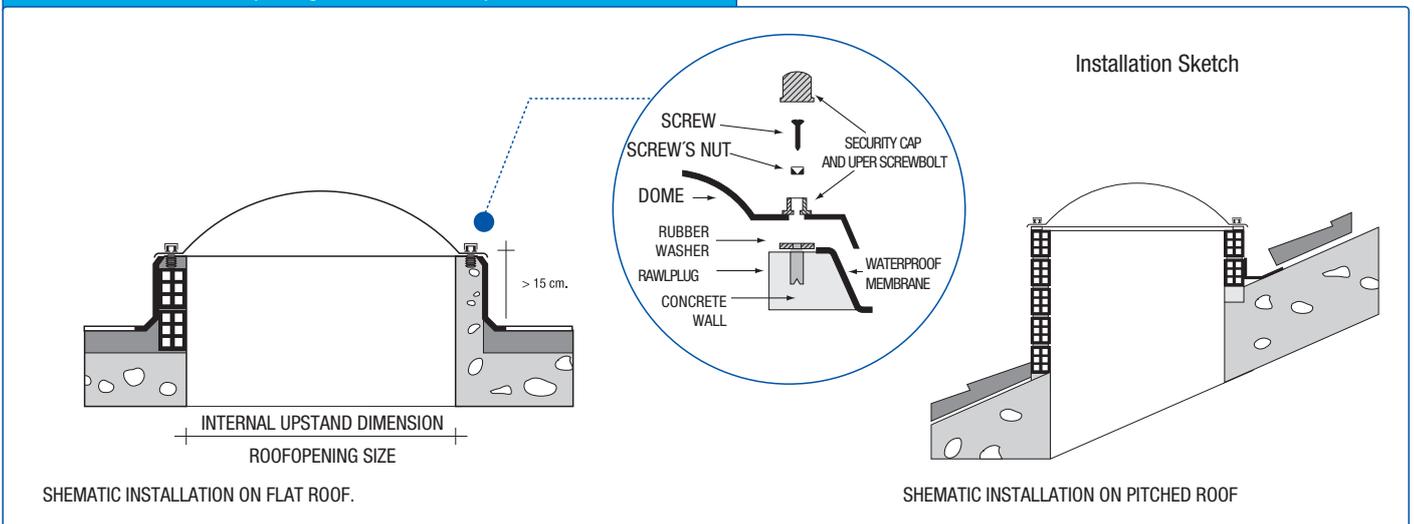


Fixed Skylights ^{Matilla®}

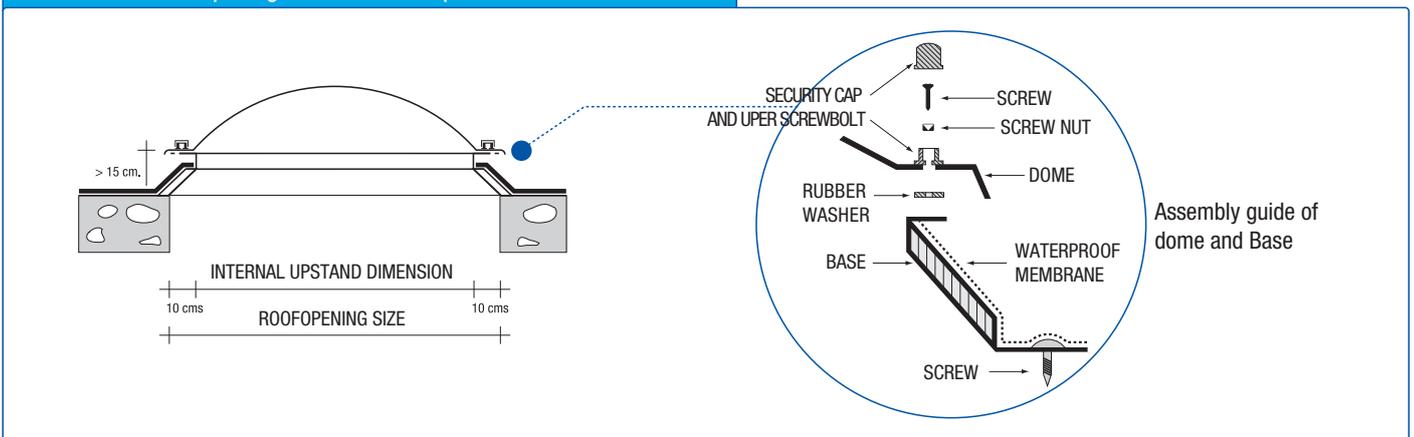


Could be fitted with or without flashing. However, it is always recommended to install the flashing as well especially for larger sizes.

