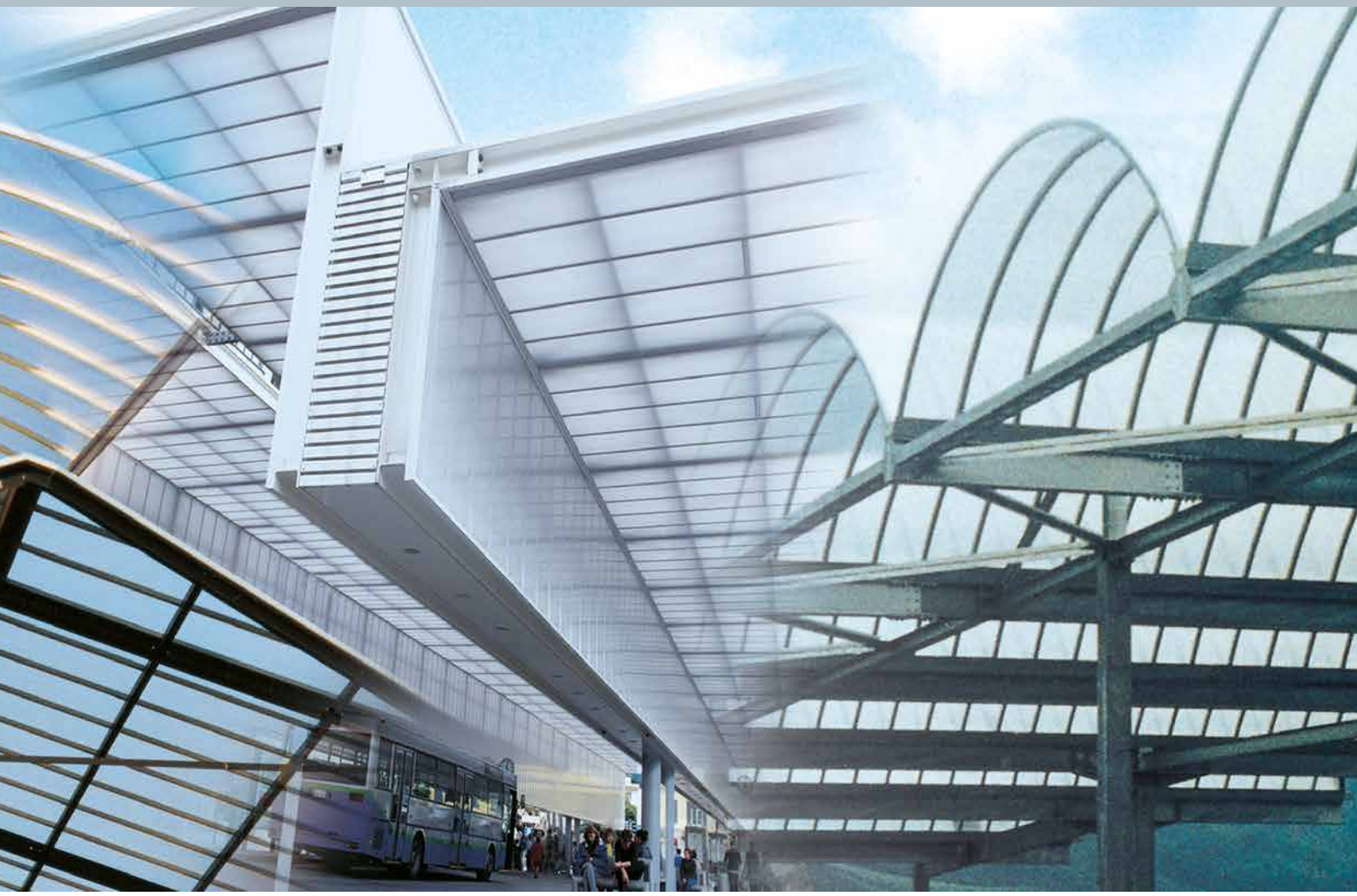
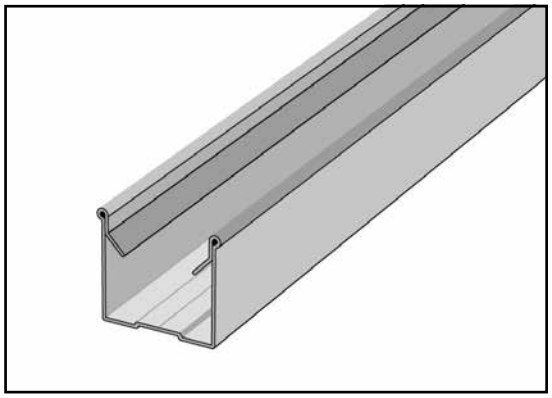
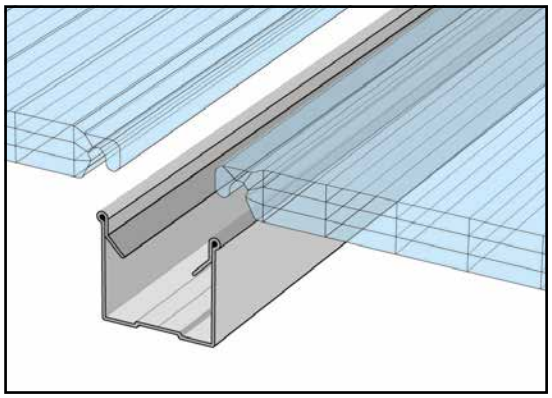
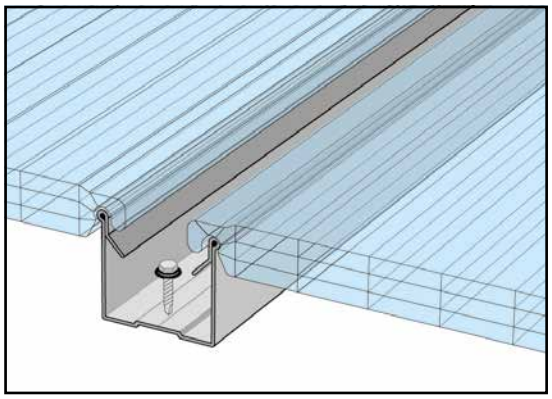
SUN MODUL®

