Marlon Instalite E40

EXTRUDED TRAPEZOIDAL POLYCARBONATE ROOFLIGHTS

Brett Martin

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Marlon Instalite E40 is the thermally efficient extruded polycarbonate rooflight providing a u-value as low as 0.99W/m^{2}K.

Designed and developed by Brett Martin, Marlon Instalite E40 with a core thickness of 40mm seamlessly integrates with composite panel roofing systems in wide span metal frame building applications.

Available in lengths from 1200mm-5300mm, Marlon Instalite E40 rooflights are available to order with handing and cutbacks as required for installation.

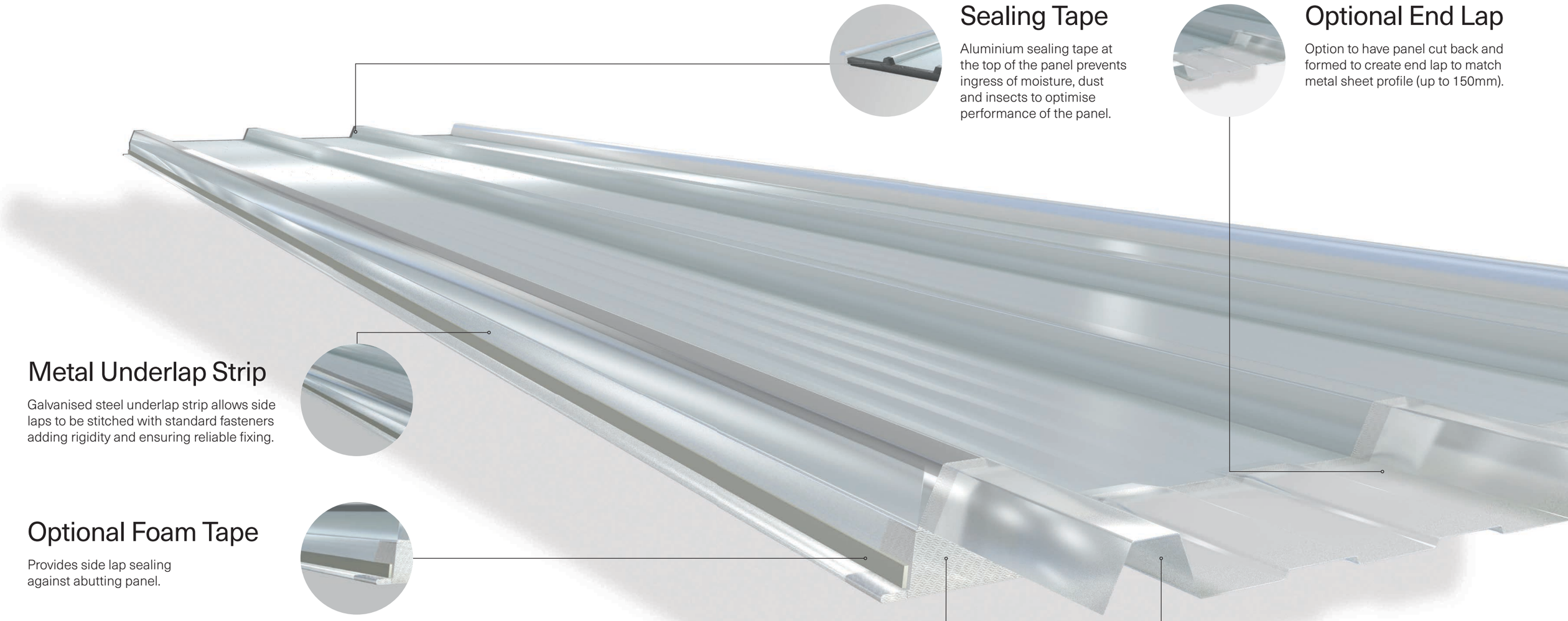
Inherent properties of polycarbonate - ultra clear, high light transmission, strength and resilience, UV resistance, impact resistance.

- Extruded insulating trapezoidal polycarbonate rooflight
- Thermally insulating, providing a u-value as low as 0.99W/m^{2}K.
- Excellent quality natural light transmission
- Excellent fire performance
- Compatible with standard composite roof panels
- Available with or without spacers to meet specification requirements
- Rapid installation

Brett Martin

MARLON INSTALITE E40

Marlon Instalite E40 panels come ready to install with the following factory applied components:



Sealing Tape

Aluminium sealing tape at the top of the panel prevents ingress of moisture, dust and insects to optimise performance of the panel.