WITHOUT BASE - Roofopening size = Internal upstandDimension.



WITH BASE - Roofopening size = Internal upstandDimension.



BASE INSTALLATION



Opening Matilla® Skylights

All Matilla® Skylights could be optionally fitted with different systems which allow ventilation, access to the roof, smoke extraction, etc. The most commonly used operable systems are:

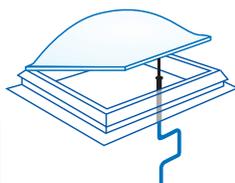


Manual Cranck and spindle opening

This is a system featuring a double run telescopic spindle manually operated from the inside via a crank, as in a canopy, which permits adjustments in the opening angle.

Recommended for spaces with a maximum of 3.50m high, it is used mainly in semi-detached or detached houses for the easier ventilation of bathrooms, attics, understairs closets, etc.

For skylights larger than 160x160 cm, a direct handle is installed which provides a greater stability and rigidity to the unit achieved by a single action system that sets into motion two spindles.



Single Spindle



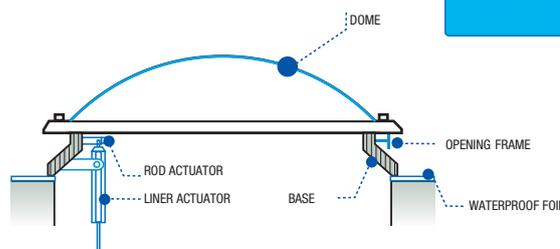
Double Spindle

Electric Opening

A device based on an electric engine connected to the grid that allows for the opening of the skylight in the desired angle through a switch on the wall.

Given its elegant concept and ease of operation, the installation of this unit is recommended for places where the aesthetics play a significant role, as well as areas with limited access. The engine features a limit switch and inner thermal protection.

For skylights larger than 160x160 cm, a double rack engine is assembled.

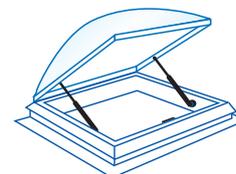


Access Hatches

A system made up of one or two Telescopic struts connecting the hinged frame to the flashing. The amount and power capacity of the buffers depend directly on the measurements and the weight of each skylight.

Access hatches are secured from the inside with a padlock.

Prior to purchasing larger sizes of these types of openings, a minimum quantity and delivery timeframe must be specified and agreed on.



Skylights ^{Matilla®} with remote control



Plásticos Matilla® manufactures remotely operated electrical skylights that, in addition to facilitating installation, allow for an easy and convenient use both during the opening and the closing. They consist of an electric engine supplied with a 433 Mhz emitter-transmitter that responds to the wave signals of the remote control.

Advantages

As part of the installation characteristics it is worth mentioning that only one plug is needed, thus eliminating the need for additional wiring from the roof to an easy to access spot. The low cost installation and maintenance make it even more convenient to use.

This skylight could be fitted to all types and sizes offered (rectangular, square, circular, parabolic and pyramidal).

Optionally a rain and wind sensor could be installed.



Skylights Matilla®

Skylights with rain and wind sensor

Plasticos Matilla® also manufactures skylights with electric opening and a switchboard with a rain and wind sensor. This remotely controlled switchboard can control the closing of the skylight by being adjusted to the wind or rain intensity.

Manufactured in square, circular or rectangular shapes.