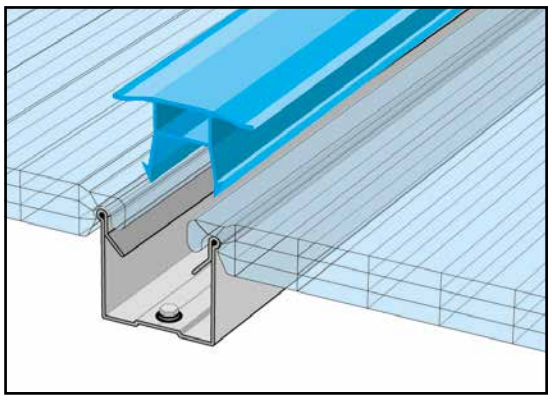


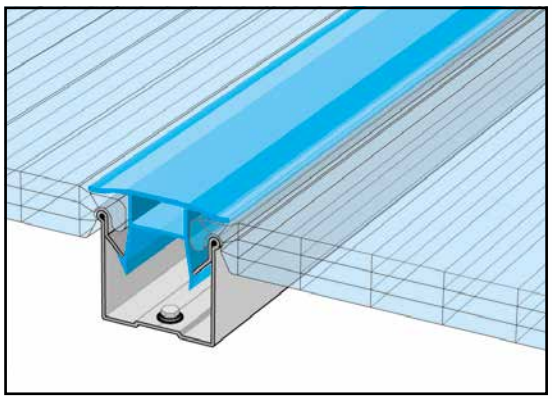
SELFCARRYING GLAZING SYSTEM IN POLYCARBONATE

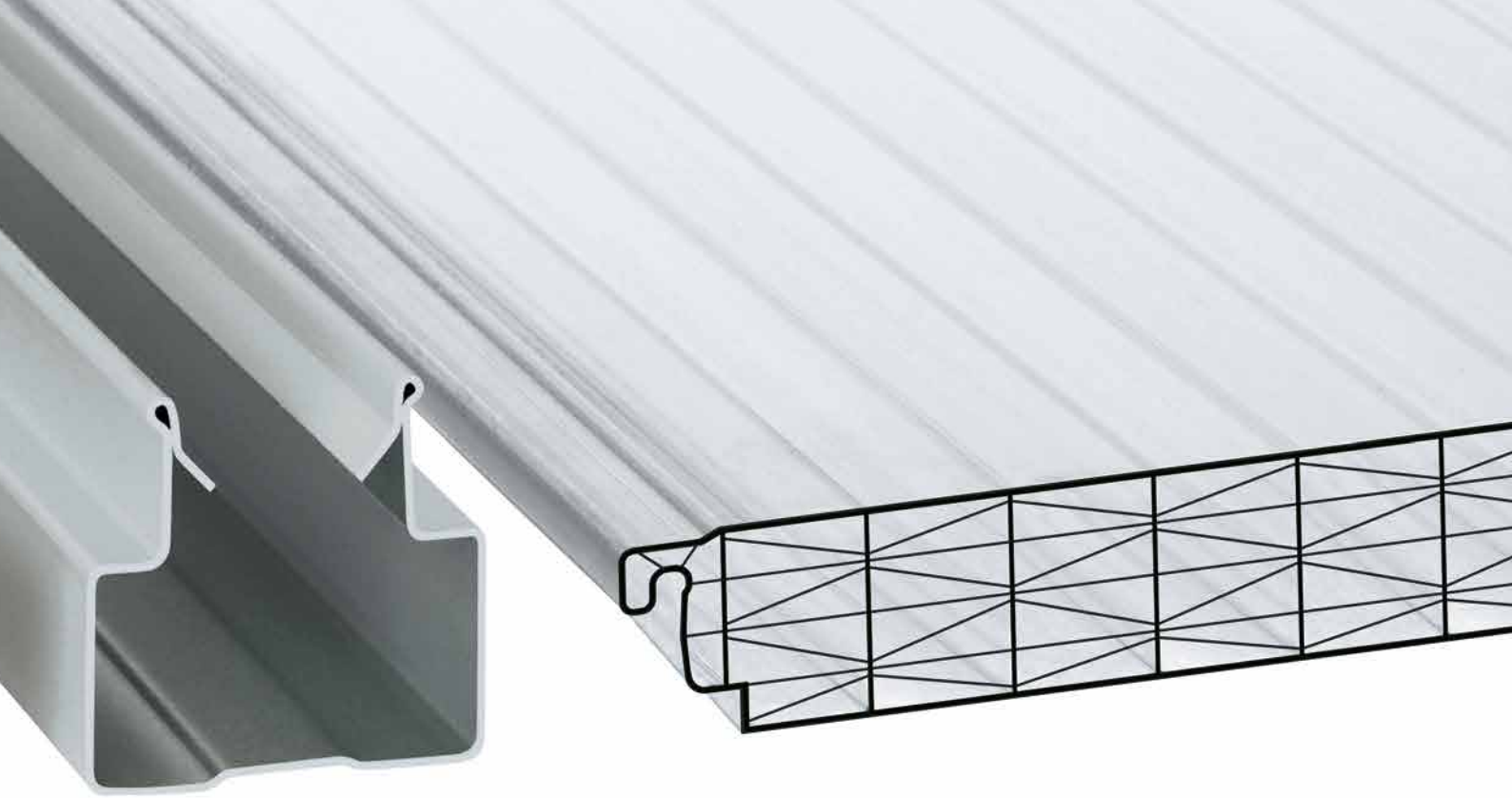












SUN MODUL®

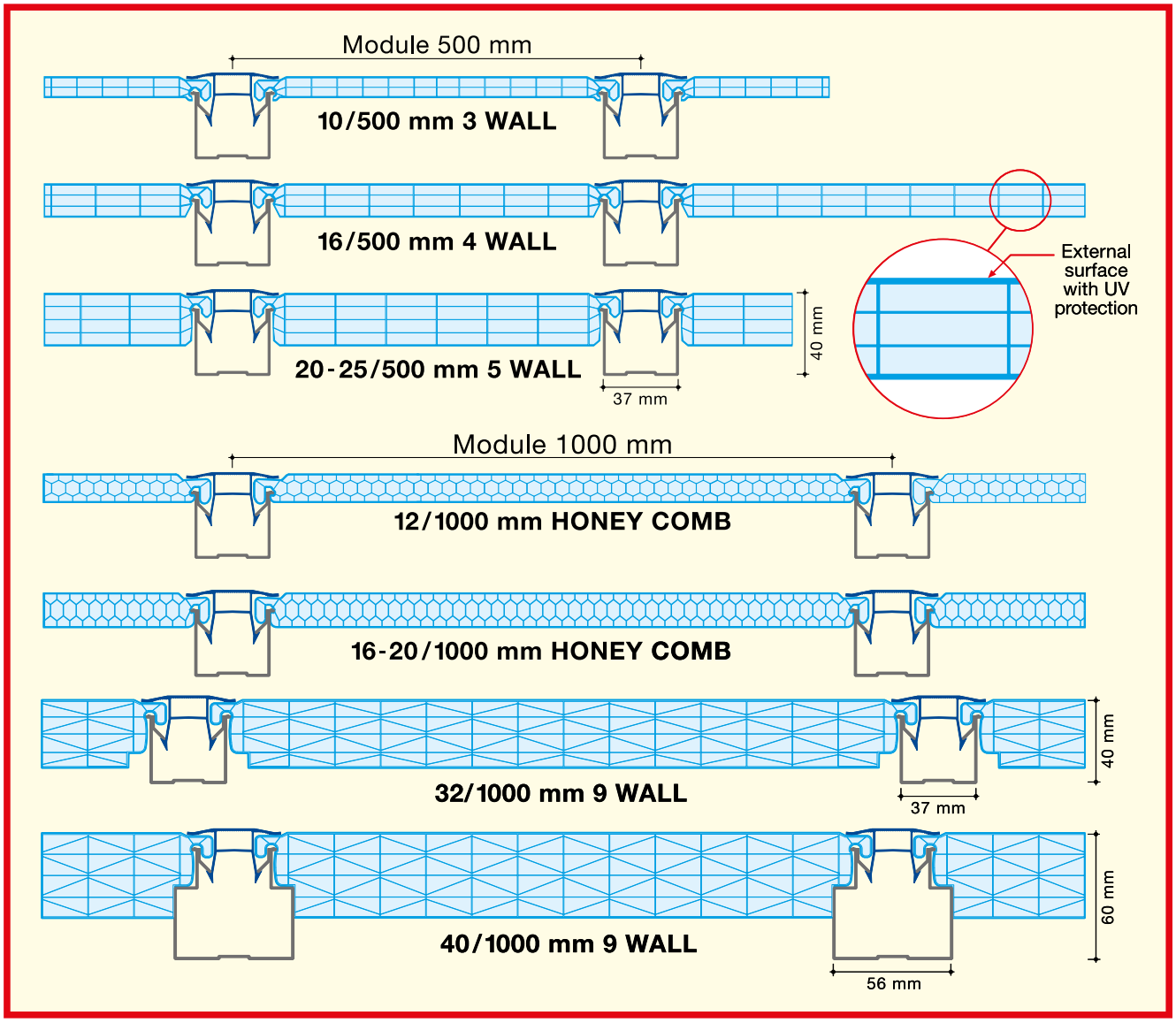
THE COMPLETE SOLUTION FOR GLAZING ROOFS AND WALLS

The **SUN MODUL®** system is the result of a long experience in the field of translucent glazing of roofs and walls, as well as domed skylights.

