SOLID SHEETS

The solid polycarbonate sheets offer a combination of unsurpassed features: resilience, transparency, lightness. As clear as glass weigh half as much and are 250 times more impact resistant. They have also better thermal and acoustic insulation properties.

For this reason they have a high versatility and can be worked either hot or cold, thus becoming eligible for all interventions in the Construction sector and Industry.

ADVANTAGES OF SOLID SHEETS:

- trasparency
- extreme impact strength
- good fire reating









Polycarbonate solid sheets with U.V. protection on both sides

DESCRIPTION

The development of extrusion technology have allowed the construction of a plant unique in Europe for the production of solid polycarbonate sheets with width of 2,500 mm of various thicknesses and colors.

2

The polycarbonate product range is divided into solid Policomp[®] sheets, with UV protection on both sides. And Scudo[®] sheets, no UV protected ideal for industrial applications.

PRODUCTION STANDARDS

Thickness (mm)	2	3	4	5	6	8	10	12
Weight (Kg/m ²)	2,4	3,6	4,8	6,0	7,2	9,6	12,0	14,4
Width (mm)	2.050 - 2.500							
Lenght (mm)	6.100							



ADVANTAGES

- Only plant that produces up to 2.500 width
- Light transmission
- Resistance to U.V. rays and to hail
- Impact strength
- Easy to process

APPLICATIONS



Vertical windows

- Roofing
- Curved roofing
- False ceiling

SAFETY

Scudo[®] sheets are used in safety glazing applications, for machine tool guards. Policomp[®] sheets are used instead for build roof, vertical windows and advertising signs.

LIGHTNESS

Compared to normal glass structures, Policomp[®] and Scudo[®] sheets considerably reduce the weight of the structures. A solid polycarbonate sheet weighs 50% less than a sheet of glass of the same thickness.

LIGHT TRANSMISSION

Policomp[®] sheets have good light transmission properties and are also available in bronze and opal.

ENERGY SAVING

Policomp[®] sheets provide excellent thermal insulation, an important factor in reducing fuel consumption for heating buildings.

DURABILITY

Policomp[®] sheets are guaranteed for durability. (see terms of warranty)

COEXTRUSION

A layer of high-performing UV absorber is coextruded onto both sides of Policomp[®] sheets. This filters the light and protects the polymer against the effects of ageing, ensuring excellent impact strength even after prolonged exposure to sunlight.

UV PROTECTION ON TWO SIDES

Policomp[®] sheets have UV protection on both sides.

SELF-EXTINGUISHING

The solid polycarbonate sheets have Class1 type approval in thickness from 8mm to 12mm, and meet the EuroClass B-s2,d0 fire rating in accordance with the European legislation for thickness from 2mm to 6mm.

PHYSICAL PROPERTIES

R

	Value	Unit	Test metod
Density	1,2	gr/cm ³	ISO 1183
Moisture absorption 23°C	0,15	%	ISO 62-4
Refractive index 20°C	1.586	-	ISO 489

10

MECHANICAL PROPERTIES

V GI G G	Onic	restmetou
>60	MPa	ISO 527-2
6	%	ISO 527-2
>70	%	ISO 527-2
2.400	MPa	ISO 527-2
ca.90	MPa	ISO 178
no break	KJ/m ²	ISO 179
ca.11	KJ/m ²	ISO 179
	>60 6 >70 2.400 ca.90 no break ca.11	>60 MPa 6 % >70 % 2.400 MPa ca.90 MPa no break KJ/m² ca.11 KJ/m²

THERMAL PROPERTIES

	Value	Unit	Test metod
Vicat softening temperature	148	°C	ISO 306
Thermal conductivity	0,2	W/m°C	DIN 52612
Linear thermal expansion	0,065	mm/m°C	DIN 53752

ELECTRICAL PROPERTIES

	value	Unit	Test metod
Dielectric strength	35	kV/mm	IEC 60243-1
Volume resistivity	0,15	%	ISO 62-4
Surface resistivity	1.586	-	ISO 489

.....