Optional End Lap

Option to have panel cut back and formed to create end lap to match metal sheet profile (up to 150mm).

Metal Underlap Strip

Galvanised steel underlap strip allows side laps to be stitched with standard fasteners adding rigidity and ensuring reliable fixing.

Optional Foam Tape

Provides side lap sealing against abutting panel.

Ventilating Tape

Breather tape at the bottom of the panel reduces the risk of condensation and prevents ingress of moisture, dust and insects, optimising performance.

Isolating Tape

Pre-applied isolating tape provides an essential barrier between the polycarbonate panel and any PVC plastisol coating on the corrugated steel panels. This protects the physical properties of the polycarbonate from deterioration.

Impact Resistance

Polycarbonate is 200 times stronger than glass and only a fraction of the weight. Its strength is maintained over a broad temperature range from 20ºC to 100ºC (-4 to 212ºF) long term and up to 130ºC short term. Co-extruded UV protection safeguards the sheet against the effects of weathering for retention of properties and colour.

Light Transmission

Natural daylight has been proven to have a positive effect on the internal environment of buildings by improving productivity, retail spending and general well-being.

Marlon Instalite E40 panels in clear provide 50% light transmission for optimum light transmission. For a more diffused light Diffuser Opal minimises shadows and glare.

Thermal Insulation

Marlon Instalite E40 panels are extruded with a 40mm tenwall core thickness providing a u-value as low as 0.99W/m^{2}K.

Fire Rating

Marlon Instalite E40 panels meet the highest classification of European testing (EN13501) and in the event of a fire it will soften and open, allowing smoke, heat and gases produced by the fire to escape. This ‘venting’ property means that damage within buildings can be limited.

For more details on fire ratings please contact our technical department.

Weather-tightness

Sealing tape and breather tape is factory applied to Marlon Instalite E40 panels to reduce the risk of condensation and prevent ingress of moisture and insects, keeping rooflights clean and optimising light transmission performance.

Foam fillers at each purlin centre provide rigid fixing supports and avoid potential dishing of the fixing and pooling of water for maximum weather-tightness.

Warranty

There is a comprehensive warranty against loss of light transmission, yellowing and weather impact available for this product.

Contact Brett Martin for further information.

Marlon Instalite E40

For Rooflights

Standard Product Options

Lengths	Up to 5.3m
Core Thickness	40mm
Options	Spacers available on request

Metal Frame Building Applications

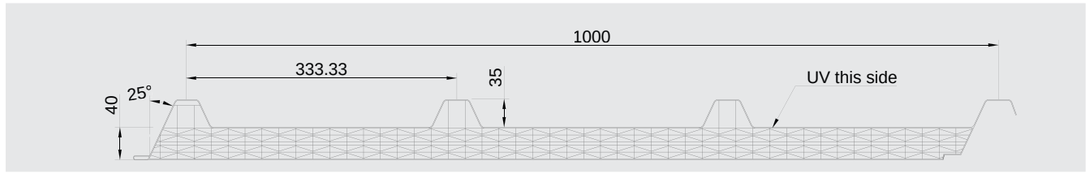
- Factories
- Warehouses
- Distribution Centres
- Retail Buildings
- Supermarkets
- Leisure Facilities
- Agribusiness

Marlon Instalite E40

	U-Value Horizontial (W/m^2K)	U-Value Vertical (W/m^2K)	Light Transmission (%)	Solar Transmission (%)	Weight (kg/m^2)	Core Thickness (mm)	Length (mm)
Clear	1.09	0.99	50	39	4.3	40	Up to 5.3
Diffuser	1.09	0.99	44	35	4.3	40	Up to 5.3

Profiles

KS 35/1000 RW (P0619)



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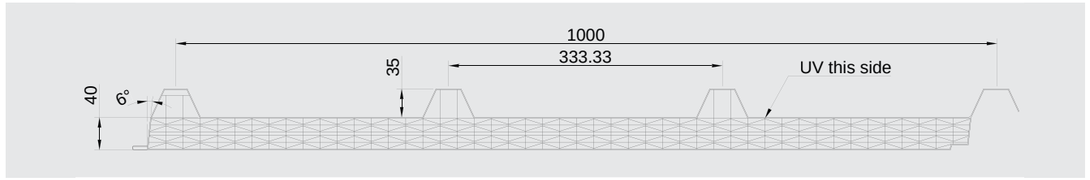

