

Insulated Panels
UK & Ireland

Protected by



QuadCore® KS1000 RW Roof Panel Product Data Sheet



POWERED BY
QuadCore®
TECHNOLOGY



Product Data

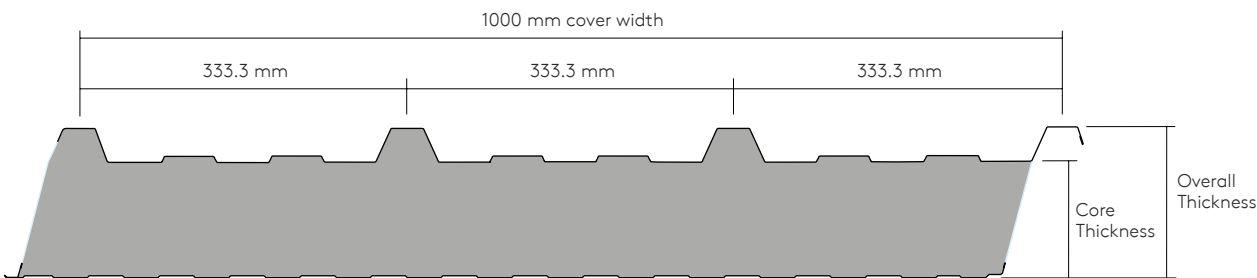
Applications

QuadCore® KS1000 RW Roof Panels are through-fix, trapezoidal profiled, insulated roof panels which can be used for building applications with roof pitches of 4° or more after deflection.

Available Lengths

Standard Lengths (m)	1.8 - 14.5
Longer Lengths (non-standard) (m)	14.5 - 29.2
Shorter Lengths (non-standard) (m)	Below 1.8

Note: Additional costs and transport restrictions may apply for non-standard lengths. All lengths may change for export (outside of the UK).



Dimensions, Weight & Thermal Performance

Core Thickness (mm)	40	53	60	73	80	91	100	115	120	137	150
Overall Thickness (mm)	71	84	91	104	111	122	131	146	151	168	181
U-Value (W/m²K)	0.47	0.35	0.31	0.25	0.23	0.20	0.18	0.16	0.15	0.13	0.12
Weight Steel External Sheet (kg/m²)	9.0	9.5	9.7	10.2	10.5	10.9	11.3	11.8	12.0	12.7	13.2

QuadCore® KS1000RW Roof Panels have a Thermal Conductivity (λ) of 0.018W/m.K
QuadCore® KS1000 RW Roof Panels have a Thermal Transmittance (U-Value), calculated using the method required by the Building Regulations Part L2 (England & Wales), Building Standards Section 6 (Scotland), Part L (Republic of Ireland) and Part F2 (Northern Ireland).

Insulation Core

QuadCore® KS1000 RW Roof Panels are manufactured with an HCFC, CFC and HFC free QuadCore® insulation core.



Certification and Testing

Reaction to Fire

QuadCore® KS1000 RW Roof Panels are classified B-s1,d0 according to the European Reaction to Fire classification system (Euroclasses) BS EN 13501-1: 2007+A1: 2009, under the certified name KS1000/2000 RW QuadCore® and BS EN 13501-1:2018 under the certified name KS1000 RW when using the following internal liners:

- CLEANsafe 15, CLEANsafe 25, CLEANsafe 55, CLEANsafe 120 and AQUAsafe 55.

Please contact Kingspan Tech-eXchange for information relating to the external face.

Roof Applications

QuadCore® KS1000 RW Roof Panels are tested to:

- BROOF(t4) to BS EN 13501-5: 2016 under the certified name KS1000 RW for panel thicknesses 40 - 150mm and roof pitch of 0° - 10°.
- BROOF(t4) to BS EN 13501-5: 2016 under the certified name KS1000 RW for panel thicknesses 40 - 150mm and roof pitch of >10°.

Fire Resistance

Fire resistance classifications are subject to panel thickness, orientation, method of assembly, and steel coating. Please contact Kingspan Tech-eXchange for project specific details.

Insurer Approvals

QuadCore® KS1000 RW Roof Panels are tested to:

- LPS 1181 series of fire growth standards for LPCB approval.
- LPS 1181 Part 1: Issue 1.2 requirements and tests for use as the external envelope of buildings certified to:
 - LPS 1181-1 Grade EXT-B under the certified name QuadCore® KS1000 RW (Roof Panel) for thicknesses 40 - 150mm.
- FM 4471 Class 1 panel roofs under the certified name KS1000 RW for thicknesses 80 - 150mm.

