

Applications

Makrolon® Multiwall is an advanced polycarbonate glazing system, offering design freedom for a wide range of **commercial, industrial** and **domestic** applications. Domestic applications include pergolas, patios, carports, verandahs, skylights, gazebos, sunrooms or pool covers. Shopping centres, sports complexes, screens, walls or greenhouses are just some of a multitude of commercial and industrial applications for which Makrolon® Multiwall is most commonly used.



Warranty



Loss of Light Transmission – 10 Year Warranty

The product will not lose more than 10% from its initial value (when tested in accordance with ASTM D 1003-2000).

Weather Breakage – 5 Year Warranty

From the date of purchase the product will not break as a result of hailstones measuring up to 25mm in diameter. Damage caused by objects other than hail is excluded from this warranty.

This warranty applies from the date of original purchase and is valid only to the original purchaser of the product (claims must be accompanied by original purchase receipt). The product must have been installed and cleaned in accordance with Laserlite Australia's recommendations.

Full details on the warranty are available from any Laserlite office or website.

It is the responsibility of the purchaser to obtain a copy of the full warranty conditions.

Any claim should be made in writing to:
Laserlite Australia Pty Ltd.
Private Bag 10
Cheltenham Victoria 3192.

Laserlite Offices

Head Office, Victoria

17-19 Wangara Road
Private Bag 10
Cheltenham Victoria 3192
Tel (03) 9581 9888
Fax (03) 9583 9003

New South Wales

100 Plumpton Road
Glendenning
New South Wales, 2761
Tel (02) 9677 9900
Fax (02) 9677 9500

South Australia

5 Butler Blvd
Adelaide Airport
South Australia, 5950
Tel (08) 8234 3666
Fax (08) 8234 3766

Queensland

111 Beenleigh Rd
Acacia Ridge
Queensland, 4110
Tel (07) 3219 5022
Fax (07) 3219 5122

Western Australia

94b Harrison Road
Forrestfield
Western Australia 6058
Tel (08) 9352 8737
Fax (08) 9352 8369

Tasmania

29 Mornington Road
Mornington
Tasmania 7018
Tel (03) 6244 7455
Fax (03) 6244 7317

Australian Capital Territory

9 Yallourn Street
Fyshwick
Australian Capital Territory 2609
Tel (02) 6280 4177
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North Queensland

9 Carmel Street
Garbutt
Queensland 4814
Tel (07) 4779 7499
Fax (07) 4775 7200

Western New South Wales

44 William Street
Cowra
New South Wales 2794
Tel 0408 635 932
Fax (02) 6342 4987

Northern Territory

8 Albatross Street
Winnellie
Northern Territory 0820
Tel (08) 8947 1250
Fax (08) 8984 4461



A Bayer Company

Laserlite Australia Pty Ltd
Private Bag 10
Cheltenham Victoria 3192
Tel (03) 9581 9888
Fax (03) 9583 9003

ACN 086 237 765



All Makrolon® Multiwall sheets are manufactured from high-tech, high quality Bayer **Makrolon®** polycarbonate resin for high impact resistance, light weight, excellent transparency, UV stability and excellent fire resistance.

www.laserlite.com.au

Colours depicted in this brochure are representations offered only as a guide and should not form the basis of a colour selection. Slight colour variation may occur between production runs. Transmitted light and colour may vary in intensity depending on weather conditions.

The information contained in this brochure is to the best of our knowledge accurate, but all recommendations are made without any warranty whatsoever, since the conditions of use are beyond our control. This brochure cancels and supersedes all previous publicised information. The company reserves the right to alter and revise, without notice, the information contained herein.

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makrolon® Multiwall

Versatile polycarbonate glazing system



LASERLITE
A U S T R A L I A

A Bayer  Company

Makrolon® Multiwall

The most versatile polycarbonate glazing system

Makrolon® Multiwall polycarbonate glazing system provides outstanding flexibility in design and advanced heat reflecting and light transmitting performance. An advanced construction of internal walls and chambers gives excellent insulation properties and impact strength 250 times that of glass. Both sides of the sheet have a co-extruded UV barrier which provides protection from 99.9% of harmful UV radiation, giving superior resistance to outdoor weathering. Made from Makrolon® polycarbonate resin, Makrolon® Multiwall ensures high impact strength, clarity and excellent weather resistance.