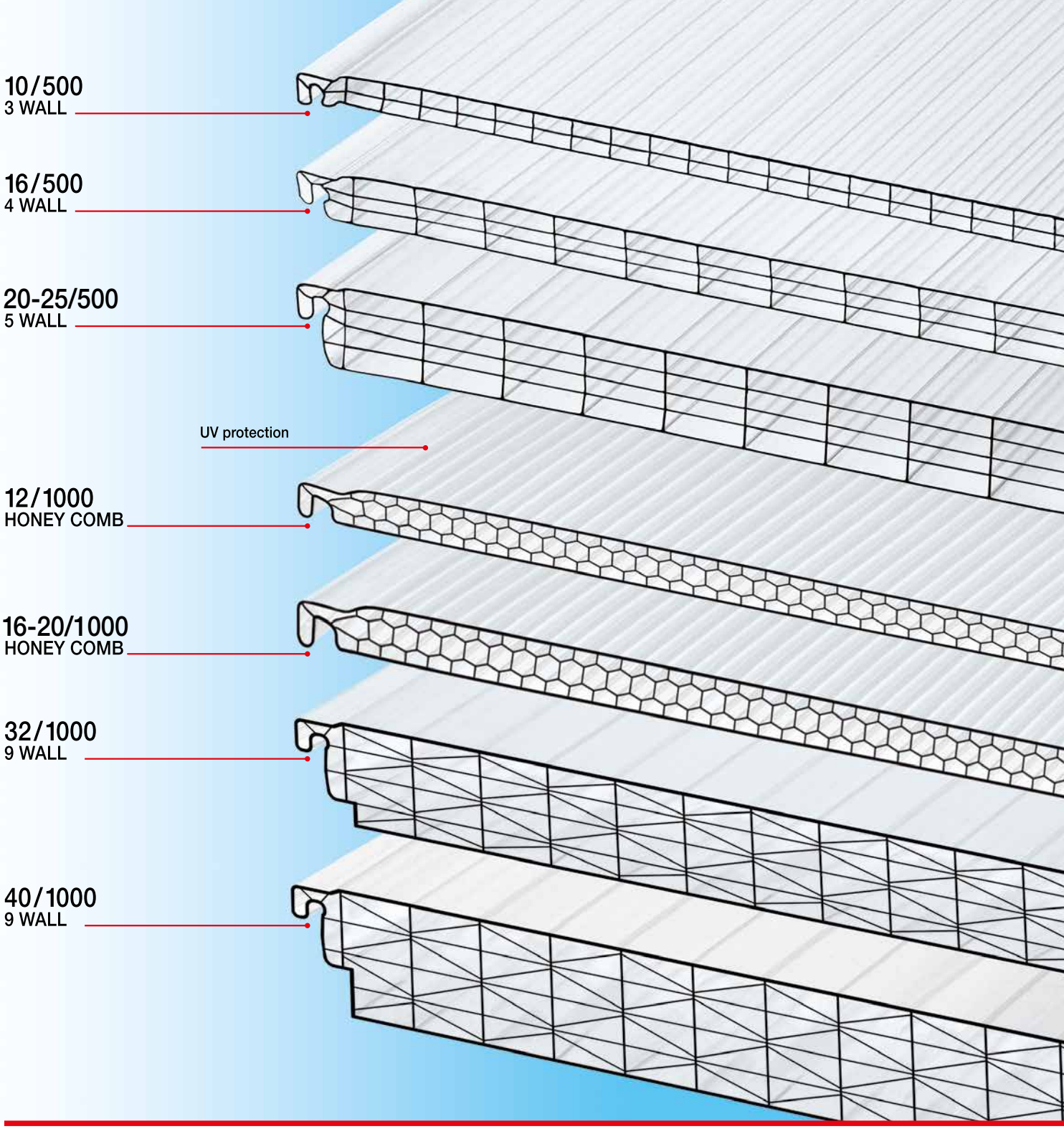
- The **SUN MODUL®** system combines high wind and snow loading capability, water tightness and stability of jointing, with lightness, easy assembly and the external appearance of a continuous surface. These properties make the system particularly well suited to glazing roofs and walls in industrial and commercial buildings and any other high specification applications.
- The special multi-wall polycarbonate panels are hooked onto steel channels and firmly locked with special polycarbonate clip profiles, conferring excellent characteristics to the system for the creation of translucent surfaces of any kind in modern building.
- Extruded from high-grade polycarbonate, the glazing panels provide good light transmission and thermal insulation and are practically unbreakable. With an advanced UV resistant surface coating, weather resistance and long life span are guaranteed.
- The PC clip profiles are produced with the same technical characteristics as the panels.
- The galvanized and plastic coated steel channels are designed to provide very high rigidity. Consequently, the system can be used for wide, unsupported spans.
- The system is completed by a full range of aluminium profiles for frames, seals, opening windows and other accessories for every kind of application.

SUN MODUL®

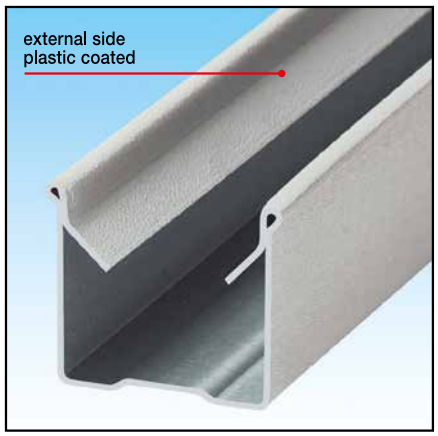
PANELS - STEEL CHANNELS - CLIP PROFILES



TECHNICAL DATA	module 500 mm (± 2)				module 1000 mm (± 5)					Unit
Panel thickness (nominal)	10	16	20	25	12	16	20	32	40	mm
Number of walls	3	4	5	5	[4]	[4]	[4]	9	9	no.
Thermal transmittance [U]	2,73	2,04	1,71	1,55	2,20	1,99	1,81	1,27	1,13	W/m²K
Light transmittance: TRANSPARENT OPAL-WHITE	~ 73 ~ 63	~ 66 ~ 57	~ 62 ~ 54	~ 61 ~ 51	~ 70 ~ 53	~ 69 ~ 52	~ 67 ~ 43	~ 53 ~ 46	~ 52 ~ 44	% %
Total weight of the system with **STANDARD** steel channel with **MAXI** steel channel	 4,3 -	 4,7 5,9	 4,8 6,0	 5,1 6,3	 3,2 -	 3,8 4,4	 3,9 4,5	 4,5 5,1	 5,4 6,0	 kg/m² kg/m²
Minimum bending radius with **STANDARD** steel channel with **MAXI** steel channel	 2000 -	 3500 4500	 4500 4500	 5500 5500	 2000 -	 3000 4500	 3700 4500	 6400 6400	 -	 mm mm
Thermal expansion	0,065									mm/m K
Temperature range	-40/+120									°C
Fire classification EN 13501-1	B s1 d0 or B s2 d0									



STANDARD STEEL CHANNEL galvanized

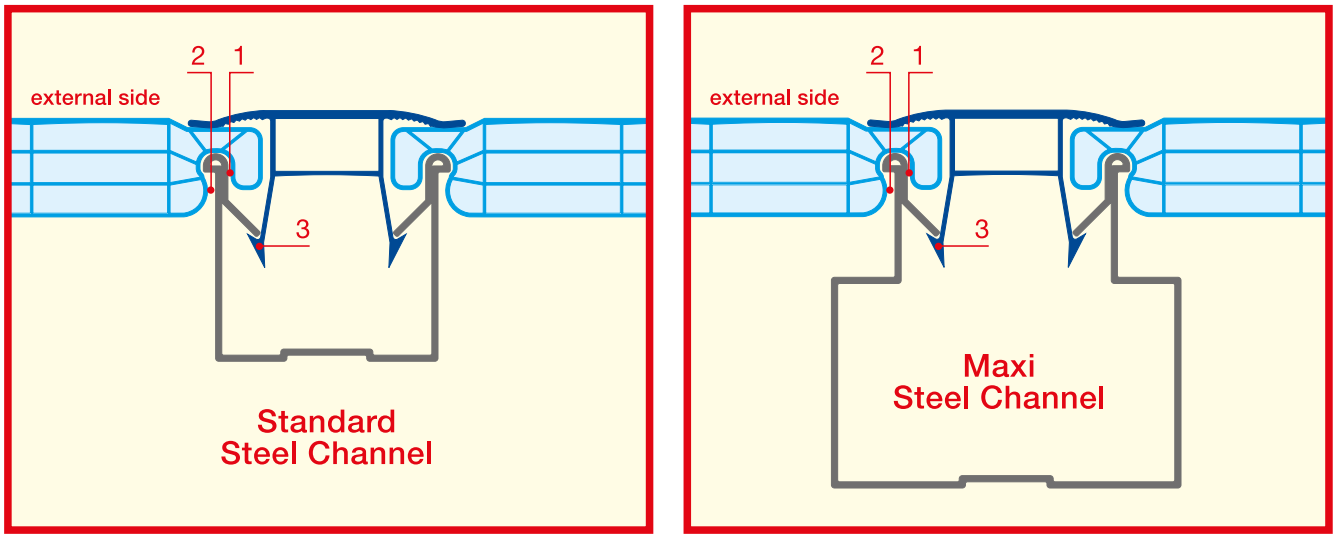


MAXI STEEL CHANNEL galvanized

CLIP PROFILE IN PC UV protected

ANCHORAGE

SUN MODUL® guarantees stable and safe anchorage of the panels.



