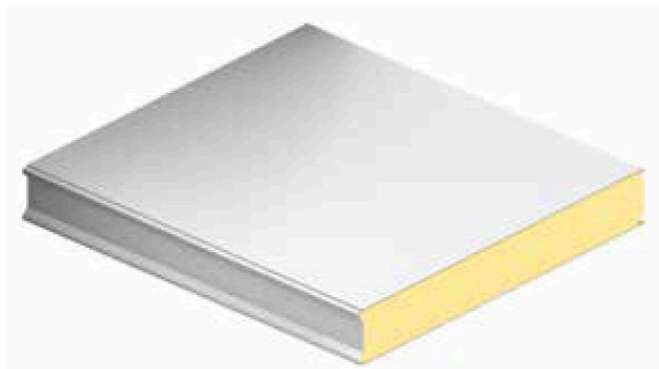


Roofliner (KS1100 RL/KS1200 RL) Data Sheet

Product overview

BENCHMARK Roofliner is an engineered insulated panel system that is ideal for fully supporting single skin metal sheeting such as zinc, copper, turn-coated steel or more modern metals like stainless steel and pre-formed aluminium sheeting.



Application

The BENCHMARK Roofliner system is to be used as an insulated composite wall panel installed horizontally or vertically under site applied fully supported or self-supported aluminium, copper, zinc and stainless steel cladding systems.

Insulation Core

To consist of 50-200mm, closed cell, zero ozone depleting potential (ODP), CFC & HCFC free, Factory Mutual certified polyisocyanurate (PIR) insulation. The auto adhesive properties of the core bond to the external and internal sheets and provide strength and rigidity to the panels.

Available Sizes

Panel Cover Width (mm)	1100 / 1200
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Panel Length (mm)	2000 – 13,700
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* For orders supplied outside of Australia maximum lengths are 11.8m. Maximum length for panels transported by rail is 12m. Exact lengths to be determined by the cladding contractor from the steelwork drawings.

Panel Properties

Core Thickness (mm)	50	75	100	125	150	200
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Weight kg/m ²	12.5	13.5	14.5	15.5	16.5	18.5
	0.6 / 0.5 Steel					

Thermal Performance

KS1100 RL / KS1200 RL

Declared Thermal Conductivity (λ Value)

0.022 W/m.K @ 23°C

Panel Nominal Thickness (mm)	Total R-Value (m ² K/W)	
	Heat Flow Out (Winter)	Heat Flow In (Summer)
50	2.48	2.34
75	3.74	3.50
100	4.96	4.62
125	6.17	5.74
150	7.39	6.86
200	9.82	9.1

The R-Values shown are Total R-Values for the building element as required by the Energy Provisions of the National Construction Code, calculated in accordance with AS/NZS 4859.2 2018. KS1000 RL and KS1200 RL are manufactured, tested and packaged in conformance with AS/NZS 4859.1 :2018



Thermal Performance

KS1100 RL0000

Declared Thermal Conductivity (λ Value) 0.022 W/m.K @23°C

Panel Nominal Thickness (mm)	Product R-Value (m ² K/W) at 23°C	Product U-Value (W/m ² K) at 23°C
50	2.23	0.45
75	3.44	0.29
100	4.6	0.22
125	5.76	0.17
150	6.93	0.14
200	9.25	0.11

Declared Product R-Value is calculated in accordance with AS/NZS 4859.1:2018 as required for compliance to the National Construction Code 2019.

Fire Performance

When tested to AS/NZS 1530.3, BENCHMARK Roofliner panels achieved the following fire hazard results:

Ignitability Index	0
Spread of Flame Index (SFI)	0
Heat Evolved Index	0
Smoke Development Index (SDI)	2

BENCHMARK Roofliner panels systems meet the requirements of BCA Specification C1. 10a as a Group 2 product, when tested to AS ISO 9705.

FM Panel System Approval

The BENCHMARK Roofliner panels are available with FM Global FMRC 4880 Approved Unlimited Height and FM Global 4881 Approved Class I Exterior Wall System Certifications. The certification branch of FM Global (FM Approvals) offers worldwide certification and testing services of industrial and commercial loss prevention products. Recognised and respected across the globe, FM Approvals certification assures customers that a product or service has been objectively tested and conforms to the highest national and international standards.

Acoustic Performance

For sound transmission reduction, panels typically have a single figure weighted sound reduction index (SRI) of $R_w=24$ dB. For specific acoustic solutions contact BENCHMARK Technical Services.

Frequency (Hz)	SRI (dB)
63	13
125	17
250	21
500	26
1000	26
2000	26
4000	42
8000	52

Green Star

Our products are frequently selected for inclusion in Green Star rated buildings, and have attributes that are aligned with the Green Star philosophy for the environmental rating of buildings. BENCHMARK panels contribute to the overall Green Star rating for a building in areas such as Energy, Material, Emissions and Waste Management.