VERSATILE

Can be used for a multitude of applications including roofing or glazing on horizontal, vertical or sloped surfaces



IMPACT RESISTANCE

Impact strength 250 times higher than glass and 30 times higher than acrylic



LIGHT WEIGHT

Easy to lift and manoeuvre at 1/6 the weight of standard glass and 1/3 the weight of acrylic



LIGHT & HEAT TRANSMISSION

Lets the light in while keeping the heat out for maximum comfort



99.9% UV PROTECTION

A co-extruded UV barrier on both sides of the sheet protects you from harmful UV radiation and Makrolon® Multiwall from UV degradation and yellowing



FIRE PERFORMANCE

Suitable for use in bush fire prone areas, backed by CSIRO appraisal. Also designed for fire resistance and to self extinguish



BOUNDARY CONDITIONS

Suitable for use when boundary conditions apply, backed by CSIRO appraisal



WIND LOAD

Suitable for use in high wind areas



BAYER MAKROLON RESIN

Made from high quality Bayer Makrolon® polycarbonate resin designed for high impact resistance and excellent transparency



CHEMICAL RESISTANCE

Resistant to harsh chemicals and materials, including several mineral and organic acids, oxidising agents and many others



EASY INSTALLATION

Easy slot in installation with a flexible Two Piece H-Bar system.



ENERGY EFFICIENCY

Excellent insulation properties saves on air-conditioning and heating costs



WEATHER RESISTANCE

Stands up to extreme outdoor exposure conditions, maintaining its normal mechanical properties at temperatures from -40°C to +100°C



WARRANTY

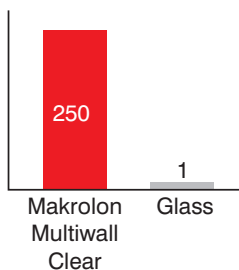
Backed by a 10 year warranty

Comparison to Glass

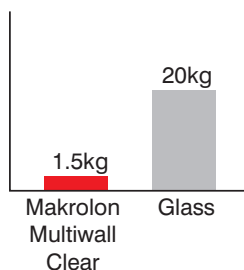
Based on 8mm clear Makrolon® Multiwall vs 8mm clear standard glass.



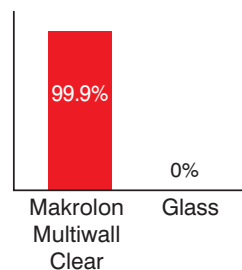
Impact Resistance



Weight (per m²)