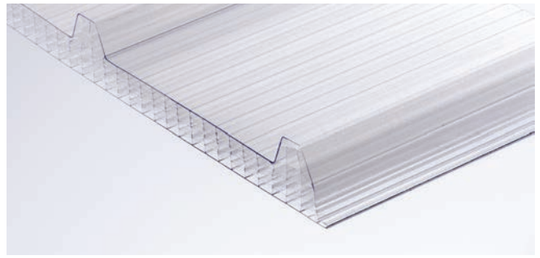

Marlon Instalite E40

For Vertical Glazing

Standard Product Options

Lengths	Up to 5.3m
Core Thickness	40mm
Options	Spacers available on request

Metal Frame Building Applications

- Factories
- Warehouses
- Distribution Centres
- Retail Buildings
- Supermarkets
- Leisure Facilities
- Agribusiness

Marlon Instalite E40

	U-Value Horizontial (W/m^2K)	U-Value Vertical (W/m^2K)	Light Transmission (%)	Solar Transmission (%)	Weight (kg/m^2)	Core Thickness (mm)	Length (mm)
Clear	1.09	0.99	50	39	4.3	40	Up to 5.3
Diffuser	1.09	0.99	44	35	4.3	40	Up to 5.3

Profiles

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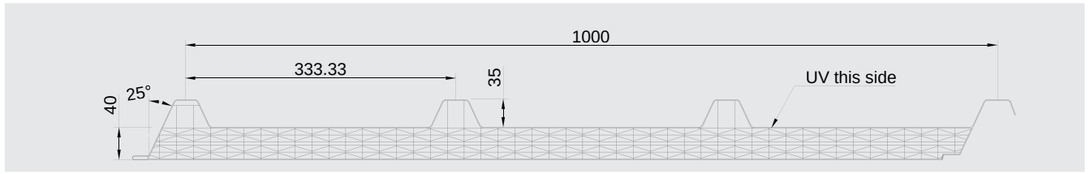

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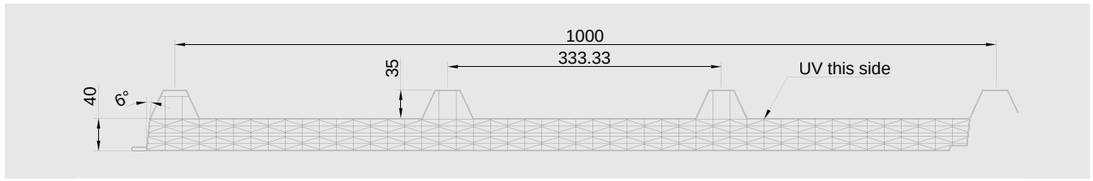

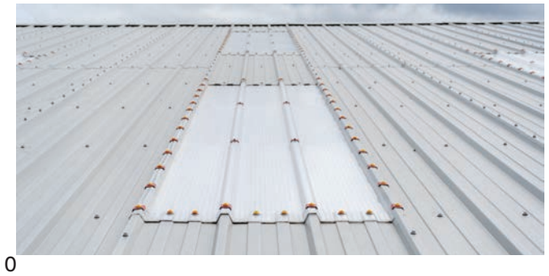

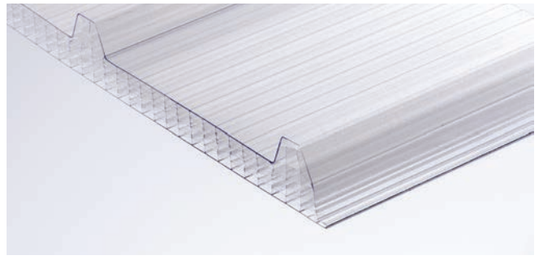

Marlon BioPlus

Next level sustainability

Specify the Marlon BioPlus option to reduce the embodied carbon in your project by up to 97% (LCA A1-3).

By switching from fossil based PC to resins certified as being produced from 89% bio-circular attributed material via mass balancing, we can offer Polycarbonate sheets with dramatically reduced impact on the environment.

The effect of using climate neutral resins in sheet manufactured with 100% renewable energy significantly reduces the embodied carbon associated with these sheets.