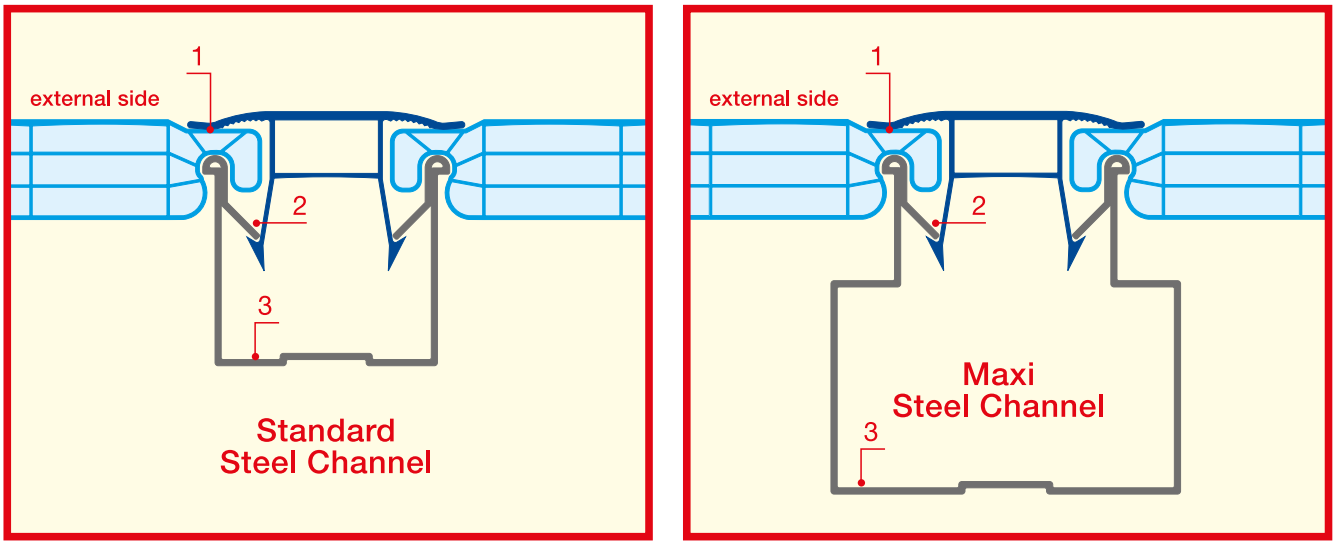
1 - side anchorage ***2*** - front anchorage ***3*** - clip profile anchorage

The anchorage of the polycarbonate *panels* is achieved by locking the polycarbonate *clip profile* into the *steel channel*.

The unique shape of the panels and the special profile of the steel channels keep the panels in position against compressive or depressive forces. They remain in place against distributed load (wind and snow) and concentrated (impact) load.

WATER TIGHTNESS

SUN MODUL® guarantees excellent water tightness.



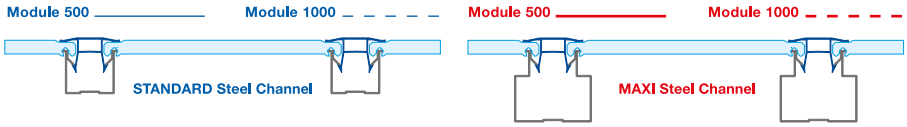
1 - pressure point ***2*** - primary draining ***3*** - ultimate draining

The polycarbonate *panels* are locked in place in the *steel channels* by the polycarbonate *clip profile*, so the panels are not perforated by fixings thus preventing infiltration of dust and moisture.

Eventually penetrated microelements can flow outside by the primary draining.

The particular shape of the *steel channel* guarantees secondary draining of infiltrations and condensates, without interfering with fixing screws.

ACCEPTABLE SPANS



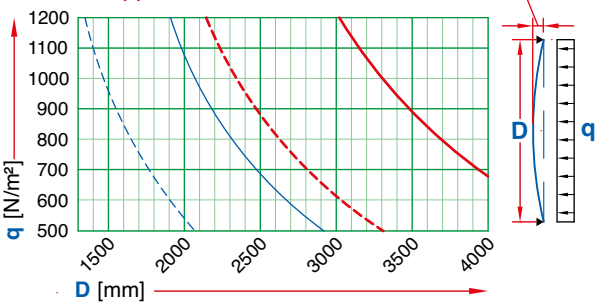
Values according to EC3

LEGEND: **p** = Snow load **q** = Wind load **D** = Distance between purlins F = Arch height

Wall

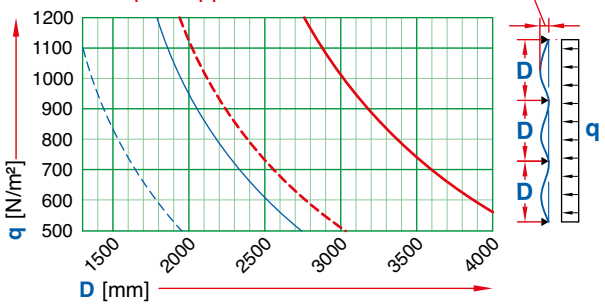
2 supports

F max = D/50



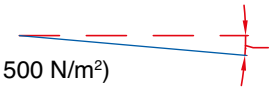
Multiple supports

F max = D/50

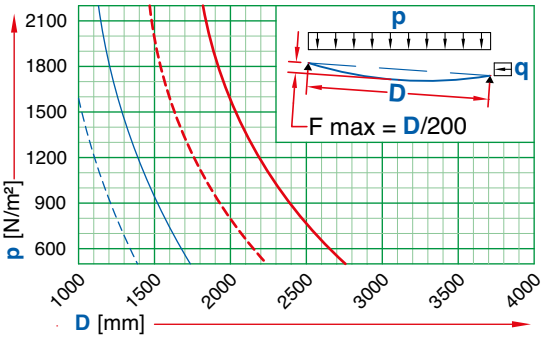


Limits: Panels 10/500 and 12/1000 admitted only with Standard steel channel
q.max for panels 12/1000 = 900 N/m² • **q.max** for panels 16/1000 = 1300 N/m²

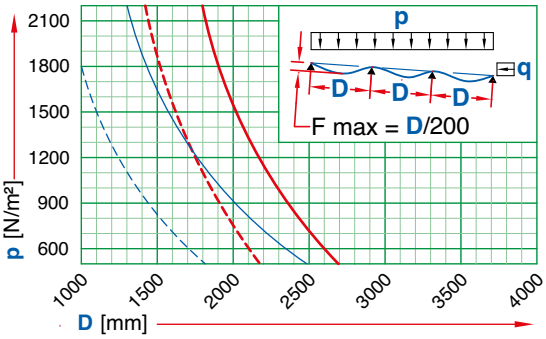
Flat roof



2 supports (with q = 500 N/m²)



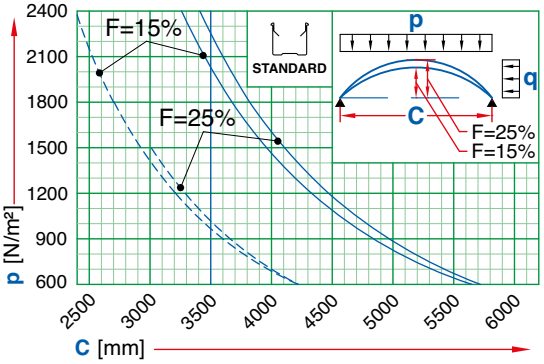
Multiple supports (with q = 500 N/m²)



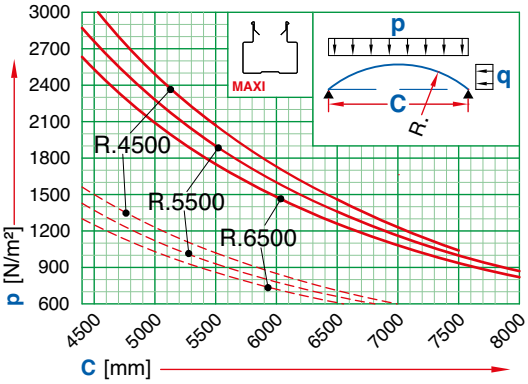
Limits: Panels 10/500 admitted only with Standard steel channel
Panels 12/1000 not admitted • **p.max** for panels 16/1000 = 1300 N/m²