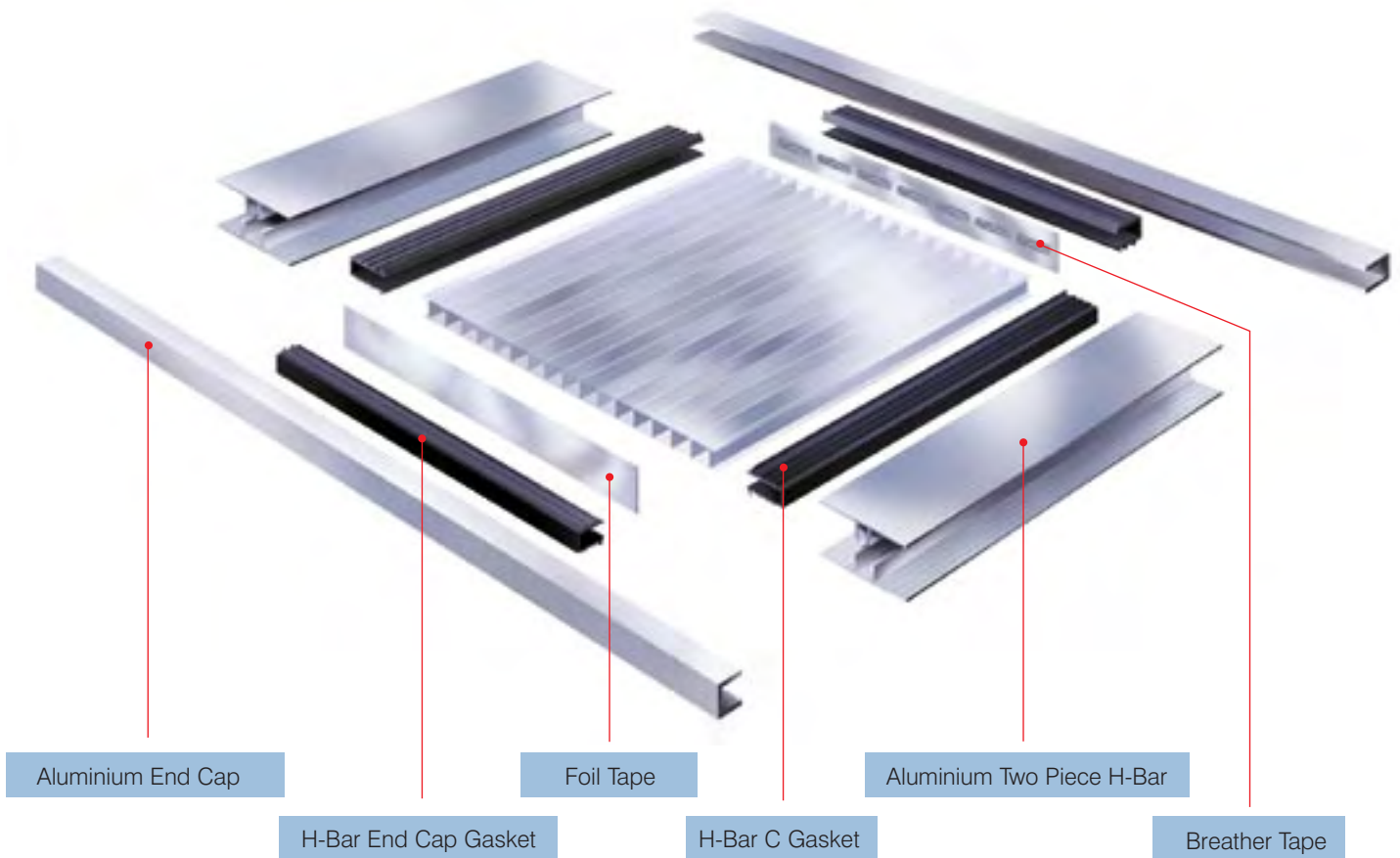


UV Protection



The Glazing System Explained

The Two Piece H-Bar system makes handling and installation easy and flexible. The Makrolon® Multiwall sheets simply slot into a H-Bar ready for fixing to the structure. The glazing bar system allows for thermal expansion and eliminates the need for penetrations through the sheet, hence the structure is watertight.



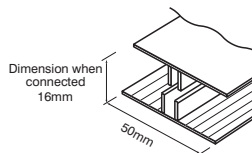
Accessories

Aluminium Two Piece H-Bar

Standard Colours:

Mill Finish, Pearl White, Black, Anodised Bronze, Primrose

Standard Lengths: 3m, 4m and 7m



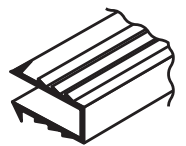
Join and cover edges of Multiwall sheets. Versatile installation.

H-Bar C-Gasket

Colour: Black

Standard Gauges:

8mm and 10mm



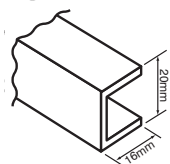
Seal and secure edges of Multiwall sheets. To be used in conjunction with H-Bars.

Aluminium End Cap

Standard Colours:

Mill Finish, Pearl White, Black, Anodised Bronze, Primrose

Standard Lengths: 2.5m and 5m

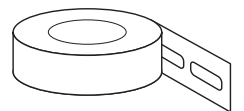


Cover ends of Multiwall sheets. To be used in conjunction with H-Bar End Cap Gasket.

Breather Tape

Colour: Silver

Length: 50m



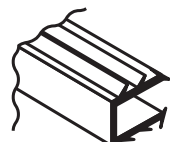
Allow ventilation and reduce condensation.