ISCC PLUS certified. Climate neutral, bio-circular attributed resin

89%

Replacement of fossil based raw material*

100%

Renewable energy used in resin and sheet production

LCA Data

Marlon Instalite E40 BioPlus
This LCA is calculated according to: ISO 14044, ISO 14040 and EN 15804
Ecochain v4.3.1
Standard database - Ecoinvent v3.9.1 Cut-Off

The LCA background information and project dossier have been registered in the online Ecochain application in the account Brett Martin Ltd (2023). (☑ = module declared, MND = module not declared).

A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
☑	☑	☑	☑	☑	MND	MND	MND	MND	MND	MND	MND	MND	☑	☑	☑	☑

Product stage
A1 Raw material supply A2 Transport A3 Manufacturing

Construction process stage
A4 Transport gate to site
A5 Assembly / Construction installation process

Use stage
B1 Use B2 Maintenance B3 Repair B4 Replacement B5 Refurbishment
B6 Operational energy use B7 Operational water use

End-of-Life stage
C1 De-construction demolition C2 Transport C3 Waste processing
C4 Disposal

Benefits and loads beyond the system boundaries
D Reuse- Recovery- Recycling- potential

Results

Environmental impact	Unit	A1	A2	A3	A1-A3	A4	A5	C2	C3	C4	D	Total
GWP-total	kg CO2 eq	3.339E-2	3.920E-2	1.861E-2	9.120E-2	2.907E-2	7.298E-2	1.898E-2	8.811E-1	0	-2.449E+0	-1.356E+0
GWP-f	kg CO2 eq	2.448E+0	3.917E-2	1.840E-2	2.506E+0	2.905E-2	7.228E-2	1.896E-2	8.159E-1	0	-2.420E+0	1.021E+0
GWP-b	kg CO2 eq	-2.405E+0	1.459E-5	1.807E-4	-2.405E+0	-1.137E-6	6.859E-4	1.880E-5	6.503E-2	0	-2.796E-2	-2.367E+0
GWP-luluc	kg CO2 eq	1.228E-3	2.492E-5	2.550E-5	1.278E-3	2.140E-5	3.719E-5	9.195E-6	1.980E-4	0	-9.050E-4	6.389E-4
ODP	kg CFC11 eq	1.218E-8	6.955E-10	8.910E-10	1.377E-8	4.490E-10	1.297E-9	4.022E-10	3.526E-9	0	-7.438E-7	-7.243E-7
AP	mol H+ eq	1.349E-2	6.583E-4	1.709E-4	1.432E-2	7.716E-4	2.226E-4	4.039E-5	9.238E-4	0	-6.507E-3	9.774E-3
EP-fw	kg P eq	2.437E-5	2.244E-7	1.097E-6	2.569E-5	1.241E-7	8.242E-7	1.501E-7	5.455E-6	0	-5.830E-5	-2.606E-5
EP-m	kg N eq	4.222E-3	1.642E-4	2.936E-5	4.416E-3	1.926E-4	6.770E-5	9.943E-6	3.273E-4	0	-1.323E-3	3.690E-3
EP-T	mol N eq	4.630E-2	1.811E-3	3.332E-4	4.844E-2	2.131E-3	7.433E-4	1.035E-4	3.181E-3	0	-1.479E-2	3.981E-2
POCP	kg NMVOC eq	1.329E-2	5.222E-4	1.103E-4	1.392E-2	5.808E-4	1.524E-3	6.270E-5	1.131E-3	0	-5.327E-3	1.189E-2
ADP-mm	kg Sb eq	2.561E-6	7.728E-8	1.349E-6	3.987E-6	3.388E-8	2.053E-7	6.040E-8	1.058E-6	0	-8.286E-6	-2.942E-6
ADP-f	MJ	4.165E+1	5.033E-1	2.185E-1	4.237E+1	3.541E-1	1.848E+0	2.624E-1	3.082E+0	0	-5.185E+1	-3.937E+0
WDP	m3 depriv.	1.079E+0	1.604E-3	3.089E-2	1.111E+0	8.765E-4	1.714E-2	1.084E-3	6.013E-2	0	-6.474E+0	-5.284E+0
PM	disease inc.	9.563E-8	1.906E-9	2.019E-9	9.955E-8	9.571E-10	2.367E-9	1.371E-9	1.604E-8	0	-5.281E-8	6.747E-8
IR	kBq U-235 eq	2.569E-2	1.789E-4	4.222E-4	2.629E-2	8.547E-5	2.382E-3	1.330E-4	3.729E-3	0	-1.226E-1	-8.997E-2
ETP-fw	CTUe	4.163E+0	4.677E-1	1.093E+0	5.723E+0	3.169E-1	7.823E-1	2.557E-1	8.683E+0	0	-1.760E+1	-1.842E+0
HTP-c	CTUh	2.190E-9	1.706E-11	3.804E-11	2.245E-9	1.245E-11	5.671E-11	8.455E-12	3.197E-10	0	-8.078E-10	1.834E-9
HTP-nc	CTUh	1.661E-8	3.479E-10	1.530E-9	1.848E-8	1.878E-10	1.317E-9	2.372E-10	5.520E-9	0	-4.069E-8	-1.495E-8
SQP	Pt	3.802E+0	1.702E-1	7.247E-1	4.697E+0	4.762E-2	1.650E-1	1.595E-1	2.294E+0	0	-3.323E+0	4.040E+0

