ALVECOMP

SPECIAL SHEETS IN COMPACT POLYCARBONATE

APPLICATIONS
TRANSPARENCY, LIGHTNESS AND THERMAL INSULATION PROVIDE THE NECESSARY CHARACTERISTICS TO THE ALVECOMP PRODUCTS TO MEET BOTH THE TECHNICAL-APPLICATION SOLUTIONS REQUESTED AND THE REGULATIONS IN FORCE FOR THE DESIGN AND RESTORATION OF CIVIL AND INDUSTRIAL BUILDINGS:
- HIGH THERMAL INSULATION;
- LIGHT MANAGEMENT;
- EXCELLENT FIRE BEHAVIOR;
- EXCELLENT SELF-WEIGHT/MECHANICAL STRENGTH RATIO;
- EXCELLENT LOAD RESISTANCE PERFORMANCE;
- UNCHANGED PHYSICAL/MECHANICAL PROPERTIES OVER TIME;
THANKS TO THESE CHARACTERISTICS, THE ALVECOMP SHEETS ARE THE IDEAL SOLUTION FOR A VARIETY OF APPLICATIONS: DOORS, WINDOWS AND SHUTTERS, SKYLIGHTS, ROOFS, COVERINGS, CURTAIN WALLS, FALSE CEILINGS AND PARTITION WALLS.

TRANSPARENCY
THE PHYSICAL CHARACTERISTICS OF POLYCARBONATE PROVIDE TO THE ALVECOMP PRODUCT THE ABILITY TO CONVEY INSIDE BUILDINGS A HIGH PERCENTAGE OF LIGHT, WHICH THANKS TO SPECIAL PIGMENTS CAN BE MANAGED ACCORDING TO DESIGN NEEDS.

LIGHTNESS
THE LOW SPECIFIC WEIGHT OF POLYCARBONATE MAKES THE ALVECOMP PRODUCT VERY LIGHT, MINIMIZING LABOR COSTS FOR INSTALLATION OF THE PRODUCT AND ENHANCING LOAD RESISTANCE PERFORMANCE.

THERMAL INSULATION
MULTIPLE-WALL DRAWINGS AND THICKNESSES THAT POPULATE THE WIDE RANGE OF THE ALVECOMP PRODUCT COMBINED WITH THE CHEMICALPHYSICAL CHARACTERISTICS OF POLYCARBONATE MINIMIZE THERMAL EXCHANGE, ENHANCING PRODUCT PERFORMANCE AND METING THE REGULATIONS IN FORCE IN TERMS OF ENERGY SAVINGS.

IMPACT RESISTANCE
THE MECHANICAL CHARACTERISTICS OF POLYCARBONATE PROVIDE TO THE ALVECOMP PRODUCT HIGH IMPACT RESISTANCE, WHICH IS OPTIMIZED AGAINST DAMAGES CAUSED BY WEATHER AGENTS AND ACCIDENTAL IMPACTS, MEETING THE REGULATIONS IN FORCE IN TERMS OF SAFETY.

FIRE BEHAVIOR
ALVECOMP IS CLASSIFIED EURO CLASS B-S1,D0.

GUARANTEE OVER TIME
THE MODERN PLANTS USED BY ALVECO, EQUIPPED WITH THE MOST RECENT AND ADVANCED TECHNOLOGY FOR THE MANUFACTURING OF ALVEOLAR SHEETS ALLOW PRODUCING THE ALVECOMP PRODUCT WITH UV PROTECTION ON BOTH SIDES BY APPLYING THE UV ABSORBER, WHICH PROTECTS THE SHEET FROM AGING CAUSED BY UV RAYS.
THE UV PROTECTION HINDERS THE DEGRADATION OF THE SHEET, PRESERVING THE ALVECOMP PRODUCT FROM LOSS OF MECHANICAL CHARACTERISTICS, BRIGHTNESS AND TRANSPARENCY.
THE ALVECOMP PRODUCT IS GUARANTEED FOR A 10-YEAR PERIOD

GLASS COMPARISON TABLE

	Weight Kg/m²
Glass thickness 4 mm	10,0
Polycarbonate thickness 4 mm	4,8

THERMAL CONDUCTIVITY COMPARISON TABLE

	Thermal conductivity λ
Glass	1,30 W/m^2 K
Polycarbonate	0,20 W/m^2 K

IMPACT RESISTANCE COMPARISON TABLE

	Charpy without score marks ISO 179 (kJ/m ²)	**PIzod with score marks ISO180 (kJ/m ²)**
Glass	2	-
Tempered glass	10	-
Polycarbonate	no breaking	70