H-Bar End Cap Gasket

Colour: Black

Standard Gauges:

8mm and 10mm

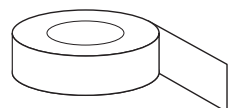


Seal and secure ends of Multiwall sheets. To be used in conjunction with End Cap.

Foil Tape

Colour: Silver

Length: 50m



Prevent moisture and dust from entering Multiwall flutes.

Technical Data

UV Protection



Makrolon® Multiwall prevents the transmission of more than 99.9% of harmful UV radiation, measured to standard ISO 9050:2003.

Its co-extruded UV barrier protects the sheet from UV degradation and discoloration. It remains stable under extreme climatic conditions (-40°C to +100°C).

Wind Load



Makrolon® Multiwall is suitable for use in high wind load areas and tested to wind code AS/NZS 1170.2:2002. The tests have been conducted according to AS4040.2-1992 conditions (methods of testing sheet roof and wall cladding, method 2: resistance to wind pressures for non-cyclone regions). Makrolon® Multiwall 700mm wide, 8mm gauge meets 2.5kPa at a span of 1200mm. 980mm wide, 10mm gauge meets 2.12kPa at a span of 1200mm. Please visit our website for further details and specific installation instructions.

Fire Performance



Makrolon® Multiwall is suitable for use in bushfire prone areas, backed by CSIRO appraisal. It's also self extinguishing, stopping the spread of flame and has excellent fire resistant properties. Therefore, this product complies with many fire related tests. They include: AS/NZS 1530.3:1999 for simultaneous determination of ignitability, flame propagation, heat release and smoke release; AS/NZS 3837:1998 for heat and smoke release rates for materials and products using an oxygen consumption calorimeter.

Boundary Conditions



Makrolon® Multiwall is suitable for use when boundary conditions apply, backed by CSIRO appraisal. Conditions apply, contact your nearest Laserlite office for further details.

Handling and Storage and Cleaning

- Store sheets on a flat surface, (with the longest length on the bottom)
- Ensure sheets are not stored in under direct sunlight
- When stored in a stack, the sunlight may cause the sheet to heat up and distort. Masking film may be difficult to remove.
- Ensure sheets are protected against atmospheric conditions
- Use timber bearers to support sheets
- Rinse sheet with lukewarm water. Wash with mild soap or detergent and a soft cloth or sponge. Hose down thoroughly.
- Dry with a soft cloth to prevent water marks
- Do not allow moisture to enter the flutes

Chemical Resistance

Makrolon® Multiwall is affected by: Benzene, petrol, ketones, acetone, phenols, chlorinated and aromatic hydrocarbons, and petroleum based paints, abrasive cleaners and solvents. For more information, contact your local Laserlite office.

Typical Mechanical Properties

Impact Strength Breakage will not occur as a result of hailstones measuring up to 25mm in diameter for a period of 5 years

Long Service Temp. -40°C to +100°C

Coefficient of Thermal Expansion 0.065mm/m°C

Coefficient of Linear Expansion 0.07mm/m°C

Thermal Conductivity 8mm – 3.3W/m°C
10mm – 3.0W/m°C

Minimum Cold Bending Radius 8mm – 1400mm
10mm – 1750mm

Test Compliances

Design and Installation¹ AS/NZS 1562.3:1996

Early Fire Hazard Test AS/NZS 1530.3:1999

Heat and Smoke Release Rates AS/NZS 3837:1998

Sandbag Impact Test² AS/NZS 4040.4: 1996

99.9% UV Resistant ISO 9050:2003

SAA Loading Code AS/NZS 1170.2:2002
Part 2 – Wind Loads

Resistance to Wind Pressures AS 4040.2:1992
for Non-Cyclone Regions

¹ Installation must comply to the Building Code of Australia. Local council approval may be required. Standard installation instructions apply as indicated in this brochure.

² Specific installation instructions apply. Refer to Laserlite website or customer service for further details.