Resource use	Unit	A1	A2	A3	A1-A3	A4	A5	C2	C3	C4	D	Total
PERE	MJ	1.084E+0	5.709E-3	8.692E-1	1.959E+0	2.846E-3	7.021E-2	4.125E-3	1.482E-1	0	-6.474E+0	-4.289E+0
PERM	MJ	0	0	0	0	0	0	0	0	0	0	0
PERT	MJ	1.084E+0	5.709E-3	8.692E-1	1.959E+0	2.846E-3	7.021E-2	4.125E-3	1.482E-1	0	-6.474E+0	-4.289E+0
PENRE	MJ	6.044E+1	5.350E-1	2.329E-1	6.121E+1	3.764E-1	1.443E+0	2.790E-1	3.286E+0	0	-5.566E+1	1.093E+1
PENRM	MJ	0	0	0	0	0	0	0	0	0	0	0
PENRT	MJ	6.044E+1	5.350E-1	2.329E-1	6.121E+1	3.764E-1	1.443E+0	2.790E-1	3.286E+0	0	-5.566E+1	1.093E+1
PET	MJ	6.152E+1	5.407E-1	1.102E+0	6.317E+1	3.792E-1	1.513E+0	2.831E-1	3.435E+0	0	-6.214E+1	6.641E+0
SM	kg	0	0	0	0	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0	0	0	0
FW	m3	3.171E-2	5.153E-5	7.213E-4	3.248E-2	2.773E-5	7.336E-4	3.523E-5	1.774E-3	0	-1.501E-1	-1.150E-1

Output flows and waste categories	Unit	A1	A2	A3	A1-A3	A4	A5	C2	C3	C4	D	Total
HWD	kg	6.373E-5	2.844E-6	7.375E-6	7.395E-5	1.811E-6	1.957E-6	1.669E-6	1.172E-5	0	-3.254E-1	-3.253E-1
NHWD	kg	1.434E-1	1.298E-2	6.876E-3	1.633E-1	2.748E-3	4.350E-3	1.304E-2	1.667E-1	0	-5.755E-2	2.926E-1
RWD	kg	1.748E-5	1.096E-7	2.831E-7	1.787E-5	4.742E-8	1.238E-6	8.627E-8	2.739E-6	0	-1.319E-5	8.793E-6
CRU	kg	0	0	0	0	0	0	0	0	0	0	0
MFR	kg	0	0	0	0	0	0	0	0	0	0	0
MER	kg	0	0	0	0	0	0	0	0	0	0	0
EE	MJ	0	0	0	0	0	0	0	0	0	0	0
EET	MJ	0	0	0	0	0	0	0	0	0	0	0
EEE	MJ	0	0	0	0	0	0	0	0	0	0	0

End-of-Life-Stage assumptions -75% recycling / 25% incineration

Polycarbonate Mechanical Properties

Strength & Damage Resistance

Damage to glazing can be hazardous and expensive but our Marlon Instalite E40 multiwall polycarbonate sheets offer excellent protection against hailstones, vandalism and accidental damage with an impact resistance up to 200 times greater than glass. This characteristic is maintained over a broad temperature range and prolonged service life. The Marlon Instalite E40 sheets will retain their physical properties in extreme weather conditions making them the ideal glazing solution for projects throughout the world. Marlon InWWstalite E40 polycarbonate can withstand temperature extremes from -20ºC to 100ºC (-4 to 212ºF) long term and up to 130ºC short term. No other glazing material can offer this combination of impact resistance and wide working temperature range.

