Insulated Roof & Wall Panels

KS1000 AWP Data Sheet

Architectural Wall Panels

Kingspan®
Insulated Panels

KS1000 AWP Technical Data

Product Overview

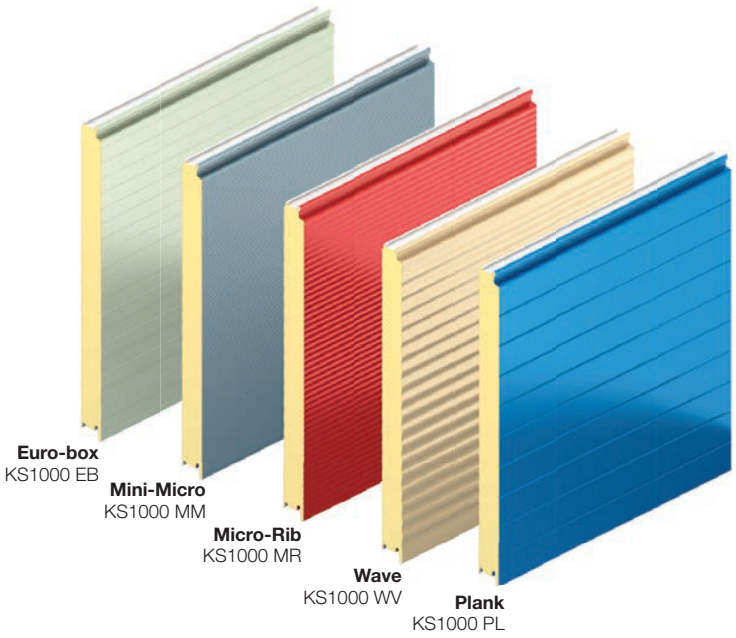
Available in a range of locally manufactured profiles and four alternative colour palettes, Kingspan's wall portfolio combines aesthetics with performance. Specifically engineered joint details ensure a weather tight and airtight building envelope. They are suitable across a broad number of applications and environments adding strength, thermal and fire performance, as well as texture and depth to the building envelope.

Application

Kingspan architectural wall panel systems are suitable as an external façade element in either horizontal or vertical applications. The steel exterior and interior lining is available in a range of coatings and colours, for both standard, coastal and high humidity environments.

Manufacture

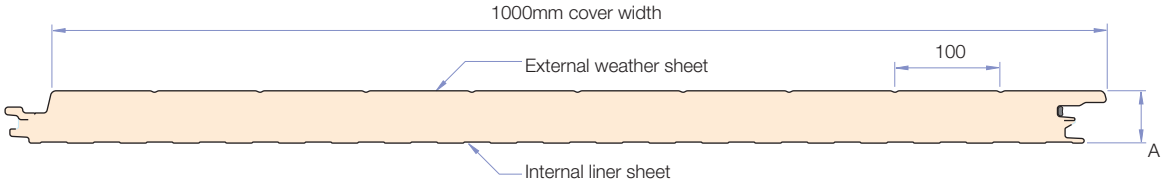
Panels are manufactured in a Kingspan owned facility in Sydney, Australia. Lead times are typically 5-6 weeks for stocked coatings and colours. Non stocked coatings/colours require extra lead time.



Panel Performance

Panel Properties and Thermal Performance

A - Core Thickness (mm)	50	80	100	140
R Value (m^2/kW)	2.65	4.15	5.15	7.15
Weight kg/m^2 0.5/0.4 steel	11.20	12.40	13.20	14.80



panel shown is KS1000PL (Plank)

Available Lengths

Standard lengths are from 2m to 11.8m these panels cannot be end lapped, where joints are required vertical top hats are available.