Detalle del sensor



Remote Control

Skylights Matilla®

New products at Matilla

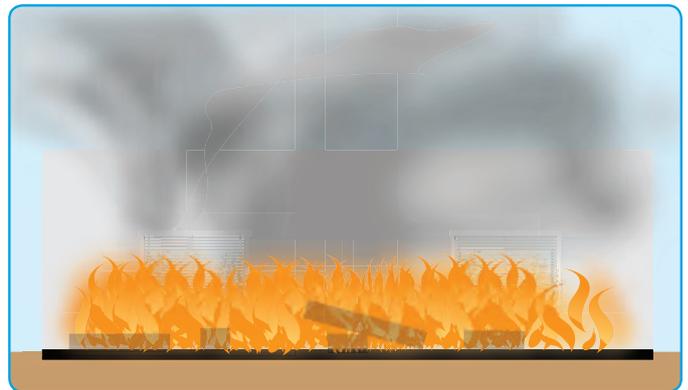
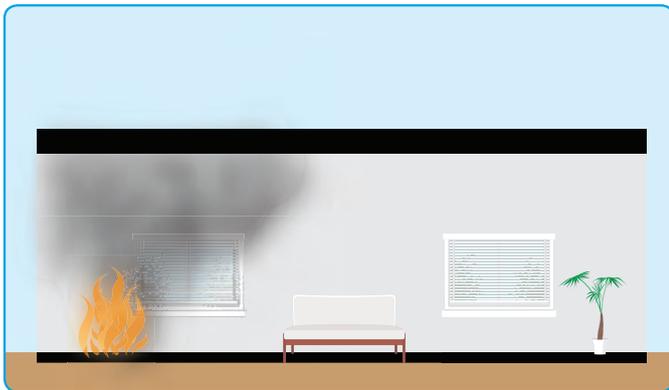


Skylight designed for better ventilation. The dome is made by either the methacrylate or the polycarbonate and two dual rack actuator that allow horizontal and vertical opening of the dome.

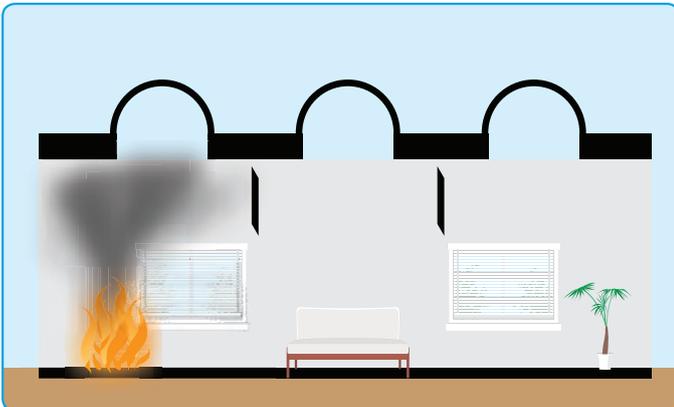
Skylights ^{Matilla}

The smoke extraction / The security.

Principle of smoke ventilation (without skydomes).



Principle of smoke ventilation (with skydomes).



Skylights for smoke evacuation

In order to satisfy our customers' expectations, we offer a new range of skylights and discharge systems, including different types of devices and mechanisms with NE certification and CE mark. Our range of devices includes:

- Mecanic
- Pneumatic
- Electric

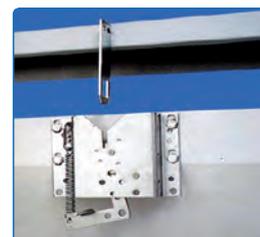


Skylights Matilla®

Smoke extraction



Thermal fuse



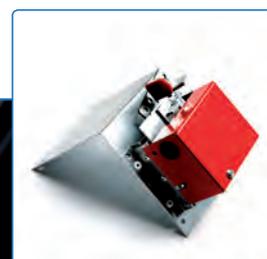
Thermal fuse

THERMAL FUSE

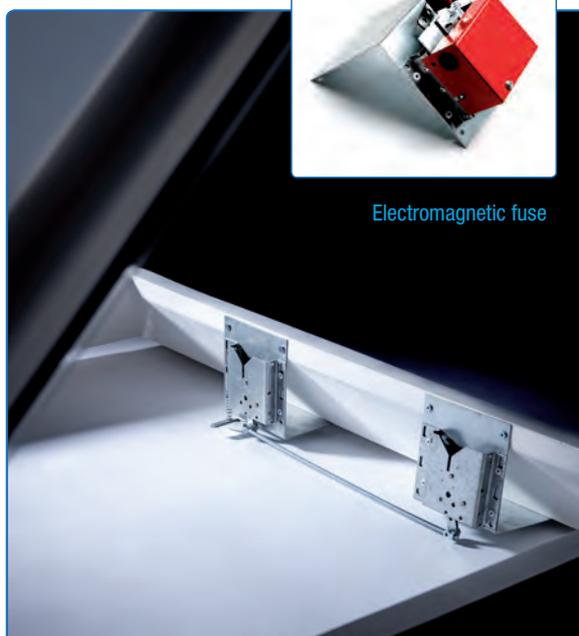
- I. Skydomes with smoke system called the thermal fuse or mechanical lock, with a sensitive element eutectic alloy. It's very easy to fix it, and this type of fuse requires manual reclosing. It easily adapts solo. Its thermal trip eutectic alloy calibrated at 91°. It can be also be mounted in tandem with a Ver 7001 lock throughout skylight over 1200 wide.

ELECTROMAGNETIC FUSE

- II. Discharge system of smoke evacuation lockable operating Electromanético: 24V Issuance / 24V rupture or 48V Issuance / 48V rupture, which is similar to the description of normal thermal fuse, with the peculiarity of being connected to a switchboard fire detection process. Cellular polycarbonate dome 10mm socket slightly curved galvanized sheet of 1.5 mm and 310 mm high. With exterior insulation finish weldable bituminous binder compact 1.5 cms. Thick paint white lacquered inside with RAL 9010. On request, painted inside with RAL 9010 white paint polyurethane, aluminum perimeter frame This device works in tandem with the mounting bolt type VER8010 by the above measures 1200x1200 mm exutorios.



Electromagnetic fuse



Skylights Matilla®

Smoke evacuation systems

III. Smoke Evacuation System vents consisting of:

- Pneumatic piston fit to the operating of the vents according to the UNI EN 12101-2 terms and requirements ensuring the smooth opening and closing.
- Thermal valve with thermosensitive ampoule.
- Cartridge CO2 and thermosensitive ampoule (different range).

It could also be connected to a fire detection switchboard.

EFC 4A battery fitted switchboard that allows the connection with :

- smoke detectors
- Emergency switch
- Sirens and magnets

In case of emergency, each switchboard emits a 24VCC signal to a maximum of 10 electric actuators (detonators and/or electromagnetic actuators)



Application example



Skylights Matilla®

Mixed smoke preventing Skylights system

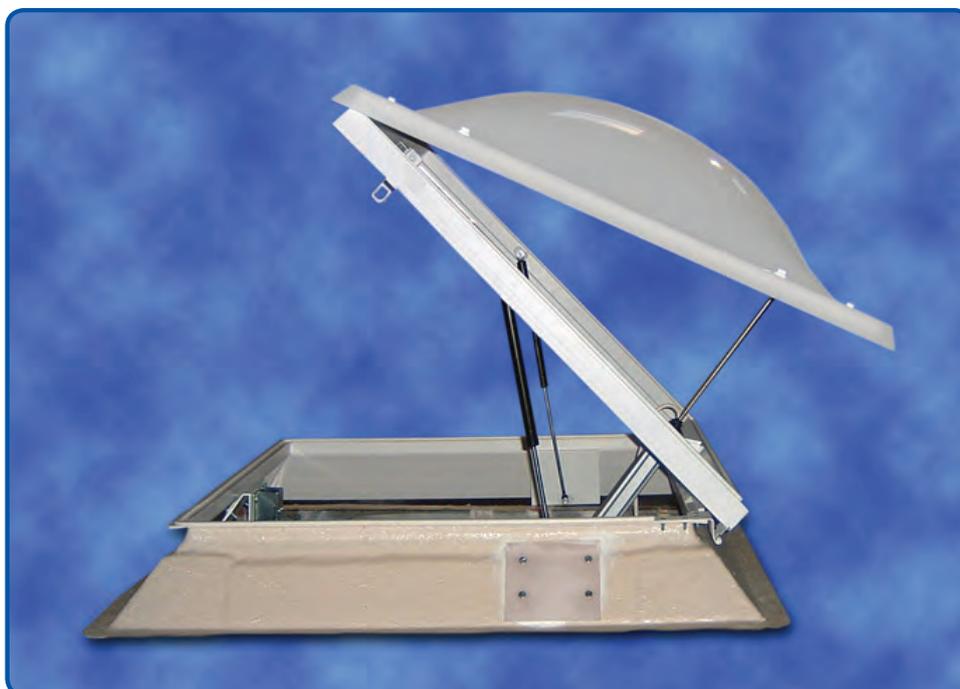


Ventilation and smoke evacuation:

