

CORRUGAL - PLASKOLITE EXTRUDED CORRUGATED POLYCARBONATE SHEETS

DESCRIPTION

PLASKOLITE EXTRUDED CORRUGATED POLYCARBONATE (PC) SHEETS are produced according to internal ISO standards and are cost-effective in a wide range of outdoor applications, such as canopies, industrial areas covers and others.

CORRUGAL extruded PC sheets provide long-life products with high transparency, outstanding impact strength, weathering and ageing resistance with UV protective layer, safe and easy fabrication and handling. Corrugated PC sheets can be anti-fog coated upon request, orders may be subject to minimum quantities.







CORRUGAL extruded PC sheets are available in a wide range of shapes, thicknesses and colors.

TYPICAL PROPERTY VALUES

| Properties | Method | Units | CORRUGAL PC SHEETS |
|---|-------------|-------------------|--------------------|
| General | | | |
| Density | ISO 1183 | g/cm ³ | 1.2 |
| Water Absorption | ISO 62 (1) | % | 0.15 |
| Mechanical | | | |
| Tensile Strength at Yield | ISO 527-2 | MPa | 60 |
| Elongation at Yield | ISO 527-2 | % | 6 |
| Elongation at Break | ISO 527-2 | % | > 100 |
| Tensile Modulus | ISO 527-2 | MPa | 2300 |
| Flexural Strength | ISO 178 | MPa | 90 |
| Flexural Modulus | ISO 178 | MPa | 2300 |
| Impact Resistance (Charpy unnotched) | ISO 179/1fu | kJ/m ² | No Break |
| Impact Resistance (Izod notched) | ISO 180/1A | kJ/m ² | > 65 |
| Optical | | | |
| Refractive Index | ISO 489 | | 1.585 |
| Light Transmission | ASTM D1003 | % | 90 |
| Haze (3 mm transparent sheet) | ASTM D1003 | % | < 1 |
| Thermal | | | |
| Vicat Softening Temp.(50N) | ISO 306 | °C | 144 |
| Heat Deflection Temp. (1.82 MPa) | ISO 75-1 | °C | 130 |
| Coeff. of Linear Thermal Expansion (0-500C) | | µm/m0C | 6.5 |
| Thermal Conductivity | ASTM C177 | W/mK | 0.2 |
| Maximum Continuous Service Temp. | | °C | 85 |
| Maximum Short Time Service Temp. | | °C | 120 |
| Minimum Continuous Service Temp. | | °C | -25 |
| Minimum Short Time Service Temp. | | °C | -40 |
| Electrical | | | |
| Dielectric Constant (50Hz) | DIN 53483 | | 3.0 |
| Dissipation Factor tanδ (100Hz) | DIN 53483 | | 0.0006 |
| Dissipation Factor tanδ (1 MHz) | DIN 53483 | | 0.009 |
| Volume Resistivity | IEC 60093 | Ohm.cm | >10 ¹⁴ |
| Surface Resistivity | IEC 60093 | Ohm | >10 ¹⁵ |

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DIMENSIONS

| Type | Shape | Profile | Thickness, mm | Width, mm | Length, mm |
|-----------------------------|---|---------|---------------|-------------------------------------|------------|
| Sinus |  | 76/18 | 0.5-1.2 | 516, 875, 880, 900, 810, 1100, 1260 | 1.5-11.80 |
| Greca |  | 76/18 | 0.6-1.2 | 900, 956, 990, 1032, 1108, 1260 | |
| P-7 (Big Wave) |  | 177/51 | 0.8-1.2 | 580, 920, 1100 | |
| TR-40 (Trapezoid-Shaped) |  | 196/40 | 0.8-1.2 | 1118 | |
| R-101 |  | 145/20 | 0.8-1.2 | 1070 | |
| DV-4 |  | 333/50 | 0.8-1.2 | 1095 | |

Sheets are also available cut-to-size according to customer requirements.

THEORETICAL WEIGHT

| Thickness, mm / Type | Weight, kg/m ² | | | | | |
|-------------------------|---------------------------|-------------|------------|--------------|--------------|-------------|
| | Sinus 76/18 | Greca 76/18 | P-7 177/51 | TR-40 196/40 | R-101 145/20 | DV-4 333/50 |
| 0.5 | 0.673 | | | | | |
| 0.6 | 0.808 | 0.892 | | 0.862 | | |
| 0.65 | 0.875 | | | | | |
| 0.7 | 0.942 | 1.041 | | | 0.954 | |
| 0.75 | 1.010 | 1.115 | | | | |
| 0.8 | 1.077 | 1.190 | | 1.149 | 1.090 | |
| 0.9 | 1.211 | 1.338 | 1.269 | | 1.227 | |
| 1.0 | 1.346 | 1.487 | 1.410 | 1.436 | 1.363 | 1.455 |
| 1.1 | 1.481 | 1.636 | 1.551 | | | |
| 1.2 | 1.615 | 1.785 | 1.692 | 1.723 | | |

OPTICAL PROPERTIES

Typical Colors are: clear, bronze and opal.