NZBC

The KS1000 AWP panel is compliant with the following clauses of the NZBC, when Kingspan standard details are utilised:

B1 Structure B2 Durability C Fire
E2 External Water H1 Energy Efficiency

Internal Surface Finish (NZBC Cl 4.17)

Standard Details	Firewall Details
Group 2S	Group 1S

External Radiation (NZBC Cl 5.8)

Total Heat THRR	Peak Heat PHRR	>1m from boundary	<1m from boundary
24 kW/m^2	5 mJ/m^2	✔	✔

Foam Plastic Core (NZBC C.4.17.2)

Core meets the requirements of AS 1366

Sprinkler Code NZS 4541:2007

The Sprinkler Standard NZS 4541:2007 contains levels of sprinkler protection required for buildings constructed with "Approved" and "Not Approved" panels - refer to section 212 and Appendix J.

Kingspan PIR panels are classed as "approved" as they have FM Global approval.

FM APPROVED

masterspec

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Firewall

Various tested Firewall solutions are available. All of these solutions require a specific construction to match the tested performance. Contact Kingspan with your specific requirements and we will provide an appropriate solution.

Insurance

Kingspan panels have achieved FM Global

- FM4880 Class 1 - unlimited height (the highest classification available)
- FM4881 - External Wall System - no height restriction

Acoustic Performance

For sound transmission reduction, Kingspan panels typically have a single figure weighted sound reduction index (SRI) of Rw=24dB. For New Zealand specific acoustic solutions contact Kingspan Technical Services.

Frequency (Hz)	125	250	500	1000	2000	4000	Rw
SRI (dB)	17	21	26	26	26	42	24

Materials

Exterior Weather Sheet

- 0.5mm thick Zincalume G300S AZ150 coated steel to AS1397
- Colours as per the Kingspan Australian colour guide available in hard copy and on the website

Insulation Core

- Polyisocyanurate (PIR), with zero Ozone Depletion Potential (Zero ODP). Available in FM Global insurer approved Firesafe certified product range.
- PIR foam is a thermosetting material. It does not melt, flow or drip when exposed to fire. It will form a strong char that helps protect the foam core and prevent flame spread within the panels.

Internal Liner Sheet

- 0.4mm thick Zincalume G300S AZ100 coated steel to AS1397
- Rib Profile
- Colour: Standard White Liner
  - other colours available on extended lead time and price
  - Aquasafe (White) stocked in limited quantities for High Humidity Environments

Ancillaries

Kingspan also provides preformed corners, top hats, butyl tapes, panel bearers, and other ancillary items.

Product Selection Assistance

Sales representatives are available nationwide to answer queries on product options, assist with detailing, spans, colour swatches and other queries. They can also provide early stage budget estimates and co-ordinate the provision of project specifications.

Technical Assistance

Our technical team is available to provide specific advice on panel spans, product specifications, standard and bespoke detailing, panel optimisation, fire wall options, project specific acoustic solutions, panel guarantees, thermal condensation risk calculation along with general building science cladding advice.

Kingspan Technical Services can provide ‘side by side’ assistance with regard to project detailing, attending design meetings, providing training and undertaking site visits when required.

Guarantees

Kingspan will provide product guarantees on an individual project basis.

Guarantee’s are typically up to 15 years in a non marine / geothermal environment. All guarantees are subject to maintenance regime. Specialist coatings are available for marine and other more corrosive areas.

Environmental

Kingspan has undertaken a Life Cycle assessment of the KS1000AWP panels, and have published an Environmental Product Declaration (EPD) on their performance. The result shows that the Australian made panels are consistent with the Green Guide A+ rating achieved by the UK sourced materials.

Biological

Kingspan panels are normally immune to attack from mould, fungi, mildew, and vermin. No urea or formaldehyde is used in the construction, and the panels are not considered deleterious to health.

Quality and Durability

KS1000AWP architectural panels are manufactured to ISO 9001 standards from the highest quality materials, using state of the art production equipment to rigorous quality control standards, ensuring long term reliability and service life.

Delivery & Packing

Standard Packing

Protective film is applied to the external face.

Kingspan panels are stacked horizontally.

The number of panels in each pack depends on panel thickness.

Delivery

All deliveries (unless indicated otherwise) are by road transport to project site by flat bed truck for off loading by crane or fork hoist. Off loading is the responsibility of the installer.