All smoke evacuation vents offered by Plásticos y Claraboyas Matilla® could be converted into multipurpose ones through one automatic and another manual mechanism: evacuation and ventilation. It is a system which apart from sharing the same characteristics of the automatic smoke prevention vents, also allows for ventilation via electric mechanism.

These systems comprise of:

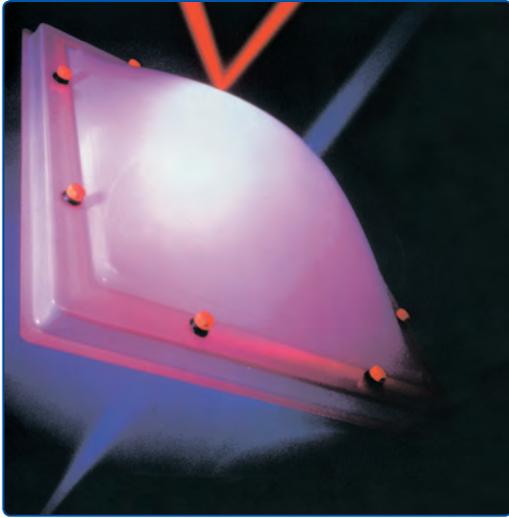
- 2 aluminium frames
- 2 dampers
- 1 Liner actuator
- 1 metal or polyester base.
- 1 methacrylate or polycarbonate top with engine and switch



Mixed opening

Skylights ^{Matilla®}

XT Heatstop Plexiglass



The dome sheet is made of extruded methacrylate plastic, shells with a heat resistant effect, which stops the infra-rays and reduces them.

Characteristics:

The heatstop effect is achieved via the reflection of one third of the incident solar thermal radiation (which creates a special antiheat effect). Significant light transmission over the visible area is also maintained.

Installing XT Heatstop Plexiglass Skylights has its various advantages:

- A very pleasant ambient is created
- An excellent light diffusion is guaranteed
- The heating up of closed premises is significantly decreased without reducing their luminosity
- 50% less solar energy passes through bivalve skylight of this type compared to conventional bivalve skylights.

From an environmental perspective, a lot of energy is saved in terms of refrigeration. Not only do they reduce spendings but they are also extremely beneficial to climate preservation.

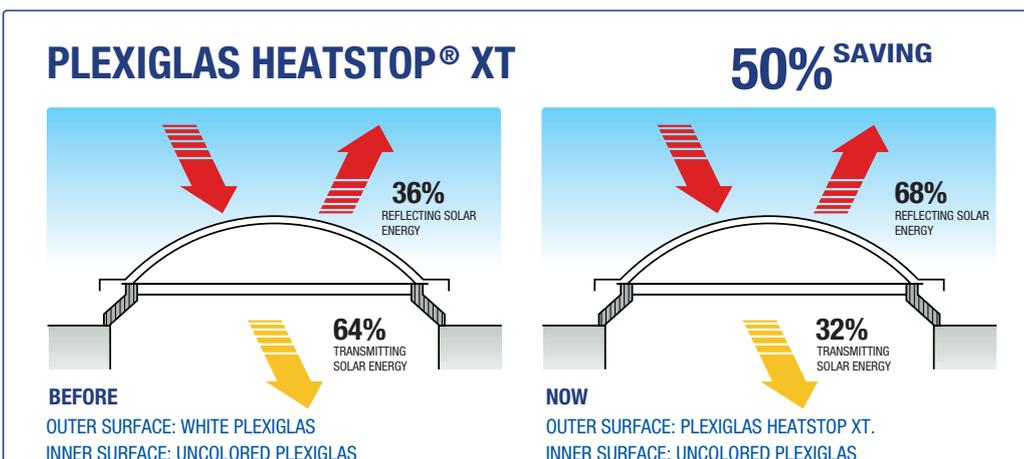
Use:

The implication of the XT Heatstop Plexiglass Skylights is especially recommended for

- Pedestrian crossings
- Light rows in shopping centres
- Schools and offices
- Industrial spaces

Generally it is ideal for any premises that require notably pleasant interior temperatures and excellent, smooth light distribution.

