Fabrications, Safety & Lighting Solutions | Product Data Sheet

Kingspan Day-Lite Trapezoidal
KS1000 DLTR 1.6 & 1.0

Kingspan®
Insulated Panels

Kingspan Day-Lite Trapezoidal

Product Data Sheet

Applications

Designed to be an integral part of the Trapezoidal Roof panel system, Kingspan Day-Lite Trapezoidal is a range of co-extruded, multi-wall polycarbonate rooflights. Two thicknesses are available, offering U-values of 1.6W/m^{2}K and 1.0W/m^{2}K.

Kingspan Day-Lite Trapezoidal rooflights are suitable for all building applications with a roof pitch of 4º or above after deflection, except where the occupants or processes add significant quantities of water to the air, or where there are internal environments with low temperatures.

Available Lengths

DLTR 1.6	1.8m - 8m
DLTR 1.0	1.8m - 6.76m

Notes:

Longer lengths are available upon request. Additional costs and transport restrictions may apply for non-standard lengths. All lengths may change for export (outside of UK).

Dimension, Weight & Performance

Product Reference	Thickness (mm)	Weight (kg/m^2)	U-value (W/m^{2}K)	Light Transmission (%)*	Solar Heat Gain Coefficient
KS1000 DLTR 1.6	24	3.3	1.6	65	0.65
KS1000 DLTR 1.0	40	6.0	1.0	42	0.45

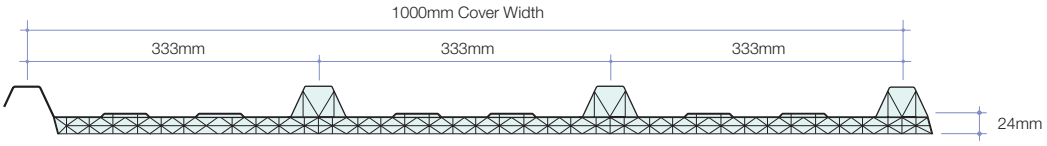
Notes:

The U-values have been calculated using the method required by the appropriate National Building Regulations.

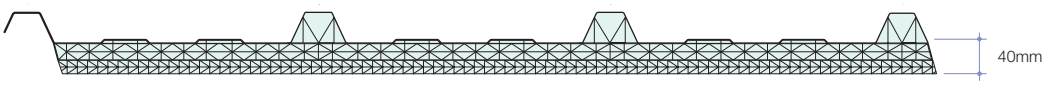
* Based on a clear polycarbonate finish. Light transmission, according to BS EN 410, is as measured on 600mm x 600mm samples.

Solar Heat Gain Coefficient (SHGC), according to BS EN 410, is the total solar energy that enters the interior of a building. In addition to the standard Kingspan Day-Lite colour range, White (0.34 SHGC) is also available, offering enhanced SHGC performances. Please contact the Kingspan Technical Services Department for more information.

Kingspan Day-Lite Trapezoidal, KS1000 DLTR 1.6 (U-value 1.6W/m^{2}K)



Kingspan Day-Lite Trapezoidal, KS1000 DLTR 1.0 (U-value 1.0W/m^{2}K)



Core Thickness (mm)	40	50	60	70	80	100	115	120	137	150
KS1000 DLTR 1.6	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
KS1000 DLTR 1.0	✓	•	✓	✓	✓	✓	✓	✓	✓	✓

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Fire

Kingspan Day-Lite products fully satisfy the internal and external requirements of the National Building Regulations achieving:

- Euro Class B (internal);
- National Class AA and Euro Class BROOF(t4) (external).

Kingspan Day-Lite Trapezoidal (clear finish only) achieves a classification of B-s1,d0 when tested to EN 13501-1: 2007. For more information on fire performance please contact the Kingspan Technical Services Department.

Properties

- Weighted sound reduction: 22dB(A).
- H&S classification:

  - Non-Fragility to ACR[M]001: 2014 Class B (500 joules test), when installed as per Kingspan details.

  - Non-Fragility to BS EN 14963: 2006 Class SB1200 (1200 joules test), when fitted to Trapezoidal Roof panel following Kingspan installation details.