Handling guidelines are available from Kingspan Technical Services.

Site Installation Procedure

A site assembly instruction brochure is available from Kingspan Technical Services.

Kingspan Insulated Panels

KS1000 AWP
Wall Span Tables

Spans

Span capability of composite systems can depend on a number of external factors. The following table is based on typical medium colour selections. For darker colours contact Kingspan Technical Services.

Single Span Condition L

Panel Thickness mm	Load Type	Span L in metres 2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0
		Uniformly distributed loads kN/m²										
		Ultimate Limit State (ULS)										
50mm	Pressure	4.45	3.56	2.97	2.42							
	Suction	3.74	2.39	1.66	1.22							
80mm	Pressure	7.04	5.63	4.69	3.68	2.82	2.23	1.80				
	Suction	6.03	3.86	2.68	1.97	1.51	1.19	0.96				
100mm	Pressure	8.70	6.96	5.80	4.46	3.42	2.70	2.19	1.81	1.52	1.29	
	Suction	7.59	4.86	3.37	2.48	1.90	1.50	1.21	1.00	0.84	0.72	
140mm	Pressure	8.84	7.07	5.89	5.05	4.41	3.49	2.83	2.34	1.96	1.67	1.44
	Suction	8.84	6.85	4.76	3.49	2.68	2.11	1.71	1.42	1.19	1.01	0.87
		Serviceability Limit State (SLS)										
50mm	Pressure	3.80	2.32	1.49	0.99							
	Suction	3.26	1.90	1.15	0.65							
80mm	Pressure	7.04	4.69	3.22	2.27	1.64	1.22	0.92				
	Suction	6.03	3.86	2.68	1.92	1.35	0.96	0.70				
100mm	Pressure	8.70	6.96	4.36	3.17	2.35	1.78	1.37	1.07	0.85	0.68	
	Suction	7.59	4.86	3.37	2.48	1.90	1.50	1.12	0.85	0.66	0.50	
140mm	Pressure	8.84	7.07	5.89	5.05	3.62	2.85	2.27	1.82	1.48	1.22	1.01
	Suction	8.84	6.85	4.76	3.49	2.68	2.11	1.71	1.42	1.19	1.01	0.87