LIGHT

TRANSMISSIO	N (%)							
Thickness (mm)	2	3	4	5	6	8	10	12
Color								
transparent	91	90	90	90	88	86	80	80
bronze	-	44	48	51	50	-	-	-
green	-	-	28	-	42	-	-	-
blue	-	-	-	-	11	-	-	-
opal	-	53	50	40	38	-	-	-

THERMAL

Thickness (mm)	2	3	4	5	6	8	10	12
Policomp	5,66	5,49	5,33	5,21	5,09	4,84	4,61	4,35
Glass	-	5,87	5,82	5,80	5,77	5,71	-	-
A0000710								

INSULATION (dB)								
Thickness (mm)	2	3	4	5	6	8	10	12
Value	25	26	27	28	29	31	33	34
WEIGHT (Kg/m²))							
Thickness (mm)	2	3	4	5	6	8	10	12

I hickness (mm)	2	3	4	5	6	8	10	12
Policomp	2,4	3,6	4,8	6,0	7,2	9,6	12,0	14,4
Glass	5	7,5	10	12	15	20	25	30

The solid polycarbonate sheets in the extensive Policomp[®] range offer extreme transparency.

They are ideal for applications that require superior thermal and sound insulation combined with a lightweight structure with good impact strength.

Policomp[®] sheets are as clear as glass, weigh half as much and are 250 times more impact resistant.





APPLICATION OF FLAT SHEETS

Solid polycarbonate sheets can be installed in most PVC, wood, steel and aluminium structures and frames.

The frame must hold the sheet in place while allowing it to expand. The choice of sheet thickness depends on the load value required. According to the size of the sheet, from table A, the effective area and also the thickness will be calculated.

Table B can be used to calculate the thickness of the sheet to be used according to the size of the sheet (AREA) and the required load value.

The values shown in table B (positive and negative loads) have been calculated for sheets fixed on four sides, with a maximum bend value (rise) of 50mm.



SHEET SIZE

							She	et wid	th (m)
		0.25	0.50	0.75	1.00	1.25	1.50	1.75	2.00
	0.25	A1	A1						
	0.50	A1	A2	A3	A4	A4	A4	A4	A4
	0.75	A1	A3	A5	A6	A7	A7	A7	A7
	1.00	A1	A4	A6	A8	A9	A9	A10	A10
	1.25	A1	A4	A7	A9	A10	A11	A12	A13
	1.50	A1	A4	A7	A9	A11	A13	A14	A15
	1.75	A1	A4	A7	A10	A12	A14	A16	A17
Ē	2.00	A1	A4	A7	A10	A13	A15	A17	A18
L L	2.25	A1	A4	A7	A10	A13	A16	A18	A19
ngt	2.50	A1	A4	A7	A10	A14	A16	A19	
et le	2.75	A1	A4	A7	A11	A14	A16	A19	
the	3.00	A1	A4	A7	A11	A14	A17	A19	
0)	3.25	A1	A4	A7	A11	A14	A17		
	3.50	A1	A4	A7	A11	A14	A17		
	3.75	A1	A4	A7	A11	A14	A17		
	4.00	A1	A4	A7	A11	A14	A17		
	4.25	A1	A4	A7	A11	A14	A17		
	4.50	A1	A4	A7	A11	A14	A17		
	4.75	A1	A4	A7	A11	A14	A17		
	5.00	A1	A4	A7	A11	A14	A17		

CHOICE OF THICKNESS

			Lo	ad (da	aN/m²)
AREA	60	80	100	120	140
A1	3	3	3	3	3
A2	3	3	4	4	4
A3	4	4	4	4	5
A4	4	4	5	5	6
A5	5	5	5	5	6
A6	5	6	6	6	8
A7	6	6	8	8	8
A8	6	6	8	8	8
A9	8	8	8	8	10
A10	8	8	10	10	10
A11	10	10	10	10	12
A12	10	10	10	12	12
A13	10	10	10	12	
A14	10	12	12		
A15	10	12	12		
A16	10	12	12		
A17	12	12			
A18	12	12			
A19	12				

TABLE A

TABLE B

info@gallina.it



INSTALLATION GUIDELINES

When cutting sheets to allow for thermal expansion special care must be taken to avoid applying stress to the material.