Domed skylight

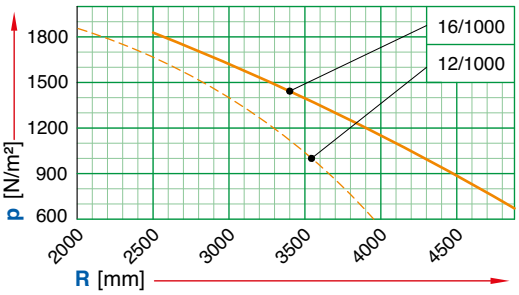
STANDARD steel channel
for **F** constant (with **q** = 500 N/m²)



MAXI steel channel
for **R** constant (with **q** = 500 N/m²)



Limits:
Load capacity panels 12/1000 and 16/1000 depending on bending radius



Limits: Minimum bending radius

STEEL CHANNEL:	STANDARD	MAXI
with panels 10/500, 12/1000	2000 mm	not admitted
with panels 16/500	3500 mm	4500 mm (*)
with panels 16/1000	3000 mm	4500 mm (*)
with panels 25/500	5500 mm	5500 mm
with panels 32/1000	6400 mm	6400 mm
with panels 40/1000	8000 mm	8000 mm

(*) for MAXI steel channel with radius less than 4500 mm please contact AKRAPLAST Sistemi.

Nota: the span values indicated are referred to the conditions specified in each graph. For span evaluations under different conditions, please ask for special verification.

SUN MODUL®

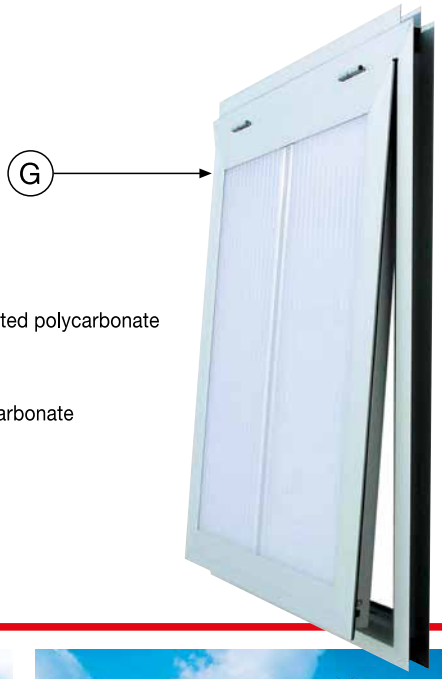
WALL / NORTHLIGHT

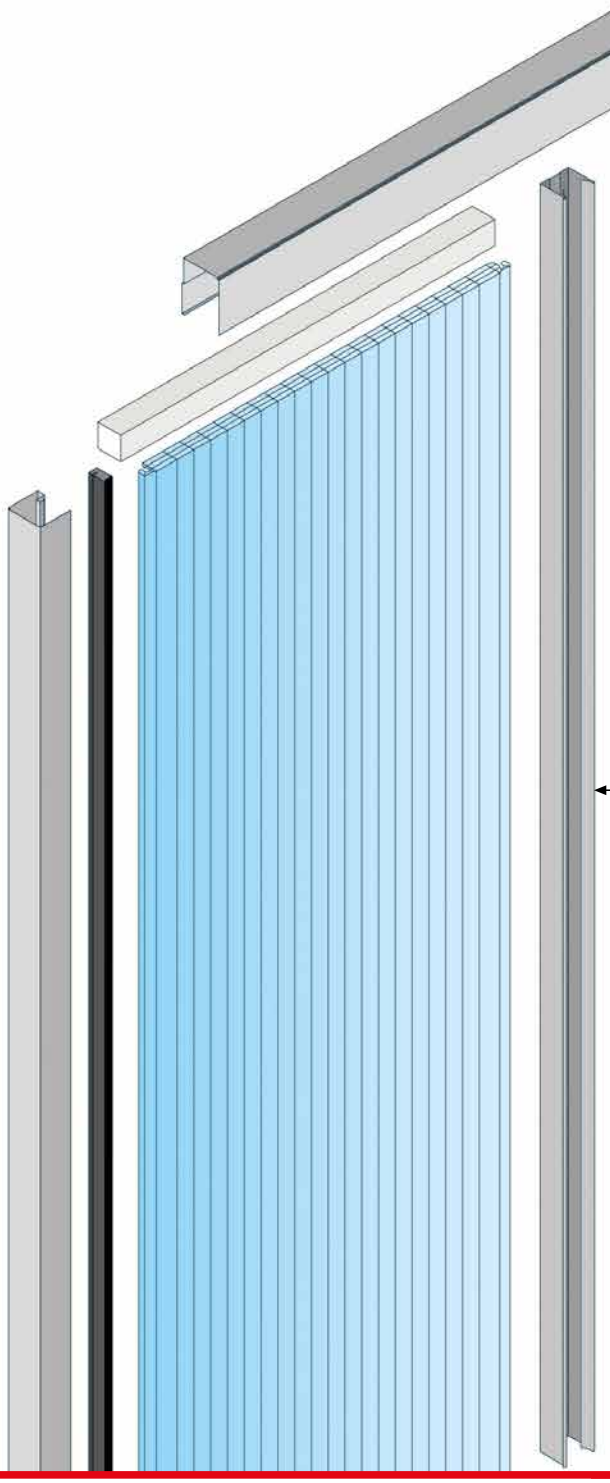
For vertical and inclined applications the **SUN MODUL®** system is ideal for the creation of aesthetically pleasing walls and northlights with excellent thermal insulation. The system is particularly suitable for big translucent external and internal surfaces in commercial and industrial buildings, as well as in sport sites.

Due to the different possibilities to combine the 2 panel modules in the various thicknesses and the 2 types of steel channel, the best solutions regarding wind loads and thermal insulation are obtained.

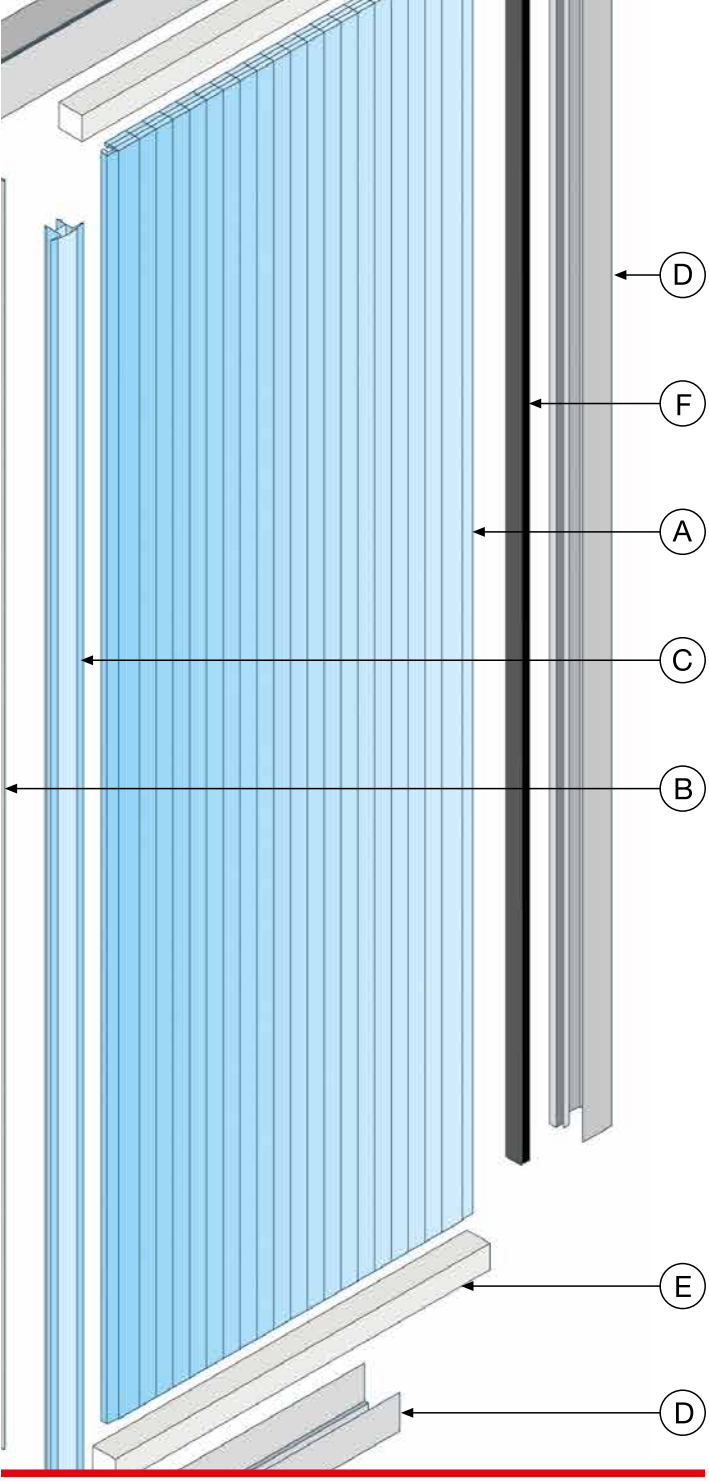
The components of the system are supplied on size for the customer's purpose in full height; there is no interruption in the surface. The fact that no fixings perforate the panel guarantees free thermal expansion.