- Building air leakage: $3m^3/m^2/hr$ at 50Pa for complete envelope.

Air Permeability & Weather Performance

	Standard	Result Classification	
		75mm Endlap	150mm Endlap
Air Permeability	BS EN 12152	Class A4 (600Pa)	Class A4 (600Pa)
		Class AE (1000Pa)	Class AE (1200Pa)
	BS EN 12114	Pass	Pass
Watertightness	BS EN 12154	Class R7 (600Pa)	Class R7 (600Pa)
		Class RE (1350Pa)	Class RE (1200Pa)
	BS EN 14963	Pass	Pass
	BS EN 12865	Class A	Class A

Biological

Kingspan Day-Lite Trapezoidal rooflights are resistant to attack from mould, fungi, mildew and vermin. No urea formaldehyde is used in their manufacture, and the panels are not considered deleterious.

Materials

External Weather Face

Clear multi-wall polycarbonate sheet 1000mm wide with an external trapezoidal profile. The external face has a co-extruded UV protection.

Internal Face

Clear multi-wall polycarbonate sheet 1000mm wide with a flat internal profile.

Spacers

Spacers, of a size to suit roof panel depth, are site applied at purlin locations via a magnetic strip and spacer location brackets.

Fillers & Seals

Factory-applied breather tape is applied to either end of the polycarbonate boxes to reduce the risk of condensation and prevent ingress of moisture and insects during transportation and delivery, keeping rooflights clean and optimising performance. If these tapes become damaged, or if panels are cut to length on site, they should be renewed prior to installation.

Side Laps

All external side laps are weather sealed along the full length with unbroken runs of 6mm x 5mm butyl rubber sealant applied to the weather side of the stitching screw. One run of PE foam tape is factory applied to each side of the Kingspan Day-Lite Trapezoidal rooflight systems.

End Laps

All external end laps are 75mm or 150mm and weather sealed along the full width using three unbroken runs of 6mm x 5mm butyl rubber sealant. Please refer to standard Kingspan installation details for more information.

Fixing Detail

Purlin Detail

Maximum purlin centres are always subject to project-specific wind loadings.

Primary Fasteners

All primary fasteners must be high thread type, manufactured from grade 304 austenitic stainless steel and fitted with a 19mm diameter EPDM bonded grade 304 austenitic stainless steel washer. These fasteners should be located on the crown of the profile, where they should be fitted with a storm washer.

Additionally, one primary fastener per valley without storm washer should be used where the panel end laps over the Kingspan Day-Lite Trapezoidal and where the Kingspan Day-Lite Trapezoidal end laps another Kingspan Day-Lite Trapezoidal rooflight.

Please contact the Kingspan Technical Services Department for more information.

Secondary Fasteners - Side Laps

Side laps to be stitched at max. 300mm centres. Please refer to standard Kingspan installation details for more information.

Secondary Fasteners - End Laps

Where the Kingspan Day-Lite Trapezoidal end laps the panel, end laps are to be tail stitched with grade 304 austenitic stainless steel stitching screws, complete with 19mm diameter bonded non-ferrous washers, two per valley.

All fastener heads to be poppy red in colour.

Please refer to standard Kingspan installation details for more information.

Notes:
For all fixing details please contact the Kingspan Technical Services Department.

Product Tolerance

Cut to Length	-5mm	+5mm
Cover Width	-3mm	+3mm
Thickness	-1mm	+1mm

Handing

Kingspan Day-Lite Trapezoidal rooflights can be manufactured both left to right handed (LH) and right to left handed (RH).

Quality & Durability

The Kingspan Day-Lite Trapezoidal range is manufactured from the highest quality materials, using state-of-the-art production equipment to rigorous quality control standards; ensuring long term reliability and service life. Kingspan Day-Lite Trapezoidal is fully compliant with ISO 9001 (Quality), ISO 14001 (Environmental), ISO 50001 (Energy) and OHSAS 18001 (Health & Safety).