Tolerance must be provided both widthwise and lengthwise.

The table at the side shows the sheet cutting values, depending on the size of the frame, in order to allow for thermal expansion.

The edge fitting must be deep enough to allow the material to ex-

pand and also to prevent the sheet from escaping from the frame.

Frame (mm)	Sheet cut (mm)
300 - 1.000	3
1.000 - 1.300	4
1.300 - 1.700	5
1.700 - 2.000	6
2.000 - 2.300	7
2.300 - 2.700	8
2.700 - 3.000	9

THERMAL EXPANSION

SPACE FOR .

SPACE FOR THERMAL EXPANSION

APPLICATION OF COLD-CURVED SHEETS

Policomp[®] is ideal for building integral arch or tunnel structures. The minimum bend radius is 150 times the thickness of the sheet. The choice of sheet thickness depends on the bend radius R but also on the width of the sheet W.

Example: Sheet thickness: 3mm Min. radius = 3 x150= 450mm



MINIMUM BEND RADIUS								
Thickness (mm)	2	3	4	5	6	8	10	12
Radius (mm)	300	450	600	750	900	1.200	1.500	1.700



The length L must always be greater than the width W.

The graphs indicate the appropriate sheet thickness, for different bend radii, under different load conditions.

These values have been calculated with sheets fixed on three sides.





Bend radius (m)

1,00



4.2 SOLID SHEETS



MATERIAL PROCESSING

CUTTING

Policomp[®] and Scudo[®] sheets can be cold-formed mechanically using standard high-speed tools to perform cutting, bending and drilling. Notches, which undermine the mechanical properties of the polycarbonate, are not recommended.

Polycarbonate solid sheets WITHOUT UV PROTECTION

	Circular saw	Belt saw	Milling machine
Rake angle	20°- 30°	20°- 30°	20°- 30°
Angle of inclination	15°	0,5°	0°- 5°
Cutting speed (m/min)	1.800 - 2.400	600 - 1.000	100 - 500
Feed speed (m/min)	19 - 25	20 - 25	0,1 - 0,5
Distance between teeth (mm)	2 - 5	1,5 - 2,5	-

DRILLING

Policomp[®] and Scudo[®] sheets can be drilled using standard drilling machines that meet the following specifications:

Parameter	Value
Rake angle α	5°-8°
Angle of tip φ	90°-130°
Angle of blade β	approx. 30°
Angle of inclination γ	3°-5°
Cutting speed	10-60 m/min
Tip speed	0,1-0,5 mm/rev

Drill sheets as follows to avoid any damage during machining:

Drill the hole at a distance from the edge of the sheet equal to at least 1.5 times the diameter of the hole.

Do not use cutting oil.

Use threading if there is no other alternative. Sheets could break after drilling.

GLUING SHEETS

Neutral and compatible with polycarbonate adhesives should be used to glue the solid polycarbonate sheets.

THERMOFORMING AND HOT-CURVING

Remove the protective film before thermoforming and pre-heat the material to 120°C to eliminate any moisture that has been absorbed.

The use of an air circulating oven with temperature control is recommended.

The air must circulate between the sheets.

Pre-heating times can be reduced by one third by storing the sheets in a dry place. Since the dry sheets start to re-absorb moisture as soon as they cool down to below 100°C, thermoforming must be performed immediately after drying.

Hot curving must be performed at a temperature of between 155°C and 165°C.

ADVANTAGES

- Easy and low-cost installation
- Light transmission
- ✤ Heat insulation
- * Self-supporting

APPLICATIONS

CLEANING OF SURFACES

We recommend the use of warm water and a soft cloth to clean Policomp[®] and Scudo[®] sheets.



False ceilings

Machinery protection guards