UV Protection

Our Marlon Instalite E40 polycarbonate sheets are co-extruded with a UV absorption layer. This protective layer prevents damaging UV radiation from penetrating the sheet for long term optical clarity and mechanical strength.

Chemical Resistance

Polycarbonate has good resistance to many chemicals (with the exception of solvents and strong alkalis) so is often suitable for use in aggressive environments. For full details see Marlon Instalite E40 Installation Guide.

Fire Performance

Our Marlon Instalite E40 sheets exhibit excellent fire performance and in the event of a fire will soften and open, allowing smoke, heat and gases produced by the fire to escape. This 'venting' property means that damage within buildings can be limited. For details of fire ratings please contact our Technical department.

Warranty

Marlon Instalite E40 sheets are manufactured under Quality Management Systems registered to BS EN ISO 9001:2015. The sheets carry limited warranty. For full warranty details please contact our Technical department.

Testing

Marlon Instalite E40 sheets are designed and tested to the relevant industry standards and performance criteria. For further information please contact our Technical department.

Marlon BioPlus

Marlon BioPlus, made with bio-circular attributed resin, is available across the entire Marlon range. Its material and processing properties are identical to the standard product.

Properties		Test Method	Value	Units
Mechanical	Tensile strength at yield	DIN 53455	>60	MPa
	Tensile strength at break	DIN 53455	>70	MPa
	Modulus of elasticity	DIN 53457	>2300	MPa
Physical	Specific gravity	DIN 53479	1.20	g/m^3
Thermal	Softening temperature - Vicat 'B'	DIN53460	148	ºC
	Linear thermal expansion	DIN53752	6.8×10^{-5}	m/m.K
	Maximum service temperature	Permanent	100	ºC
	- no loading	Short term	130	ºC

Polycarbonate General Guidelines

Accessories

It is recommended that the ends of the Marlon Instalite E40 sheets are sealed to minimise the build-up of moisture or dust contamination within the channels. A sealing tape, preferably aluminium, is applied at the top of the sheet to prevent ingress of moisture, dust and insects. A breather tape applied to the bottom end of the sheet permits air to move freely in and out of the sheet, helping minimise condensation.

Thermal Expansion

In practical terms it is necessary to allow 3.5mm per linear metre between the top edge of the panel and the glazing profile.

Fixing Holes

Fixing holes must be oversized to allow for thermal movement. In general an 18mm hole will make sufficient allowance for expansion of sheets up to 4m long (assuming fixing shank of 6mm). The washer will provide a water tight seal. Failure to accommodate for thermal movement will cause buckling of the sheet or tearing around the fixing.

Cleaning

As a condition of ensuring that Marlon Instalite E40 sheets perform at optimum throughout their service life, it is recommended that the sheets be cleaned periodically using suitable household cleaning agents as follows:

- Use lukewarm water to rinse the sheet and soften dirt.
- Make up a solution of lukewarm water and ordinary household cleaner or a mild soap and use this to wash the sheet.
- A sponge or soft cloth should then be used to gently remove dirt and grime.
- The cleaning process should then be repeated and the sheet rinsed and dried with a soft cloth.
- For larger areas clean the surface with a high-pressure water cleaner.

Warning

Care should be taken to observe the following precautions:

1. Do not scrub Marlon Instalite E40 sheet with brushes or sharp instruments.
2. Avoid any abrasives or cleaners of a highly alkaline composition.
3. It is generally advisable in all instances to test any cleaner on a sample piece of the Marlon Instalite E40 sheet first and it should also be remembered that cleaners and solvents which state that they are suitable for cleaning polycarbonate may not be safe for use on the UV protective surface of the sheet.

For installation details watch the installation video or download the full installation guide.

Marlon Instalite E40

Head Office & Global Sales
Brett Martin Ltd
24 Roughfort Road
Newtownabbey, Co. Antrim
Northern Ireland, BT36 4RB

t: +44 (0) 28 9084 9999
f: +44 (0) 28 9083 6666
e: technical@brettmartin.com
commercial@brettmartin.com

For the latest information visit
brettmartin.com

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3931/1125