

DYNAGLAS® GREENHOUSE GLAZING PANELS

Technical Specifications and Information

Dimensions	Value (English (Metric))	
Panel Widths (gross)	49.6" or 73.6" (1260 mm or 1870 mm)	
Panel Widths (net after one corrugation overlap)	48" or 72" (1218 mm or 1828 mm)	
Panel Lengths (custom cut to specification)	3' to 38' (914 mm to 11580 mm)	
Corrugation/Wave Depth	0.70" (17.8 mm)	
Corrugation/Wave Pitch	3" (76.2 mm)	
Weight	0.25 lbs./sq. ft. (1220 grams/m ²)	
Thickness	0.03" (0.79 mm)	
Number of Corrugations/Waves	17 (49.6" panel) or 25 (73.6" panel)	
Thermal	Value (English (Metric))	Test Method
Optimal Service Temperature Range	- 40° F to +250° F (- 40° C to + 120° C)	
Maximum Service Temperature	270° F (132° C)	
Minimum Service Temperature	- 103° F (- 75° C)	
Heat Deflection Temperature Load, 275° F (psi)	275	ASTM D-648
R / U-Factor and K-Value	R = .83 / U 1.20 = (K = 5.8 W/m ² K)	
Coefficient of Linear Thermal Expansion	3.6 x 10 ⁻⁵ in./in./°F (6.5 x 10 ⁻⁵ cm/cm/°C)	ASTM D-696
Thermal Conductivity BTU/lb. (F°)	1.4	ASTM C-177
Mechanical		
Tensile Strength at Yield, 2 in./min. (psi)	9,000	ASTM D-638
Tensile Strength at Break, 2 in./min. (psi)	9,500	ASTM D-638
Elongation at Yield, 2 in./min. (%)	> 6 %	ASTM D-638
Elongation at Break, 2 in./min. (%)	> 80 %	ASTM D-638
Tensile Modulus, 0.04 in./min. (psi)	340,000	ASTM D-638
Flexural Modulus 0.052 in./min. (psi)	310,000	ASTM D-790
Flexural Strength at Yield, 0.052 in./min. (psi)	13,500	ASTM D790
Shear Strength (psi)	6,180	Factory Test
Izod Impact Strength, Notched (73° F), ft./lb./in.	18	ASTM D-256
Rockwell Hardness, R Scale	118	ASTM D-785
Impact Resistance	444 in. lbs. (50 joules)	Falling Dart ISO 6603/1
OSHA point-29	Passed 200 lb.	CFR 1910.23 (e) (8)
Uplift	Passed UL 90	UL 580
Longitudinal Bending Radius	16' (4.9 m) recommended; 13' (4 m) min.	
Optical		
Visible Light Transmission (PAR)		
Clear	DynaGlas Plus 92 %; DynaGlas SE 90 %	ASTM D-1003
LDT (<i>Light Diffusing Texture</i>)	90.5 %	ASTM D-1003
Translucent White	42 %	ASTM D-1003
Transparent Gray	35 %	ASTM D-1003
Haze (Clear)	< 1 %	ASTM D-1003
UV Light Transmission	< 1 %	ASTM D-1003
UV Protection	Co-extruded, one side, exterior, or two sides (UV2)	Factory Test
Yellowness Index	< 1	ASTM D-1925
Solar Heat Gain, ft. ² (BTU/hr.)		
Clear	218	
Clear LDT	215	
White-Opal	128	
Gray	120	
Other		
Flammability Rating	CC1	ASTM D-635-91
Self Ignition	1030° F (554° C)	UBC Standard 52-3
Flash Ignition	840° F (449° C)	UBC Standard 52-3
Smoke Density (%)	51	ASTM D-2843
Smoke Developed	47.0	UL 723 (ASTM E-84)
Flame Spread	4.7 (Class A)	UL 723 (ASTM E-84)
Condensation Control	Built-in; proprietary (7-year warranty)	Factory Test
Tolerances		
Thickness	0.030" to 0.032" (0.77 mm to 0.83 mm)	Factory Test
Length	0 to + 0.5" (0 to +15 mm)	Factory Test
Width	± .4" (± 10 mm)	Factory Test
Visual Defects (<i>inclusions, bubbles, black specks, gel, etc.</i>)	No visual defects are allowed by inspection from a distance of 1 meter. If defect is not visible using this method, it is not considered to be a defect. Surface abrasion may occur in transit. This is not considered a defect as DynaGlas is not intended for use in applications where "architectural optical clarity" is required. Further, this type of abrasion will not affect durability.	