The system is completed by a full range of aluminium profiles for framing and fixing; on size produced window frames, to be opened manually or with motor, are perfectly integrated in the surface, as they are cladded with the same elements as the wall. (See list on pages 17 and 18).



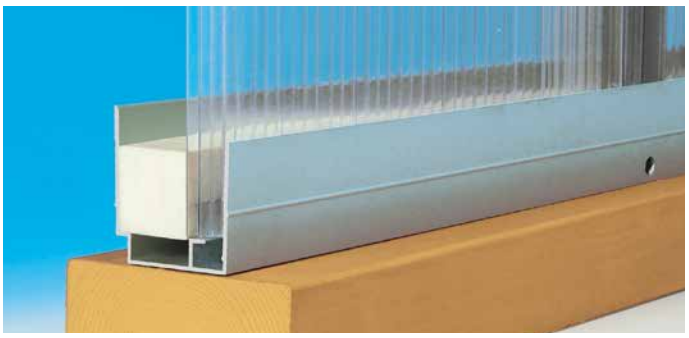


(A) SUN MODUL® panel in UV protected polycarbonate
(B) Steel channel
(C) Clip profile in UV protected polycarbonate
(D) Framing profile in aluminium
(E) PE-Inlay
(F) Gasket
(G) Aluminium window



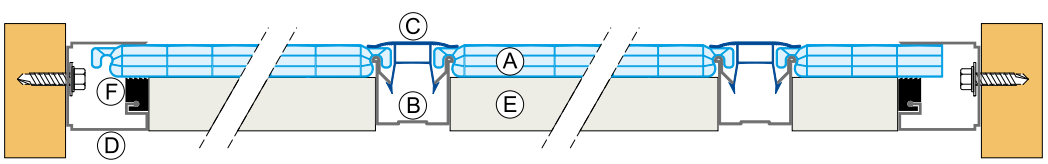
FIXING WITH TOP PROFILE M611

FIXING WITH BOTTOM PROFILE M620



FIXING WITH TOP PROFILE M615

FIXING WITH BOTTOM NORTHLIGHT PROFILE M628



SUN MODUL®

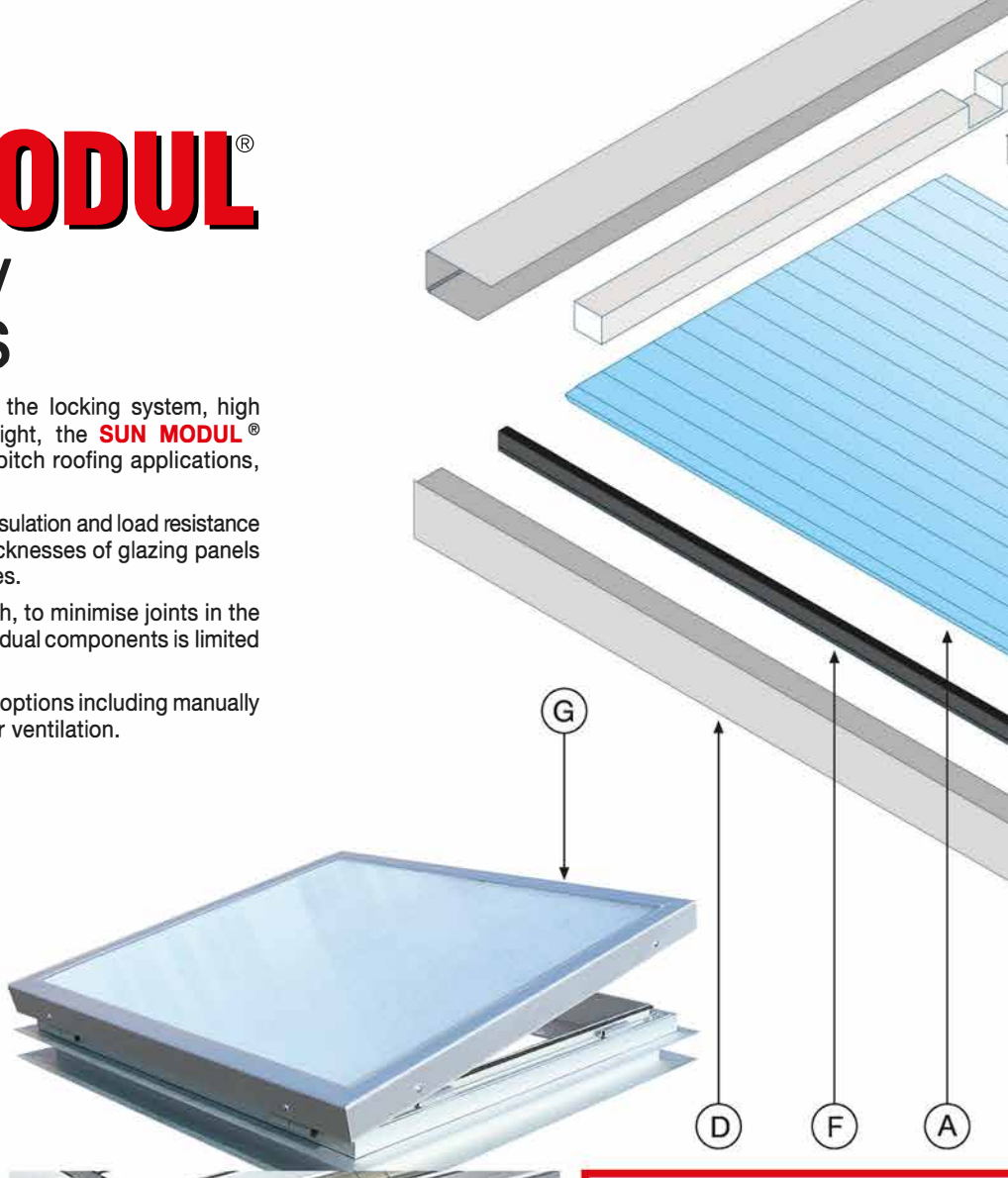
ROOFLIGHTS / NORTHLIGHTS

Due to the excellent water tightness of the locking system, high resistance to loads and low overall weight, the **SUN MODUL®** system is particularly well suited to low-pitch roofing applications, as well as traditional northlights.

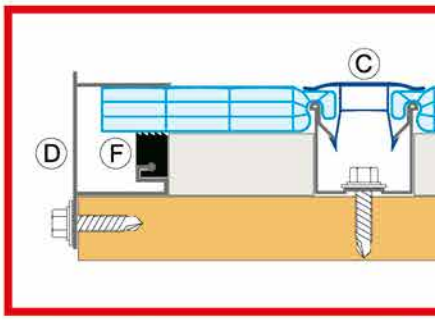
A wide range of options regarding thermal insulation and load resistance can be obtained by combining various thicknesses of glazing panels and the two standard steel channel profiles.