Comparison to glass

	8mm clear Makrolon® Multiwall	8mm clear Standard Glass
Impact Resistance	250	1
Weight (per m ²)	1.5kg	20kg
UV Resistance	99.9%	0%
Sound Insulation	18db	27db
Thermal Conductivity	3.3W/m°C	5.25W/m°C

Installation Instructions

Carefully read all installation instructions before you start.

- Always exercise extreme care when working on a roof. Use walking boards along purlins.
- Never walk directly on the sheeting.
- Always wear eye protection when using cutting tools.
- Laserlite does not recommend the collection of drinking water from any roof without appropriate precautions and filtration. Check with your local water authority for further advice.
- For safety precautions Laserlite recommends the use of safety mesh for installations above 3m.

Table 1.

Rafter and Purlin Nominal Spacing (mm)

Gauge	Sheet Width	Rafter Centres	Purlin Centres
8mm	700	720	1200
8mm	1050	1070	1200
10mm	980	1000	1200

1 Install sheets with the ribs (flutes) running vertically in the direction of the fall on a roof with a minimum pitch of 5°. Having sufficient fall allows natural weather action to assist in keeping the sheets clean and minimises leaking.

2 Check recommendation for rafter and purlin spacing in Table 1.

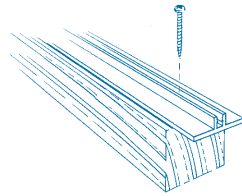
3 Makrolon® Multiwall sheets can be cut using a sharp knife, hand saw or circular saw with a fine tooth blade suitable for plastics.

Sawdust (swarf) should be cleared from the channels with compressed air (or vacuumed) and edges should be free of notches.

If the width of the Makrolon® Multiwall sheets needs to be reduced, trim them as close as possible to the last rib so that optimum clamping action of the glazing bar is ensured.

4 Peel some of the masking back from the ends of the sheet and apply Breather Tape to the top and Foil Tape to the bottom ends.

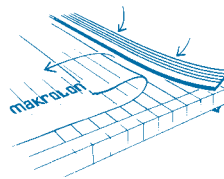
5 Place the first and second measured and cut base glazing bars on the structure.



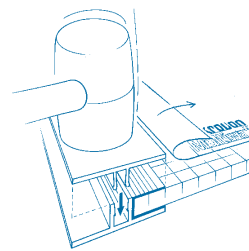
The maximum end overhang is 50mm.

6 Fasten the Base Glazing Bars to the rafter with Ripple Tek screws (10 gauge - 16 tpi) at no greater than 500mm apart by fixing through the centre of the base glazing bar and securing it firmly onto the supporting structure. (Ripple Tek screws for Wood are 30mm long; Ripple Tek screws for Metal are 21mm in length)

7 Pull the masking back on the sides of the sheet and place the H-Bar C gasket along the whole length of both sides of the sheet.

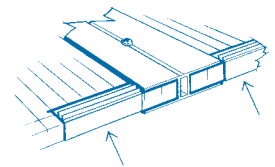


8 Place the sheet between the secured glazing bars. Position the first top glazing bar in line with the base. Secure the two bars using a rubber mallet. Once the next sheet is installed the second and subsequent top glazing bars can be fitted.

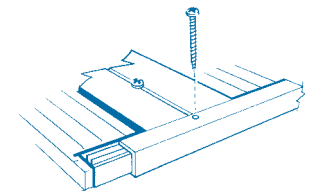


9 Repeat steps 6-8 until all sheets are in position.

10 When using Aluminium End Caps, place the end gasket along the end of the Multiwall sheet only, stopping at the H-Bar.



11 Fasten the Aluminium End Cap with a screw to the H-Bar. On the underneath of the Aluminium End Cap drill a small weep hole where it meets the H-Bar.



12 Use an Aluminium End Cap to close off the open edge of the first and last glazing bars.

Important:

Sealants

These instructions are designed to prevent leaking and alleviate the requirement for sealants. Sealants, especially silicone, are incompatible with polycarbonate. They will damage the sheet, restrict expansion and contraction, and void the warranty. Use the appropriate Makrolon® Multiwall accessories to complete your project and help protect your structure, without the need for sealants.

Thermal Expansion

When inserting sheet into glazing sections allowance must be made for expansion.