The polycarbonate material is treated with a barrier to prevent stress cracking when subjected to stress and temperature when in contact with plastisol.

Guarantee

The Kingspan Guarantee covers the structural and thermal performance for a period of up to 25 years.

Packing

Kingspan Day-Lite Trapezoidal rooflights are stacked weather sheet to weather sheet (to minimise pack height). The top, bottom, sides and ends are protected with foam and timber packing and the entire pack is wrapped in plastic.

	No. in Pack
Kingspan Day-Lite Trapezoidal 1.6	26
Kingspan Day-Lite Trapezoidal 1.0	20

Safe Storage

To ensure that Kingspan Day-Lite Trapezoidal rooflights remain in prime condition while stored on site, the following precautions should be taken.

At ground level:

- Allocate a safe, trade-free area;
- Prevent personnel from walking over packs;
- All packs must be kept in packaging and covered with a non-transparent waterproof sheet, to protect from direct sunlight and water ingress, at all times prior to installation (at both ground and roof level);
- Store Kingspan Day-Lite Trapezoidal on a slight slope, ensuring any penetrating rainwater drains off.

At roof level:

- Prior to and during installation, securely tie Kingspan Day-Lite Trapezoidal packs to the roof structure to prevent movement;
- Keep Kingspan Day-Lite Trapezoidal covered to prevent penetration from rainwater.

Sea Freight

Fully timber-crated packs are available on projects requiring delivery by sea freight shipping, at additional cost. Alternatively, steel containers can be used. Special loading charges apply.

Delivery

All deliveries (unless indicated otherwise) are by road transport to project site. Off-loading is the responsibility of the client.

Site Installation Procedure

Site assembly instructions are available from the Kingspan Field Services Department.

Notes:
Like most daylight solutions, it is common for some condensation to form within Kingspan Day-Lite products during the construction phase, in particular as a result of a rise in humidity levels following the pouring of concrete slabs.

Condensation will typically disappear following a full annual temperature cycle, but can be kept to a minimum by following Kingspan's recommendations for safe storage of polycarbonate products on site, ensuring breather tapes are kept in place and undamaged, maintaining air tightness and allowing the building to dry out thoroughly. For more information please contact the Kingspan Technical Services Department.

Cleaning

Periodic cleaning, using the correct procedure, is recommended to prolong service life. For small surfaces, gently wash sheet with a solution of mild soap and lukewarm water using a soft, grid-free cloth or sponge to loosen any dirt or grime. Do not use any corrosive materials or chemicals.

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Structural Tables

Unfactored load / span tables (use unfactored calculated design wind load values).

Single Span Condition

Load Type	Uniformly Distributed Loads (kN/m²)								
	Span L in Metres								
	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4
Downwards	3.22	3.14	3.06	2.98	2.90	2.82	2.74	2.66	2.58
Suction	4.14	4.07	4.00	3.93	3.86	3.79	3.71	3.64	3.57

Double Span Condition

Load Type	Uniformly Distributed Loads (kN/m²)								
	Span L in Metres								
	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4
Downwards	3.29	3.14	3.00	2.86	2.71	2.57	2.43	2.29	2.14
Suction	5.32	5.04	4.75	4.46	4.18	3.89	3.61	3.32	3.04

Notes:

1. The deflection limitations are calculated in accordance with BS 5427: Part 1.
2. Downwards pressure maximum deflection 1/30th of span, but not more than 50mm.
3. Suction uplift maximum deflection 1/15th of span, but not more than 100mm.
4. The actual wind suction load resisted by the rooflight is dependent on the number of fasteners used and the support thickness, as well as the fastener material.
5. The fastener calculation should be carried out in accordance with the appropriate standards. For further advise please contact the Kingspan Technical Department.
6. The allowable steelwork tolerance between bearing planes of adjacent supports is +/- 5mm.
7. For intermediate values, linear interpolation may be used.
8. All spans have been calculated with a minimum support width of 50mm. Larger support widths are possible.

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For the product offering in other markets please contact your local sales representative or visit www.kingspanpanels.com

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03/2016/Rev.2