Please take a look at the manufacturing measurements.



The Fraunhofer-Institut for solar systems Energy-saving has found that the use of plexiglass Heat-Stop allows a large and important energy-saving as significant economy in a typical industrial plant in the center of Europe with an inner thermal charge significantly superior to 8m/m².

Domes^{Matilla}[®]

High impact domes

Upon request **Plásticos Matilla**[®] can produce high impact methacrylate domes.

They have basically the exact same resistance as the polycarbonate and are perfect because of their price-quality value.

They are designed for places such as terraces or patios where there may be a risk of falling objects so that the breaking of the domes is avoided.

Can be manufactured in two colors: transparent and white opal.



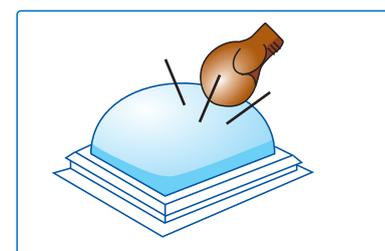
High impact skylight. Transparent fitted onto a private home



Bivalve skylight with protection net



High impact skylight on an attic roof



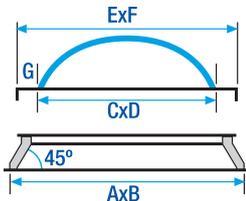
*Pre-treatment, 16h at 80°C

Technical data shown on this brochure correspond to the moment when it was printed. Our technical information may suffer modifications and refer to computed figures, supplier data or they were made by external and independent testing institutions.

TECHNICAL INFORMATION	METHOD	UNITS	VALUE
GENERAL FEATURES			
Density	ISO 1183	g/cm ³	1,15
Water absorption 24h/23 ° - 50 x 50 x 4mm3	DIN 53495 Method 1	%	0,3
Ball's print resistance	ISO 2039-1	Mpa	100
Air Pressure at Forming Temperature	-	°C	130-150
Forming Temperature's Vacuum	-	°C	140-170
Contraction when Forming	-	%	0,6-0,9
MECHANICAL FEATURES			
Endurance	ISO 527-2	Mpa	40
Breaking's Elongation	ISO 527-2	%	35
Pulling Coefficient	ISO 527-2	Mpa	1800
Flexural Strength	ISO 178	Mpa	65
Flexural Coefficient	ISO 178	Mpa	1800
Impact Resistance with Charpy text indent	ISO 179-1	KJ/m2	60
Impact Resistance without Charpy text indent	ISO 179-1	KJ/m2	5
THERMAL PROPERTIES			
Vicat Temperature	ISO 306	°C	98
Specific Heat Capacity	IEC 1006	J/gK	1,5
Linear Thermal Expansion	DIN 53752	K ⁻¹ *10 ⁻⁵	11
Thermal Conductivity	DIN 52612	W/mK	0,18
Max. Temperature at Continuous Using	-	°C	65
Max. Temperature at Short Period	-	°C	75
Degradation Temperature	-	°C	>280
OPTICAL PROPERTIES			
Light Transmission (3mm)	DIN 5036-3	%	90
Refraction Index	ISO 489	nD	1,49
ELECTRICAL FEATURES			
Surface resistivity	IEC 600093	Ω	-
Volume resistivity	IEC 600093	Ωxm	-
Electric Power	IEC 60243-1	kV/mm	-
Dielectric Dissipation Factor at 50 Hz	DIN 53483-2		-
Dielectric Dissipation Factor at 1 KHz	DIN 53483-2		-
Dielectric Dissipation Factor at 1 MHz	DIN 53483-2		0,03
Relative Permittivity at 50 Hz	DIN 53483-2		-
Relative Permittivity at 1 KHz	DIN 53483-2		-
Relative Permittivity at 1 MHz	DIN 53483-2		2,9

GENERAL MEASURES

Methacrylate Dome



Polyester base

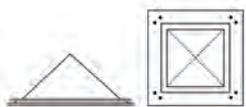
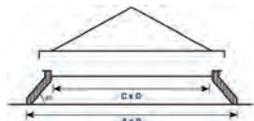
Parabolic domes height is, approximately, 25% of CxD size. This height may be modified on demand.

