

Insulated Panels
UK & Ireland



QuadCore® KS1000RW Roof Panel Product Data Sheet



POWERED BY
QuadCore®
TECHNOLOGY



Product Data

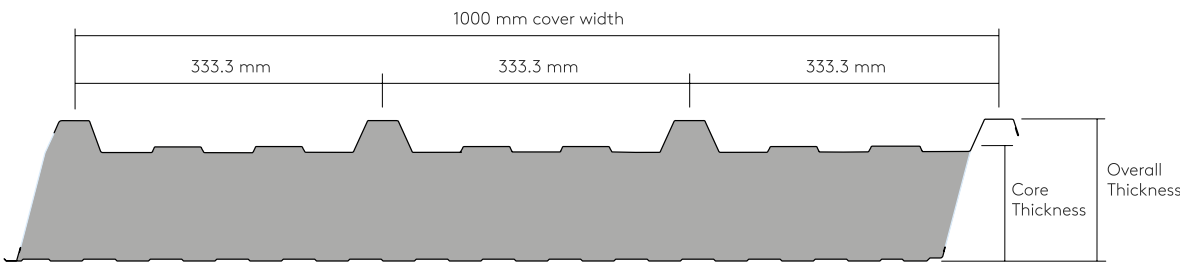
Applications

QuadCore® KS1000RW 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 and Ireland).



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 (kg/m²)	9.0	9.5	9.7	10.2	10.5	10.9	11.3	11.8	12.0	12.7	13.2

The QuadCore® insulation used in QuadCore® KS1000RW Roof Panels has a Thermal Conductivity (λ) of 0.018W/m.K
QuadCore® KS1000RW 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® KS1000RW Roof Panels are manufactured with an HCFC, CFC and HFC free QuadCore® insulation core.



Certification and Testing

Reaction to Fire

QuadCore® KS1000RW Roof Panels are classified B-s1,d0, when tested on the internal face of the product, 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 KS1000RW 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® KS1000RW Roof Panels are tested to:

- BROOF(t4) to BS EN 13501-5: 2016 under the certified name KS1000RW for panel thicknesses 40 - 150mm and roof pitch of 0° - 10°.
- BROOF(t4) to BS EN 13501-5: 2016 under the certified name KS1000RW 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® KS1000RW Roof Panels are tested to:

- LPS 1181 Part 1: Issue 1.2 Requirements and tests for built-up cladding and sandwich panel systems for use as the external envelope of buildings certified to:
 - LPS 1181-1 Grade EXT-B under the certified name QuadCore® KS1000RW (Roof Panel) for thicknesses 40 - 150mm.
- FM 4471 approval standard for class 1 roof panels under the certified name KS1000RW for thicknesses 80 - 150mm.
- FM 4880 approval standard for class 1 fire rating of building panels or interior finish materials under the certified name KS1000RW for thicknesses 40 - 150mm.

- FM 4882 approval standard for class 1 interior wall and ceiling materials or systems for smoke sensitive occupancies under the certified name KS1000RW for thicknesses 40 - 150mm.

Insurer approvals are large scale testing regimes that provide objective third-party testing, which is underpinned by quarterly, bi-annual and annual factory surveillance audits (depending on the region) to verify compliance. Insurer approvals are subject to panel thickness, cover width, orientation, method of assembly, steel coating and manufacturing facility. Please contact Kingspan Tech-eXchange for further information.



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 100% Net Zero Energy. In addition, facilities located in Kingscourt, Holywell and Sherburn generate renewable energy onsite which contributes to that sites energy mix.

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® KS1000RW Roof Panels have a single figure weighted sound reduction $R_w = 25\text{dB}$. 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.

For Reaction to Fire performance of external weather sheets please contact Kingspan Tech-eXchange.

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 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 panels with above 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

Handing

QuadCore® KS1000RW Roof Panels can be manufactured in both left to right handed (LH) and right to left handed (RH).

Quality & Durability

QuadCore® KS1000RW 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, Energy Management System Certification BS EN ISO 50001 and Occupational Health and Safety Certification BS EN ISO 45001. QuadCore® KS1000RW Roof Panels are CE marked to BS EN 14509: 2013.



Warranty

QuadCore® Assured Panel Warranty

- 25 years insurance backed thermal performance
- 25 years insurance backed fire performance
- 25 years structural performance
- 25 years environmental performance
- Up to 40 years coating performance

QuadCore® Assured System Warranty

- 25 years insurance backed thermal performance
- 25 years insurance backed fire performance
- 25 years structural performance
- 25 years environmental performance
- Up to 40 years coating performance
- 25 years warranty on system accessories*

*Please contact Kingspan Tech-eXchange or refer to the 'QuadCore® Assured' brochure for a list of accessories covered by Kingspan.

Packing

QuadCore® KS1000RW 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

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 $\pm 5\text{mm}$.

Structural Tables

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/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	2.24	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 $\pm 5\text{mm}$.

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