- FM 4880 Class 1 fire rating of building panels or interior finish materials, unlimited height under the certified name KS1000 RW for thicknesses 40 - 150mm.

- FM 4882 Class 1 interior wall panels in smoke sensitive occupancies (pharmaceutical manufacturing & storage areas, and food preparation & storage areas or similar occupancies) under the certified name KS1000 RW for thicknesses 40 - 150mm.

Insurer approvals are subject to panel thickness, cover width, orientation, method of assembly, steel coating and manufacturing facility. Please contact Kingspan Tech-eXchange for project specific details.



Environmental

Kingspan Insulated Panels produced in the UK are certified to BES 6001 (Framework Standard for the Responsible Sourcing of Construction Products) 'Very Good'. QuadCore® Insulated Panel systems have Environmental Product Declarations in accordance with the requirements of EN 15804: 2012+A1: 2013 for 100mm thickness.

All Kingspan Insulated Panels manufacturing facilities across the UK and Ireland are powered by 100% renewable energy. In addition, Kingspan Insulated Panels procure steel that is made from 15 - 25% recycled content. Kingspan Insulated Panels directly contribute to BREEAM® / LEED® credits.

Air Leakage

An air leakage rate of 3m³/hr/m² at 50Pa or less can be achieved when using Kingspan insulated roof and wall panels.

For information on detailing required to achieve lower air leakage rates please contact Kingspan Tech-eXchange.

Acoustic

Sound Reduction Index (SRI)

Frequency (Hz)	63	125	250	500	1000	2000	4000	8000
SRI (dB)	20	18	20	24	20	29	39	47

QuadCore® KS1000 RW Roof Panels have a single figure weighted sound reduction $R_w = 25$ dB. Results are based on panels of similar profile and core material.

Product Data

Materials

Substrate

Metallic protected steel to BS EN 10346: 2015.

Please contact Kingspan Tech-eXchange for information on other substrates.

Coatings – External Weather Sheet

- Kingspan XL Forté: Consists of a multi-layer organic coating, embossed with a traditional leather-grain finish.
- Kingspan Spectrum: Consists of a coated semi-gloss finish with slight granular effect.

Coatings – Internal Liner Sheet

- Kingspan CLEANsafe 15: The coating has been developed for use as the internal lining of insulated panels. Standard colour is “bright white” with an easily cleaned surface.
- Kingspan CLEANsafe 120: The coating has been developed for use as the internal lining of insulated panels where a high level of cleanliness and hygiene is required, and the panels are to be cleaned down on a regular basis.
- Kingspan AQUAsafe: The coating has been developed for use as the internal lining of insulated panels to suit high humidity internal environments.
- Kingspan AQUAsafe 55: The coating has been developed for use as the internal lining of insulated panels to swimming pool internal environments.

For Reaction to Fire performance of internal liners please see Certification and Testing section.

Panel End Cut Back

Standard Cut Back Eaves	50mm, 75mm, 100mm
Class A End Lap	75mm, 150mm

For further information in relation to end laps please contact Kingspan Tech-eXchange.

Product Tolerances

Cut to Length	± 5mm
Cover Width	± 2mm
Thickness (Core ≤ 100mm)	± 2mm
Thickness (Core > 100mm)	± 2%
End Squareness	± 3mm

Handling

QuadCore® KS1000 RW Roof Panels can be manufactured in both left to right handed (LH) and right to left handed (RH).

Quality & Durability

QuadCore® KS1000 RW Roof Panels are manufactured from the highest quality materials, using state of the art production equipment to rigorous quality control standards, complying with BS EN ISO 9001 standard, ensuring long term reliability and service life. The panels are also being manufactured under Environmental Management System Certification BS EN ISO 14001. Compliant to BS OHSAS 18001 Occupational Health and Safety. QuadCore® KS1000 RW Roof Panels are CE marked to BS EN 14509: 2013.