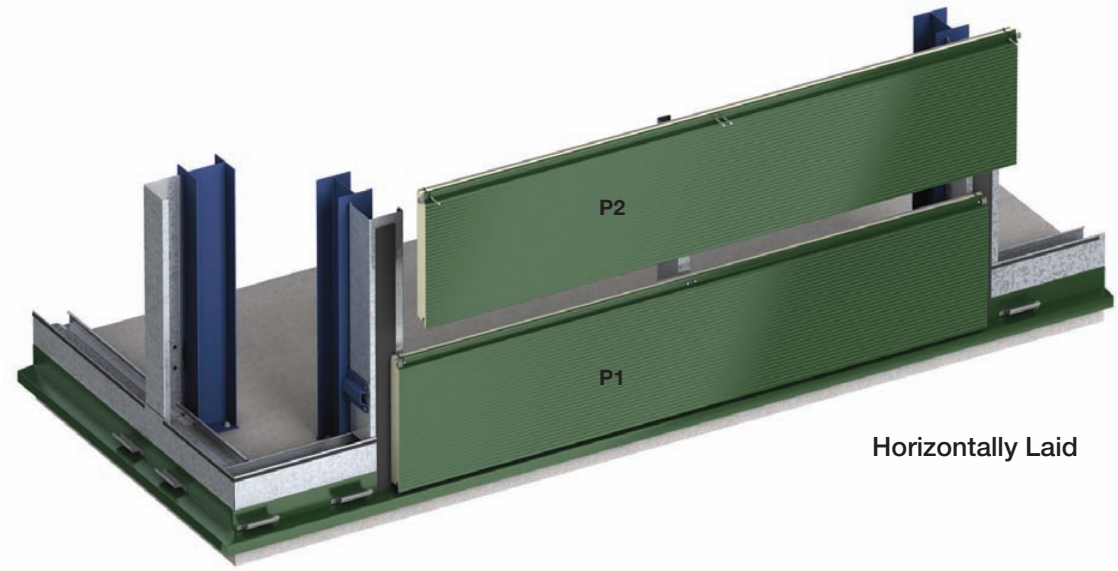
Double Span Condition L L

Panel Thickness mm	Load Type	Span L in metres 2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	5.9	
		Uniformly distributed loads kN/m²									
		Ultimate Limit State (ULS)									
50mm	Pressure	4.45	3.56	2.97	2.42	1.86					Exceeds maximum container length (11.8m)
	Suction	3.74	2.36	1.66	1.22	0.94					
80mm	Pressure	7.04	5.63	4.69	3.68	2.82	2.23	1.80	1.49		
	Suction	6.03	3.86	2.68	1.97	1.51	1.19	0.96	0.80		
100mm	Pressure	8.70	6.96	5.80	4.46	3.42	2.70	2.19	1.81	1.52	
	Suction	7.59	4.86	3.37	2.48	1.90	1.50	1.21	1.00	0.84	
140mm	Pressure	8.84	7.07	5.89	5.05	4.41	3.49	2.83	2.34	1.96	
	Suction	8.84	6.85	4.76	3.49	2.68	2.11	1.71	1.42	1.19	
		Serviceability Limit State (SLS)									
50mm	Pressure	3.41	1.91	1.22	0.85	0.63					Exceeds maximum container length (11.8m)
	Suction	3.74	2.39	1.66	1.10	0.78					
80mm	Pressure	5.77	3.58	2.19	1.48	1.07	0.81	0.64	0.51		
	Suction	5.47	3.86	2.68	1.97	1.48	1.07	0.81	0.63		
100mm	Pressure	6.31	4.94	3.02	2.00	1.42	1.06	0.83	0.66	0.54	
	Suction	5.98	4.69	3.37	2.48	1.90	1.50	1.09	0.84	0.67	
140mm	Pressure	6.15	4.80	3.92	3.32	2.30	1.67	1.27	1.00	0.81	
	Suction	5.80	4.52	3.70	3.13	2.68	2.11	1.71	1.42	1.12	

Notes:

1. Values have been calculated in accordance with AS/NZS 1170.0, and also take into account the methods described in EN 14509:2006 titled 'Self-supporting double skin metal face insulating panels (Medium coloured) - Factory made products - Specifications', taking imposed loads and temperature into account.
2. The serviceability limit state is defined by local buckling, bending or crushing failure at an intermediate support or the exceedance of a specified deflection limit.
3. A deflection limit of L/100 was used.
4. The allowable steelwork tolerance between bearing panels of adjacent supports is +/- 5mm, or L/600 whichever is the less.
5. The actual wind suction load resisted by the panel is dependant on the number of fasteners used and the support width as well as the fastener material. This table is based on a support width of 60mm.
6. The fastener calculation should be carried out in accordance with the appropriate standards. For further advice please contact Kingspan Technical Services.
7. Load span tables for the panel specifications not shown are available from Kingspan Technical Services.

Installation



Horizontally Laid

Vertically Laid

Kingspan Insulated Panels

Case Studies

District Courthouse, Hastings

■ **New build · Wall:** KS1000 AWP · **Roof:** KS1000 KZ

Katsuma Centre, Geelong, Australia

■ **New build · Wall:** KS1000 AWP

Yealands Estate Winery, Blenhiem

■ **New build · Wall:** KS1000 AWP · **Roof:** KS1000 CR

Glazier Childrens Museum, USA

■ **New build · Wall:** KS1000 AWP

Case Studies

Fisher and Paykel, Auckland

- **New build · Wall:** KS1000 AWP

Novatel Hotel, Australia

- **New build · Wall:** KS1000 AWP

Ecosciences, Australia

- **New build · Wall:** KS1000 AWP · **Roof:** KS1000 RW

Burger King, Christchurch

- **New build · Wall:** KS1000 AWP

Kingspan Insulated Panels

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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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