"G" size may vary between 6 and 7cm, depending on models.

*Measures may vary between 10 and 20mm. during manufacturing process.

PARABOLIC

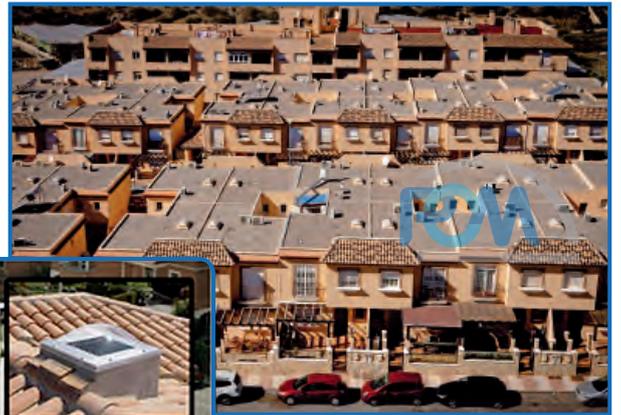
PYRAMIDAL



	CEILING GAP LIGHT DOME WITH BASE (AxB)	CEILING GAP LIGHT SINGLE DOME (CxD)	SINGLE DOME EXTERNAL SIZE (ExF)	LIGHT ENTRY SURFACE M ²
SQUARE	50x50	30x30	45x45	0,090
	60x60	40x40	54x54	0,160
	70x70	50x50	64x64	0,250
	80x80	60x60	74x74	0,360
	90x90	70x70	84x84	0,490
	100x100	80x80	94x94	0,640
	120x120	100x100	114x114	1,000
	140x140	120x120	134x134	1,440
	150x150	130x130	144x144	1,690
	160x160	140x140	154x154	1,960
	170x170	150x150	164x164	2,250
180x180	160x160	177x177	2,590	
200x200	180x180	194x194	3,240	
RECTANGULAR	50x100	30x80	44x94	0,240
	60x80	40x60	54x74	0,240
	60x90	40x70	54x84	0,280
	60x100	40x80	54x94	0,320
	60x120	40x100	54x114	0,400
	60x200	40x180	54x194	0,720
	70x100	50x80	64x94	0,400
	76x156	56x136	71x151	0,761
	80x100	60x80	74x94	0,480
	80x110	60x90	74x104	0,540
	80x120	60x100	74x114	0,600
	80x140	60x120	74x134	0,720
	90x120	70x100	84x114	0,700
	94x140	74x120	88x134	0,888
	100x150	80x130	94x144	1,040
	100x200	80x180	94x194	1,440
	114x174	94x150	108x168	1,447
	150x200	130x180	147x193	2,400
	160x240	140x220	154x234	3,080
	200x300	180x280	194x294	5,040
CIRCULAR	60 Ø	40 Ø	52 Ø	0,131
	70 Ø	50 Ø	62 Ø	0,203
	80 Ø	60 Ø	72 Ø	0,291
	90 Ø	70 Ø	82 Ø	0,499
	100 Ø	80 Ø	92 Ø	0,515
	110 Ø	90 Ø	102 Ø	0,657
	120 Ø	100 Ø	112 Ø	0,800
	130 Ø	110 Ø	122 Ø	1,020
	140 Ø	120 Ø	132 Ø	1,242
	150 Ø	130 Ø	142 Ø	1,346
	180 Ø	160 Ø	181 Ø	2,035
	200 Ø	180 Ø	192 Ø	2,571
SQUARE	60x60	40x40	54x54	0,160
	70x70	50x50	64x64	0,250
	80x80	60x60	74x74	0,360
	90x90	70x70	84x84	0,490
	100x100	80x80	94x94	0,640
	120x120	100x100	114x114	1,000
	140x140	120x120	134x134	1,440
	150x150	130x130	144x144	1,690
	50x100	30x80	44x94	0,240
	60x80	40x60	54x74	0,240
	60x90	40x70	54x84	0,280
60x100	40x80	54x94	0,320	
60x120	40x100	54x114	0,400	
60x200	40x180	54x194	0,720	
70x100	50x80	64x94	0,400	
80x100	60x80	74x94	0,480	
80x110	60x90	74x104	0,540	
80x120	60x100	74x114	0,600	
80x140	60x120	74x134	0,720	
90x120	70x100	84x114	0,700	
100x150	80x130	94x144	1,040	
100x200	80x180	94x194	1,440	
114x174	94x154	108x168	1,447	