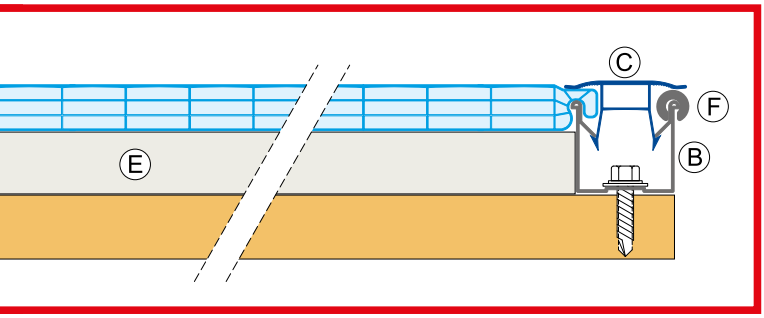
System components are supplied to length, to minimise joints in the length of the rooflights. The length of individual components is limited only by transport.

The system is completed by a full range of options including manually or electrically operated window frames for ventilation.
(See list on pages 17 and 18).



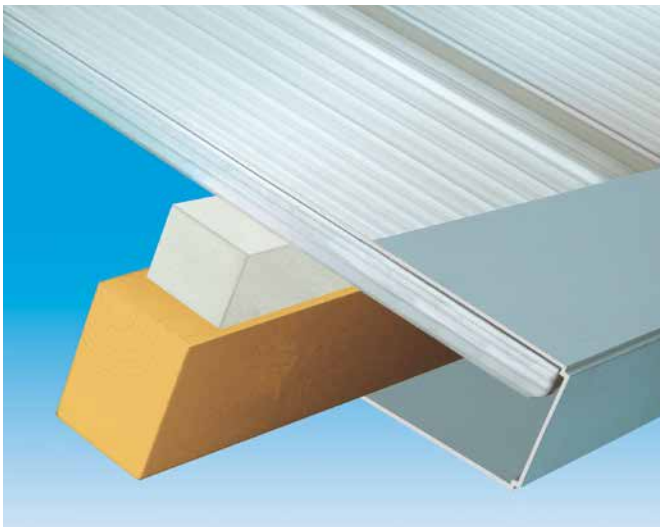
- (A) UV protected polycarbonate glazing panel
- (B) Steel channel
- (C) UV protected polycarbonate clip profile
- (D) Aluminium frame profile
- (E) PE-Inlay
- (F) Seal
- (G) Aluminium window





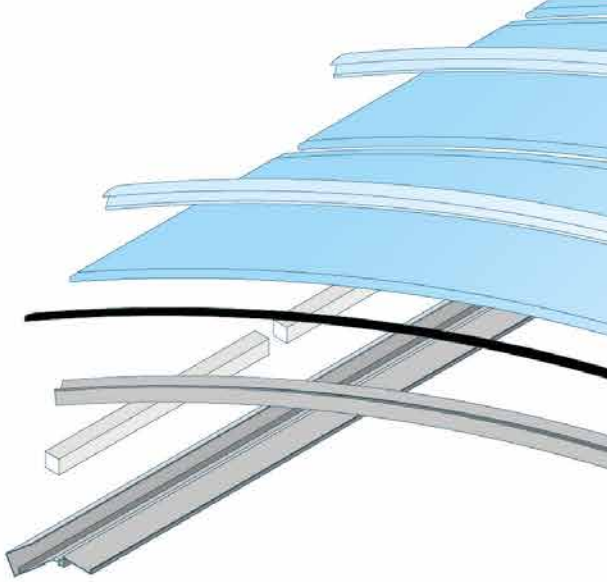
FIXING ON TOP WITH ROOF BORDER PROFILE M652

FIXING AT BOTTOM WITH BORDER PROFILE M651



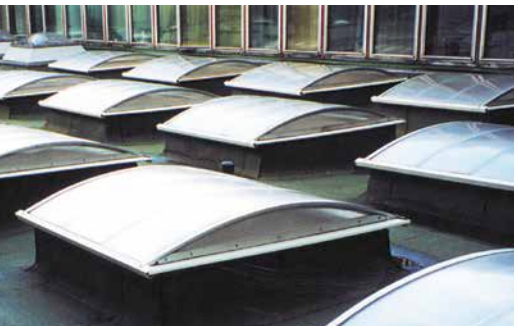
SUN MODUL®

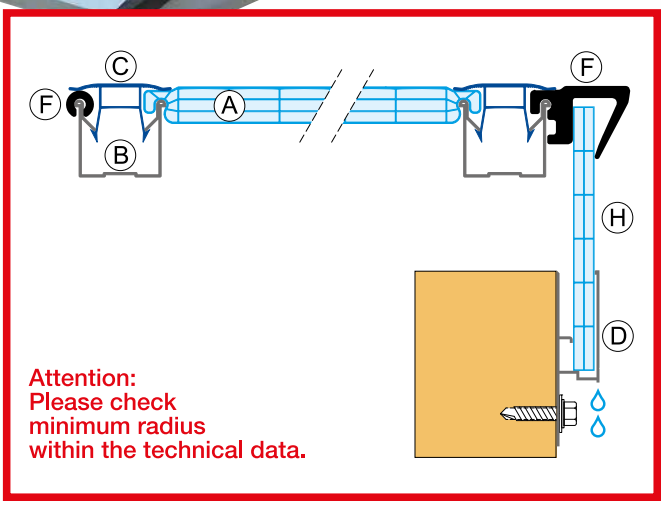
CURVED & BARREL VAULT ROOFLIGHT



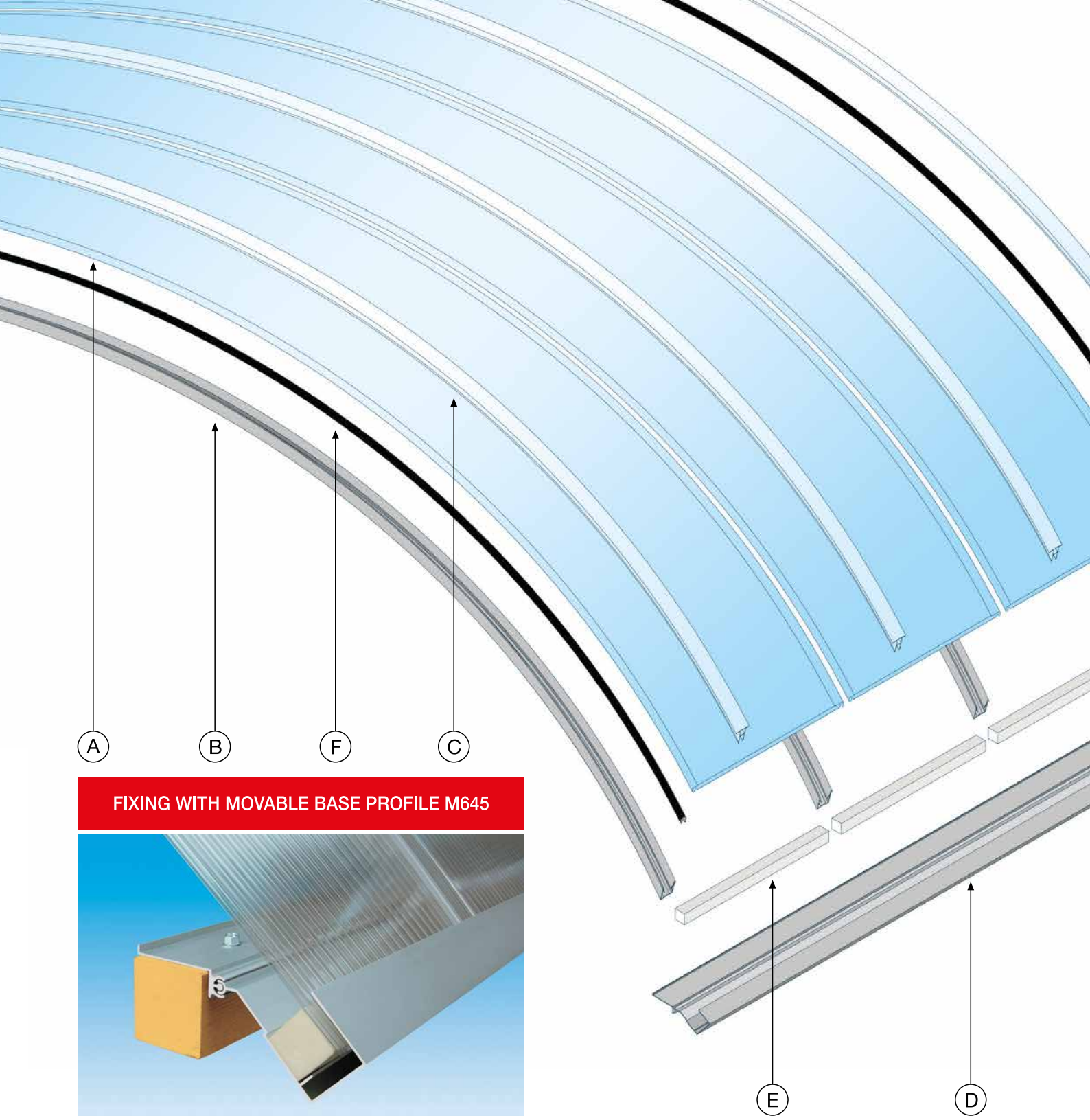
SUN MODUL® offers excellent advantages in its curved glazing applications. The curved steel channels and locking system provide extremely high load resistance, excellent water tightness and stability, with very low overall weight.
A range of system components is available, providing the capability to construct self-supporting roofs with free spans up to approximately 8m, depending on the radius to curve.
System components are supplied to required length, to minimise joints in the length of the rooflight. The length of individual components is limited only by transport. The system is completed by a full range of options including manually and electrically operated window frames for ventilation. (See list on pages 17 and 18).