Optical property / Spectrum values for standard / special colors are available upon request.

| Colors | Light Transmission, % |
|----------------------|-----------------------|
| Clear | 90 |
| Opal | 50 |
| Bronze | 50 |
| Gray | 35 |
| Blue | 50 |
| Green | 50 |
| Pearl | 60 |
| Turquoise | 76 |
| Metallic green < 0.8 | 35* |

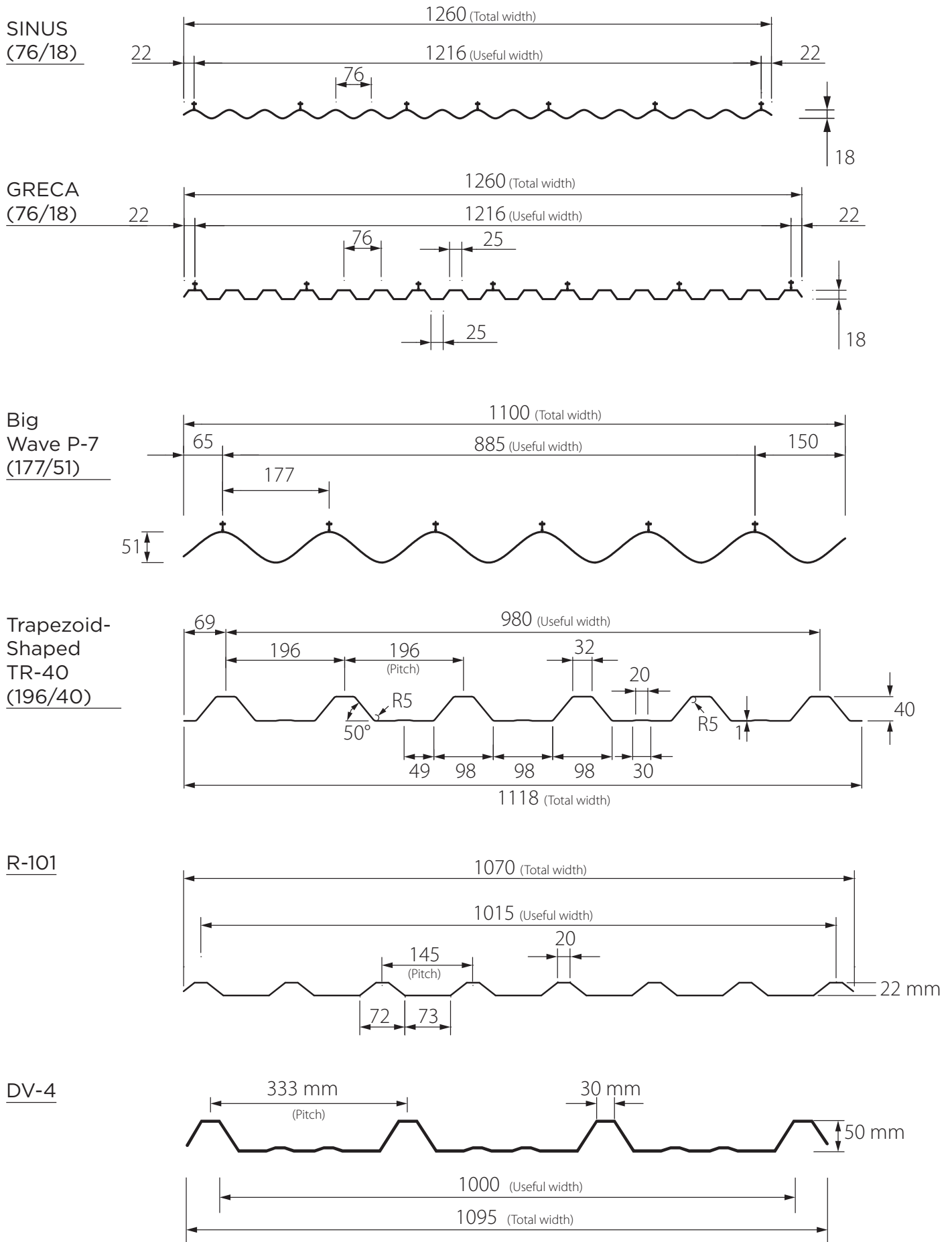
| Colors | Light Transmission, % |
|----------------------|-----------------------|
| Metallic blue < 0.8 | 35* |
| Metallic gray < 0.8 | 35* |
| Metallic green < 0.8 | 18** |
| Metallic blue < 0.8 | 18** |
| Metallic gray < 0.8 | 18** |

* Without diffuser

** With diffuser

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STRUCTURE



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TOLERANCES FOR DIMENSIONS

| Sheet Thickness, mm | Thickness Tolerances, % | Width Tolerances, mm | Length Tolerances, % | Diagonals Tolerances, mm |
|---------------------|-------------------------|---|---|---|
| 0.5-1.2 | -10, +5 | Sheets cut in production: -0.0 /+3.0 | Sheets cut in production: -0.0 /+3.0 | Sheets cut in production: Length ≤ 3000 mm - ≤ 4 Length ≥ 3000 mm - ≤ 6 |

COLORS

CORRUGAL sheets are naturally colorless and clear, however, pigments can be added to obtain a wide range of tints and colors. The light transmission of CORRUGAL sheets varies depending on color.