Warranty

QuadCore® Assured Warranty is supported by Independent Third-Party Certification which is recognised by the Worldwide Property Insurance Market as a measure of both robust Quality and Fire Performance. Each product is independently tested and once certified the manufacturing processes audited to ensure on-going compliance, which along with internal management systems, enables full product traceability. This warranty provides additional reassurance as it is supported by a Third-Party Insurance which covers three key areas:

- **Insurance-Backed Thermal & Structural Performance:**
The QuadCore® Insulated Panels have been independently certified that they will perform for a minimum period of 25 years. An optional thermographic imaging service is also available.
- **Insurance-Backed Fire Performance:** We warrant that our QuadCore® Insulated Panels are tested and certified to Loss Prevention Certification Board (LPCB) property insurance standard LPS 1181 Part 1: Issue 1.2 ‘Series of fire growth tests for LPCB approval and listings of construction product systems’ Grade EXT-B when installed according to the appropriate specification.
- Our QuadCore® Insulated Panels are produced at ‘Net Zero Energy’ manufacturing facilities. Kingspan Insulated Panels sites in the UK and Ireland operate a strict landfill avoidance policy and offer packaging and offcut waste take backs schemes. We warrant a panel take-back scheme to enable our QuadCore® Insulated Roof & Wall panels to be reused or recycled at the end of their warranty period of 25 years. This facilitates a more circular end of life solution for our product.

Please contact Kingspan Tech-eXchange for further information.

Packing

QuadCore® KS1000 RW Roof Panels are stacked weather sheet to weather sheet (to minimise pack height). The top and sides are protected by either cardboard or polystyrene and spiral wrap stretch polyfilm. The number of panels in a pack will vary depending on thickness.

Core Thickness (mm)	40	53	60	73-80	91	100-120	137-150
No. of Panels per Pack	17	15	13	11	9	7	6

Note: Applies to UK pack sizes. Please contact Kingspan Tech-eXchange for export information.

Sea Freight

Fully timber crated packs are available on projects requiring delivery by sea freight shipping, at additional costs. 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 Kingspan Tech-eXchange.

Product Data

Load / Span Tables

Structural Tables

External sheet 0.5mm (steel), internal sheet 0.4mm (steel).

Unfactored load / span tables (to be compared against calculated design wind load values unfactored).

Single Span

Core Thickness (mm)	Load Type	Span (m)									
		Uniformly distributed imposed load (kN/m²)									
		1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2
40	Pressure	3.24	2.68	2.26	1.93	1.50	1.17	0.91	0.71	0.56	-
	Suction	4.34	3.63	3.09	2.67	2.33	1.92	1.57	1.30	1.09	-
53	Pressure	3.86	3.27	2.80	2.43	2.04	1.63	1.31	1.06	0.86	0.69
	Suction	5.23	4.46	3.87	3.39	2.99	2.58	2.15	1.80	1.53	1.31
60	Pressure	4.21	3.60	3.11	2.71	2.34	1.89	1.54	1.26	1.03	0.85
	Suction	5.72	4.92	4.29	3.78	3.35	2.85	2.41	2.07	1.78	1.53
73	Pressure	4.85	4.19	3.67	3.23	2.87	2.38	1.97	1.64	1.37	1.15
	Suction	6.65	5.80	5.12	4.55	3.88	3.23	2.73	2.34	2.04	1.79
80	Pressure	5.19	4.52	3.98	3.52	3.13	2.67	2.22	1.86	1.56	1.32
	Suction	7.15	6.27	5.56	4.96	4.12	3.43	2.90	2.49	2.16	1.90
91	Pressure	5.69	5.00	4.43	3.94	3.53	3.11	2.62	2.22	1.88	1.60
	Suction	7.94	7.03	6.27	5.43	4.43	3.69	3.12	2.68	2.33	2.05
100	Pressure	6.14	5.42	4.83	4.32	3.87	3.49	2.96	2.52	2.15	1.85
	Suction	8.60	7.65	6.81	5.84	4.77	3.97	3.37	2.89	2.52	2.21
115	Pressure	6.86	6.11	5.48	4.93	4.44	4.01	3.52	3.03	2.61	2.26
	Suction	9.61	8.42	7.49	6.36	5.20	4.34	3.68	3.17	2.75	2.42
120	Pressure	7.09	6.33	5.68	5.12	4.62	4.18	3.71	3.20	2.77	2.40
	Suction	9.61	8.42	7.49	6.59	5.39	4.50	3.82	3.28	2.86	2.51
137	Pressure	7.87	7.08	6.39	5.78	5.24	4.76	4.32	3.80	3.31	2.90
	Suction	9.61	8.42	7.50	6.76	5.86	4.90	4.16	3.58	3.11	2.74
150	Pressure	8.47	7.64	6.93	6.29	5.71	5.19	4.73	4.27	3.74	3.29
	Suction	9.62	8.43	7.50	6.76	6.15	5.20	4.41	3.80	3.31	2.91

- Values have been calculated using the method described in BS EN 14509: 2013, for medium coloured panels.
- The following deflection limits have been used:
 - Pressure loading $L/200$.
 - Suction loading $L/150$.
- All panel thicknesses have been calculated with a minimum support width of 50mm. Larger support widths are possible.
- The actual wind suction load resisted by the panel is dependent on the number of fasteners used and the purlin thickness as well as the fastener material.
- The fastener calculation should be carried out in accordance with the appropriate standards.
- For intermediate values linear interpolation may be used.
- The allowable steelwork tolerance between bearing planes of adjacent supports is ± 5 mm.