BENDING RADIUS
THE ALVECOMP SHEETS OFFER A WIDE RANGE OF APPLICATIONS FOR USE, AMONG WHICH COLD BENDING OF THE SHEET TO MAKE IT SUITABLE TO THE USE AS AN ELEMENT TO CREATE CURVED SKYLIGHTS, SMALL DOMES AND TUNNELS.
THE MINIMUM SAFETY VALUE IS:
50 TIMES THE THICKNESS OF THE SHEET

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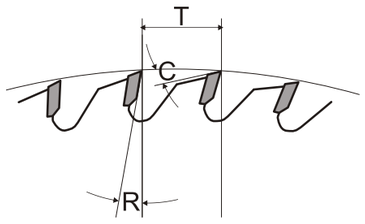
CUTTING

ALVECOMP COMPACT POLYCARBONATE SHEETS CAN BE CUT WITH STANDARD CUTTING TOOLS SUCH AS VERTICAL AND HORIZONTAL SHEARING MACHINES, CIRCULAR SAWS, BAND SAWS OR JIG SAWS. IN ANY CASE, IT I NECESSARY TO PAY EXTREME ATTENTION TO LOCK THE BLADE IN SUCH A WAY TO MINIMIZE VIBRATIONS AND LOCAL TWISTING.

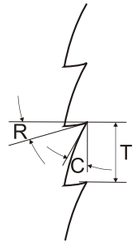
CIRCULAR SAW – RECOMMENDED PARAMETERS



Cutting angle	C	20° - 30°
Clearance angle	R	0°- 5°
Tooth pitch	T	9 -15 mm
Blade speed		1800-2400 m/min
Forward movement speed		max 22 m/min(*)

(*) reference speed for 3 mm thickness

BAND SAW – RECOMMENDED PARAMETERS

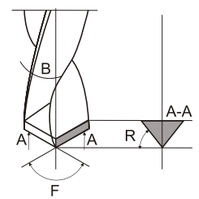


Cutting angle	C	20° - 30°
Clearance angle	R	0°- 5°
Tooth pitch	T	1,5 - 4 mm
Blade speed		600-1000 m/min
Forward movement speed		max 22 m/min(*)

(*) reference speed for 3 mm thickness

TO DRILL THE ALVECOMP PRODUCT IS RECOMMENDED TO USE HELICAL BITS IN STEEL SUITABLE TO DRILL PLASTIC MATERIALS.

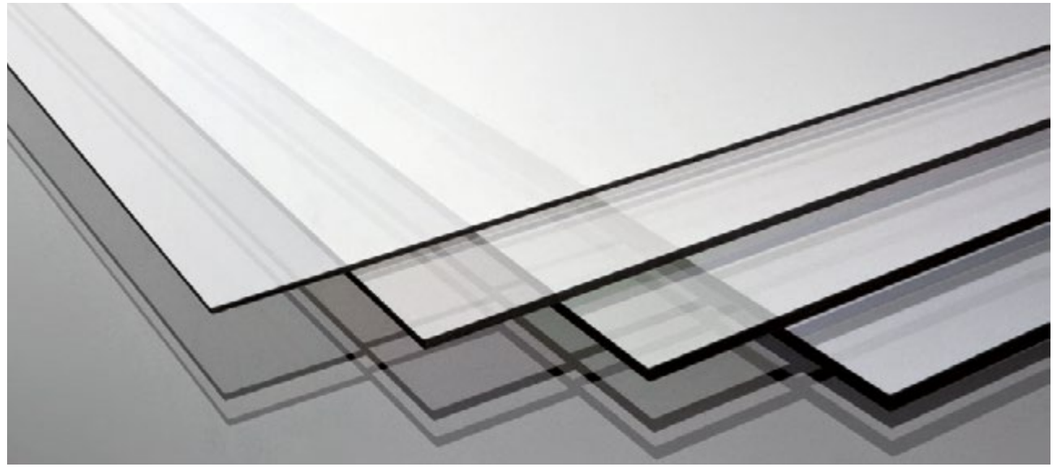
DRILLING – RECOMMENDED PARAMETERS



Clearance angle	R	0°- 15°
Drill bit angle	F	120° - 160°
Twist angle	B	20° - 40°
Forward movement speed		0,1 - 0,3 mm/rev

(*) reference speed for 3 mm thickness

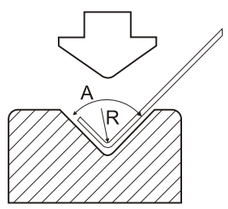
ROTATION SPEED	Hole diameter
3 mm	1750 rpm/min
6 mm	1500 rpm/min
9 mm	1000 rpm/min
12 mm	650 rpm/min
18 mm	350 rpm/min



BENDING

ALVECOMP SHEETS CAN BE COLD-BENT USING SPECIAL EQUIPMENT.