For a list of updated colors, please contact PLASKOLITE Technical Support.

DEFINITIONS

UV PROTECTION

CORRUGAL sheets have excellent filtering of UV radiation. They completely block the harmful UV radiation while transmitting visible light and parts of the IR radiation. However, the PC itself is not resistant to UV radiation and must be stabilized or protected using UV absorbing additives.

A coextruded UV layer which is an integral part of the sheet, protects the sheets from degradation from solar ultraviolet radiation. The effectiveness of this protection has been confirmed by field and laboratory durability testing of Yellowness Index (YI), Light Transmission (LT) and Maintaining Mechanical properties.

PLASKOLITE CORRUGAL polycarbonate sheets are guaranteed against loss of physical, mechanical and optical properties during the guarantee period.

Details are available at the PLASKOLITE website (www.plaskolite.com).

FIRE TEST PERFORMANCE

PC is a thermoplastic therefore it will eventually melt and burn under the intense heat of fire. However, PC is considered a self-extinguishing material meaning that it will stop burning when the fire source is removed.

CHEMICAL RESISTANCE

PLASKOLITE polycarbonate sheets can be safely used with most chemical materials and components, however, some common materials are not compatible with polycarbonate. The chemical stability depends on many factors such as concentration of the chemical agents, internal stresses and exposure temperature.

Because of the complexity of chemical compatibility all materials which are intended for contact with the polycarbonate sheets should always be tested.

A list of compatible and non-compatible materials is available for download at the PLASKOLITE website (www.plaskolite.com).

ENVIRONMENTAL STRESS CRACKING

Environmental Stress Cracking (ESC) is a result of the combination of stress and exposure to chemicals. The level of stress needed for ESC is lower than the normal failure mechanical stress of PC in a chemical-free environment. Stresses can be created during forming and fabrication and can be controlled by an annealing process. Stresses can be created also by improper installation. Cold bended sheets under permanent induced stress or sheets under periodic stress (fatigue) are also susceptible to ESC.

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GENERAL GUIDELINES

STORAGE

CORRUGAL sheets must be stored with their original protective masking in a dry, shady and well ventilated area, with NO EXPOSURE to direct sunlight, wind, dirt or hard objects. Avoid storage in areas with excessive heat or aromatic cleaning solvents.

Sheets should be stored horizontally on their delivery pallets and placed on a soft material (such as cardboard) to prevent damage. DO NOT store sheets under flexible PVC coverings, as flexible PVC is not compatible with polycarbonate and can cause serious damage to the sheets. Pay attention to avoiding pressure on the unsupported areas.

CLEANING & MAINTENANCE

Polycarbonate sheets will give longer and more effective service life by cleaning by warm soapy water using a mild liquid dish soap. If any dirt remains, gently wipe off with a soft cloth.

- Commercial liquid cleaners may not be compatible with polycarbonate and are not recommended.
- Sponges, squeegees, brushes or sharp instruments should not be used for cleaning sheets as they can damage the protective UV coating and / or causes scratches in the sheet surface.

ENVIRONMENTAL ADVANTAGES

CORRUGAL sheets are environmental friendly. The sheets are fully recyclable. They do not contain any toxic materials or heavy metals which may cause environmental damage or health risks. They do not produce toxic or corrosive gases upon burning, fires can be extinguished with water.

CORRUGAL sheets can be used for energy recovery and chemical or mechanical recycling. PC scrap is not classified as hazardous waste, small amounts can be disposed as household refuse. Large quantities should be disposed by recycling.

RE-WORKING

- HANDLING:

CORRUGAL sheets can be cut, sawn, drilled, milled and bent easily using standard workshop equipment for wood or metal. However, it is always recommended to use specific tools specially designed for plastics.

Machining, Assembling, Glazing and Installation recommendations can be refer to the CORRUGAL Brochure.

- Cold bending:

CORRUGAL sheets are ductile and can be cold-bent in a straight line. Minimum radius for cold bending will depend on the sheet type.

When cold bending CORRUGAL sheets, a plastic permanent deformation is induced in the bending line, this deformation causes a reduction of the mechanical properties in the bent area.

Also, plastic deformation causes frozen-in internal stresses that reduce the chemical resistance of the sheet in the bent area and increase the susceptibility to ESC attack.