Other Technical Notes

Light Transmission

Recent test results utilizing a Licor LI-1800 Spectroradiometer confirm the above indicated light transmission values in an actual greenhouse environment. These tests also confirm that DynaGlas Plus, since it eliminates the millions of condensate droplets that would otherwise reflect sun light back into the atmosphere, transmits 30% more PAR light and 45% more infrared energy than corrugated polycarbonate panels without an effective condensate control mechanism. DynaGlas Plus' condensate control feature has been proven to control condensation in full-scale commercial greenhouses for more than 5 years — without any loss of effectiveness!

Compared to Polycarbonate Structured Sheet

One of the primary disadvantages of polycarbonate structured, or double-skinned, sheet is its relatively low level of light transmission, about 78% - 80% when new. Additionally, structured sheet requires rafter support every four or six feet, depending on panel width. This results in further light transmission loss of about 4%, resulting in a net light transmission factor of about 74%. And this value further diminishes as a result of eventual dust and/or algae build-up in the panel cavities.

U-Factor

The insulating characteristics of glazing materials is a complex subject, involving much more than simple U-factors. Typical U-factors for some glazing materials are: Fiberglass, 1.25; DynaGlas Plus, 1.20; Glass, 1.16; Structured Sheet, .64. However, a glass greenhouse suffers additional heat loss through conduction at the metal glazing rafters and through infiltration at glass laps, especially under windy conditions.

It is important to note that DynaGlas Plus incorporates two important features which result in heat gain:

(1) A built-in proprietary condensate control mechanism, and (2) a heat- and strength-enhancing surface contour which reduces the reflection of solar energy. DynaGlas Plus' efficient condensate control mechanism eliminates the millions of droplets which would otherwise reflect away solar energy. Test results show that, during peak periods, DynaGlas Plus transmits up to 45% more heat energy than panels without an effective condensate control mechanism.

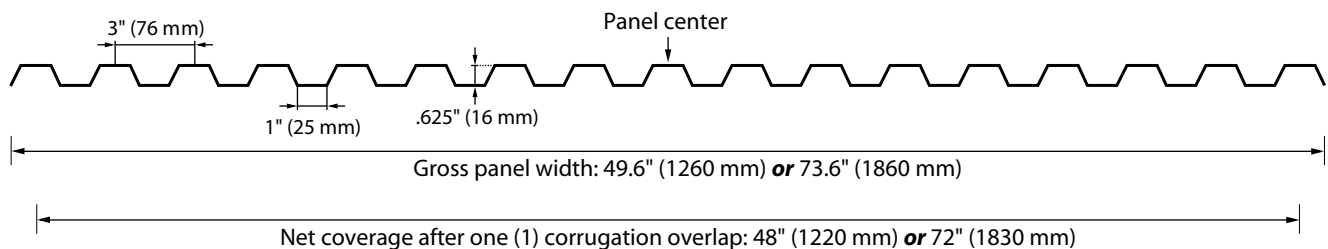
DynaGlas Plus' contoured shape reduces the problem of the reflection of solar energy on flat surfaces due to the low angle at which the sun's rays strike these surfaces during early morning and evening hours, especially during the colder months. With DynaGlas Plus, many of these rays strike the panels perpendicular to the slanted vertical corrugation walls, facilitating their transmission into the greenhouse interior.

Finally, the ideal greenhouse in terms of energy conservation is a DynaGlas Plus house fitted with an SPS ThermaShade™ Curtain System. While the installed cost of this combination is very comparable to that of structured sheet construction without a curtain, its insulating effect is far superior. Depending on the type of material selected, annual energy savings of up to 50% may be realized. And there is the additional important benefit of being able to shade the greenhouse, on a very selective basis, at no additional cost.

Panel Weight

Prospective users of corrugated polycarbonate panels should be aware that some brand panels weigh as little as .205 lbs/sq. ft. This results in a directly proportional reduction of about 20% in panel strength and rigidity.

DynaGlas Plus Panel Configuration and Dimensions



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