RECOMMENDED PARAMETERS
(ambient temperature 20°C)



SHEET thickness (mm)	Bending radius R (mm)	Minimum angle (A)
3 - 4	3	90°
5-5	5	90°

IN THE BENDING POINT THE UV PROTECTION IS COMPROMISED. THIS PROCESSING IS NOT RECOMMENDED FOR SHEETS THAT MUST BE INSTALLED UNDER DIRECT EXPOSURE TO UV RAYS.

THERMOFORMING

ALVECOMP SHEETS CAN BE HOT THERMOFORMED. TO DO SO IT IS IMPORTANT TO FOLLOW A FEW RECOMMENDATIONS:

- PRIOR DRYING OF THE SHEETS AT A TEMPERATURE OF APPROX. 120°C;
- REMOVAL OF PROTECTION FILM PRIOR TO THERMOFORMING;
- THERMOFORMING TEMPERATURE RANGING BETWEEN 175° AND 200°C;

THE THERMOFORMING OPERATION CAUSES STRETCHING BOTH IN TERMS OF THICKNESS AND COEXTRUSION LAYER THUS IT IS IMPORTANT TO ASSESS WITH CARE THE LIMITATIONS OF USE FOR EACH PROJECT. THE SHEET SUBJECTED TO THIS PROCESSING IS NO LONGER UNDER STANDARD WARRANTY.

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MECHANICAL PROPERTIES		VALUE	UNIT	REGULATION
Tensile strength at yield SY		>60	N/mm²	DIN 53455
Tensile strength at rupture SR		>70	N/mm²	DIN 53455
Elongation at yield EY		6	%	DIN 53455
Elongation at rupture ER		>100	%	DIN 53455
Tensile modulus of elasticity E		2300	N/mm²	DIN 53457
Impact resistance AN	+23°C	65	kJ/m²	DIN 53453
	- 40°C	65	kJ/m²	DIN 53453
Resilience AK at +23°C		35	kJ/m²	DIN 53453
Izod impact resistance with score marks		>700	J/m	ASTM 256-56
Brinnel Harness H30		110	N/mm²	DIN 53456

PHYSICAL PROPERTIES	VALUE	UNIT	REGULATION
Density	1.2	g/cm3	DIN 53479
ND refraction index	1.58	no	DIN 53491
Water absorption by immersion	0.36	%	DIN 53495
Permeability to water vapor (0,1mm)	15	g/m² d	DIN 53122

THERMAL PROPERTIES	VALUE	UNIT	REGULATION
Linera Thermal Expansion A	0.065	mm/m °C	DIN 53752
Thermal conductivity λ	0.2	W/m K	DIN 52612
Softening temperature VICAT	145-150	°C	DIN 53460

Typical polycarbonate material values

FORMATS AND TRANSMITTANCE

Thickness	Weight Kg/m²	Standard formats width mm	Standard formats length mm	Light transmittance LT (%) Crystal	Opal	Bronze	Value U W/m² K
2 mm	2.4	2,050	3,050 / 6,100	90	72	52	5.6
3 mm	3.6	2,050	3,050 / 6,100	89	60	52	5.5
4 mm	4.8	2,050	3,050 / 6,100	88	52	52	5.3
5 mm	6.0	2,050	3,050 / 6,100	88	46	52	5.2
6 mm	7.2	2,050	3,050 / 6,100	88	40	52	5.1
8 mm	9.6	2,050	3,050 / 6,100	87	31	52	4.8
10 mm	12.0	2,050	3,050 / 6,100	86	22	52	4.6
12 mm	14.4	2,050	3,050 / 6,100	86	16	52	4.4

ACOUSTIC INSULATION

Thickness	Weight Kg/m²	Standard formats width mm
2 mm	2.4	25 dB
3 mm	3.6	26 dB
4 mm	4.8	27 dB
5 mm	6.0	28 dB
6 mm	7.2	29 dB
8 mm	9.6	31 dB
10 mm	12.0	32 dB
12 mm	14.4	34 dB