Structural Tables

External sheet 0.5mm (steel), internal sheet 0.4mm (steel).

Unfactored load / span tables (to be compared against calculated design wind load values unfactored).

Double Span

Core Thickness (mm)	Load Type	Span (m)									
		Uniformly distributed imposed load (kN/m ²)									
		1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2
40	Pressure	3.24	2.68	2.24	1.85	1.56	1.34	1.16	1.02	0.90	0.80
	Suction	4.07	3.27	2.71	2.29	1.98	1.74	1.54	1.38	1.25	1.14
53	Pressure	3.81	3.02	2.46	2.05	1.74	1.50	1.30	1.15	1.02	0.91
	Suction	4.24	3.43	2.86	2.43	2.11	1.86	1.66	1.49	1.35	1.24
60	Pressure	3.97	3.15	2.58	2.15	1.83	1.58	1.38	1.22	1.08	0.97
	Suction	4.32	3.50	2.92	2.50	2.17	1.91	1.71	1.54	1.40	1.28
73	Pressure	4.23	3.38	2.77	2.33	1.99	1.72	1.50	1.33	1.18	1.06
	Suction	4.45	3.63	3.04	2.61	2.27	2.01	1.80	1.63	1.48	1.36
80	Pressure	4.38	3.51	2.88	2.42	2.07	1.79	1.57	1.39	1.24	1.11
	Suction	4.50	3.68	3.09	2.65	2.32	2.05	1.84	1.66	1.52	1.39
91	Pressure	4.60	3.70	3.05	2.57	2.20	1.91	1.68	1.49	1.33	1.19
	Suction	4.47	3.67	3.09	2.66	2.32	2.06	1.85	1.68	1.53	1.41
100	Pressure	4.78	3.85	3.18	2.69	2.30	2.00	1.76	1.56	1.40	1.26
	Suction	4.60	3.78	3.19	2.75	2.41	2.14	1.92	1.74	1.59	1.46
115	Pressure	5.06	4.09	3.40	2.87	2.47	2.15	1.89	1.68	1.50	1.35
	Suction	4.65	3.83	3.24	2.80	2.46	2.18	1.96	1.78	1.63	1.50
120	Pressure	5.15	4.17	3.46	2.93	2.52	2.19	1.93	1.72	1.54	1.39
	Suction	4.64	3.83	3.25	2.80	2.46	2.19	1.97	1.79	1.63	1.51
137	Pressure	5.45	4.44	3.70	3.14	2.70	2.36	2.08	1.85	1.66	1.49
	Suction	4.65	3.85	3.27	2.83	2.48	2.21	1.99	1.81	1.66	1.53
150	Pressure	5.68	4.63	3.86	3.28	2.83	2.47	2.18	1.94	1.74	1.57
	Suction	4.63	3.84	3.26	2.82	2.48	2.21	1.99	1.81	1.66	1.53

- 1 Values have been calculated using the method described in BS EN 14509: 2013, for medium coloured panels.
- 2 The following deflection limits have been used:
 - Pressure loading $L/200$.
 - Suction loading $L/150$.
- 3 All panel thicknesses have been calculated with a minimum support width of 50mm. Larger support widths are possible.
- 4 The actual wind suction load resisted by the panel is dependent on the number of fasteners used and the purlin thickness as well as the fastener material.
- 5 The fastener calculation should be carried out in accordance with the appropriate standards.
- 6 For intermediate values linear interpolation may be used.
- 7 The allowable steelwork tolerance between bearing planes of adjacent supports is $\pm 5\text{mm}$.

Contact Details

UK

Kingspan Limited

Greenfield Business Park No. 2
Greenfield | Holywell | Flintshire
North Wales | CH8 7GJ

T: +44 (0) 1352 716100

E: info@kingspanpanels.com

www.kingspanpanels.co.uk

Ireland

Kingspan Limited

Carrickmacross Road | Kingscourt
Co.Cavan | A82 E897

T: +353 (0) 42 96 98500

E: info.ire@kingspanpanels.com

www.kingspanpanels.ie

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