- (A) UV protected polycarbonate glazing panel
- (B) Steel channel (radius on request)
- (C) UV protected polycarbonate clip profile
- (D) Aluminium frame profile
- (E) PE-Inlay
- (F) Seal
- (G) Aluminium window
- (H) Front section panel





Attention:
Please check minimum radius within the technical data.



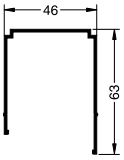
FIXING WITH MOVABLE BASE PROFILE M645

FRONT SECTION WITH GASKET M752

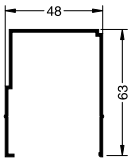
FIXING WITH BOTTOM PROFILE FOR FRONT SECTION M658

FRAMING PROFILES for Standard Steel Channel

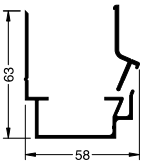
in anodised aluminium (6 m lengths)



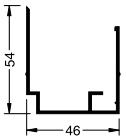
M 610
Top profile



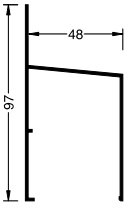
M 611
Top profile



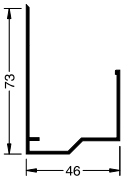
M 623+M 624
Bottom profile



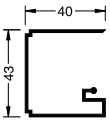
M 620
Bottom profile



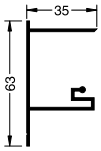
M 615
Top profile



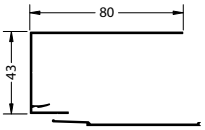
M 628
Shed profile



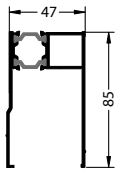
M 630
Side profile



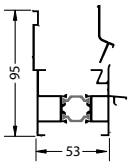
M 635
Side profile



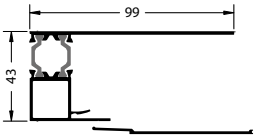
PAN-X-440+
PAN-X-050
Side profile in 2 pieces



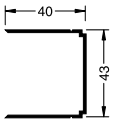
PAN-Y-40-10
Top profile



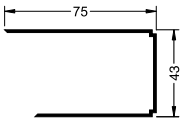
PAN-Y-40-20
+PAN-Y-00
Bottom profile for 40 mm in 2 pieces



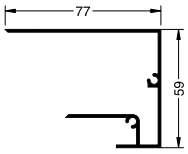
PAN-Y-40-30+
PAN-X-050
Side profile for 40 mm
in 2 pieces



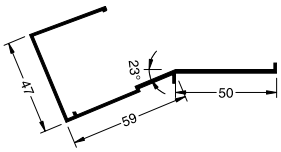
M 650
Border profile



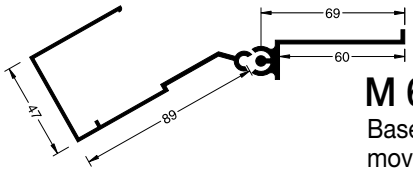
M 651
Border profile



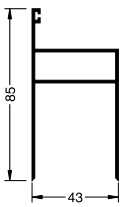
M 652
Border profile



M 643
Base profile
for height / chord 10%

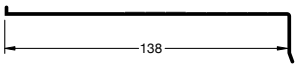


M 646 + M647
Base profile with
movable border profile

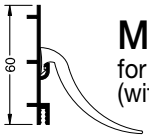


M 655
for window frames

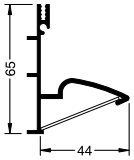
FRAMING PROFILES
for generic use



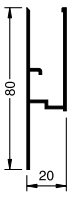
M 626
Special bottom profile



M 640
for wall profile
(with gasket)



M 642
Bottom
wall profile
(with cladding
piece)

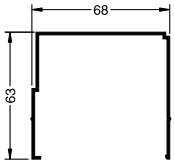


M 658
Bottom profile
for front sections
for sheet

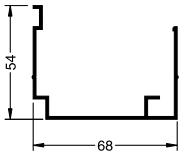
M 660
for sandwich
panels

FRAMING PROFILES for Maxi Steel Channel

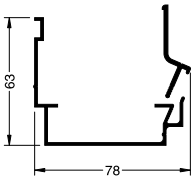
in anodised aluminium (6 m lengths)



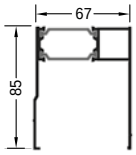
M 661
Top profile



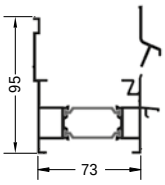
M 671
Bottom



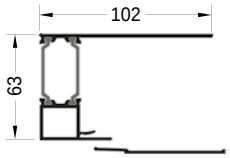
M 673+M 624
Bottom profile in 2 pieces



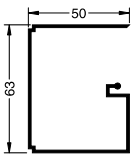
PAN-Y-60-10
Top profile for 60 mm



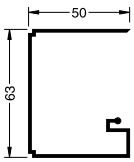
PAN-Y-60-20+PAN-Y-00
Bottom profile for 60 mm in 2 pieces



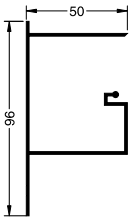
PAN-Y-60-30
+PAN-Y-050
Border profile for 60 mm
in 2 pieces



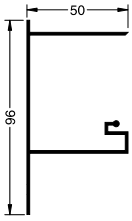
M 680
Side profile



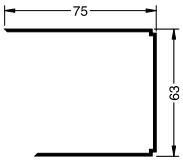
M 681
Side profile



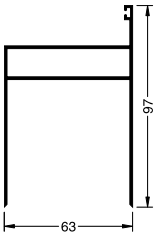
M 685
Side profile



M 686
Side profile



M 691
Border profile

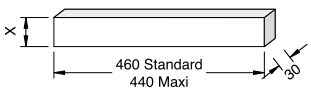


M 695
for window frames

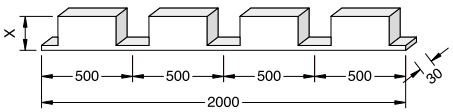
INLAYS in PE

for Module 500 mm

single

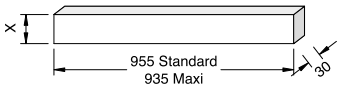


shaped

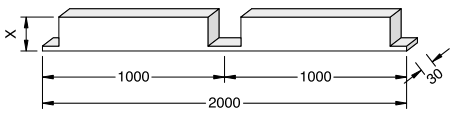


for Module 1000 mm

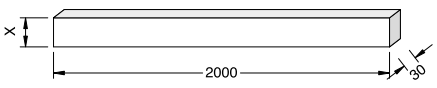
single



shaped



universal



x = depending from thickness and panel type

GASKET in EPDM

M732
for side profile

M734
for side profile

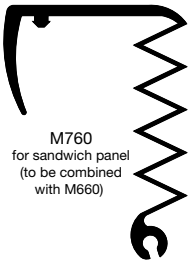
M736
for side profile

M750
for final steel channel

M752
for front section

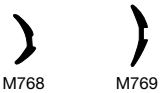
M754
for lateral section

M756
for sandwichpanel



M760
for sandwich panel
(to be combined
with M660)

M762
for curved window



M768 M769
for framing profiles