Skylights Matilla®

housing



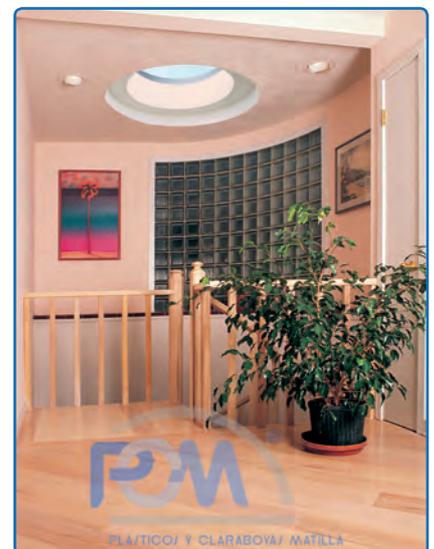
• Skylights in duplex houses with sloped roof tiles



• Skylight in bathroom



• Rounded skylight in showroom



• Rounded clear skylight over ladders

Factories and shopping centers



• Skylights at supermarket



• Skylights used in facade



• Shopping center with skylights



• Skylights in factory (interior view)



• Skylights on sport leisure center

Skylights ^{Matilla}[®]

Applications and types of Aligned skylights



• Aligned skylights



• Aligned skylights



• Ligned skylights



• Interior view of Aligned skylights.

Applications and types of Aligned skylights



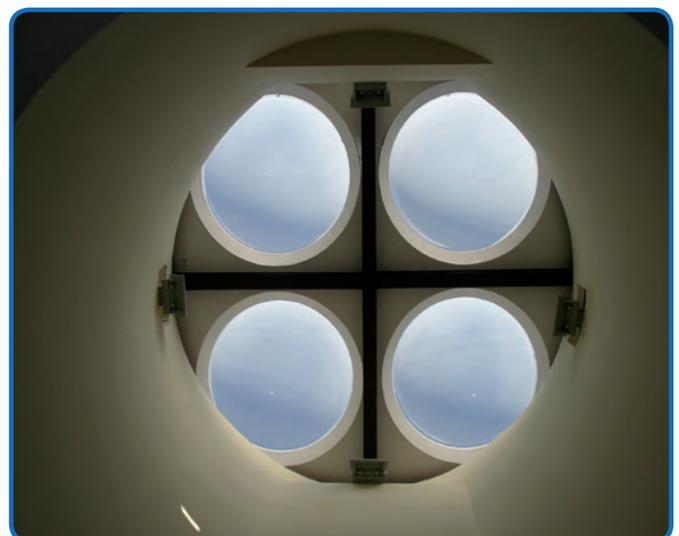
• Interior structure detail



• Interior structure detail



• Circular skylights



• Interior view of circular skylights



Warranty

The warranty period of the products provided by Plásticos y Claraboyas Matilla LTD starts from the date of delivery of the goods to the customer and covers a period of 5 years for all materials and 2 years for electronic pieces. Such warranty will cover manufacturing defects, faults or defects caused by workmanship and will not cover damages caused by misuse, or neglect in terms of transportation, storage, as well as those caused by weather, electricity or installation deficiencies or any other type of reasons beyond our control. In all cases, the eligibility to benefit from the warranty remains subject to examination by our Technical Support Department.

Any complaints must be sent via The Official Distributor Network of Plásticos y Claraboyas Matilla LTD. The information presented in this catalogue is not contractual, therefore Plásticos y Claraboyas Matilla LTD reserves the right to change, or modify without prior notice, the characteristics and specifications of the components forming the manufacturing of our products.



AUTHORIZED DEALER



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