Biological

BENCHMARK Roofliner panels are normally immune to attack from mould, fungi, mildew and venim. No area formaldehyde is used in the construction, and the panels are not considered deleterious.

Quality & Durability

BENCHMARK components are manufactured from the highest quality materials to rigorous quality standards, complying with the ISO 9001:2000 standard, ensuring long-term reliability and service life. In order to future proof the longevity of the panel, increased quality stage gating processes are added that record detail over and above what is required for our ISO standards.

Warranty

BENCHMARK will provide up to a 20 year structural and thermal warranty on the product upon project completion. The panel must be installed as per BENCHMARK's recommended construction details and the installers trained by our BENCHMARK field service manager. Project is to be inspected prior to warranty being issued.

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Installation Procedure

BENCHMARK Roofliner panels installation information and training with handling devices can be obtained from BENCHMARK Field Services.

Safety

The contractor is to determine and use a safe working method of working throughout the installation and construction period, which complies with OHS requirements..

Materials

Exterior Weather Sheet

Substrate to be a nominal 0.6mm thick flat profile with Z275 Zincform G300S coated steel to AS1397, with painted steel coating.

Internal Liner Sheet

Substrate to be a minimum 0.5mm thick ribbed profile Z275 Zincform G300S coated steel to AS1397, with painted steel coating.

Spans

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



Single Span Condition		Span, L (m)										
Panel Thickness mm	Load Type	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/m ²)										
Ultimate Limit State												
50	Pressure	4.83										
	Suction	5.24										
75	Pressure	6.98	5.54	4.22								
	Suction	7.40	5.21	3.68								
100	Pressure	8.85	7.04	5.78	4.19							
	Suction	9.32	6.68	4.70	3.51							
125	Pressure	9.44	7.50	6.21	5.28	4.07	3.15					
	Suction	9.90	7.97	5.63	4.19	3.26	2.61					
150	Pressure	9.51	7.56	6.26	5.33	4.62	3.90	3.11				
	Suction	9.99	8.04	6.42	4.79	3.71	2.99	2.46				
200	Pressure	9.57	7.61	6.29	5.34	4.64	4.10	3.66	3.30	2.94	2.46	
	Suction	10.10	8.13	6.81	5.87	4.55	3.65	3.00	2.52	2.16	1.88	
Serviceability Limit State												
50	Pressure	0.71										
	Suction	3.07										
75	Pressure	2.07	1.11	0.48								
	Suction	5.21	3.66	2.68								
100	Pressure	3.47	2.11	1.26	0.73							
	Suction	7.49	5.41	4.04	3.09							
125	Pressure	5.05	3.27	2.14	1.40	0.90	0.52					
	Suction	9.73	7.13	5.39	4.18	3.30	2.66					
150	Pressure	6.60	4.44	3.04	2.09	1.44	0.97	0.64				
	Suction	12.05	8.93	6.84	5.36	4.28	3.47	2.85				
200	Pressure	9.79	6.86	4.93	3.60	2.64	1.94	1.42	1.02	0.73	0.49	
	Suction	16.73	12.62	9.84	7.84	6.35	5.21	4.33	3.64	3.09	2.65	

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NOTES:

1. Values have been calculated using the methods described in BS EN 14509:2013 titled 'Self-supporting double skin metal faced insulating panels - Factory made products - Specifications', taking imposed loads, temperature and creep 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 for pressure loading is L/200 and suction loading is L/150.
4. The table is for an ambient internal temperature, with flat external and ribbed internal faces.
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. The allowable steelwork tolerance between bearing planes of adjacent supports is +/- 5mm.
8. Load span tables for the panel specifications not shown are available from Kingspan Technical Services.

Publication date: January 2014

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Double Span Condition												
Panel Thickness mm	Load Type	Span, L (m)										
		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/m ²)												
Ultimate Limit State												
50	Pressure	4.83	3.83									
	Suction	5.24	3.66									
75	Pressure	6.98	5.54	4.22	3.03							
	Suction	7.40	5.21	3.68	2.75							
100	Pressure	8.85	7.04	5.78	4.19	3.14	2.43					
	Suction	9.32	6.68	4.70	3.51	2.73	2.21					
125	Pressure	9.44	7.50	6.21	5.28	4.07	3.15					
	Suction	9.90	7.97	5.63	4.19	3.26	2.61					
150	Pressure	9.51	7.56	6.26	5.33	4.62	3.90	3.11	2.52	2.07	1.73	
	Suction	9.99	8.04	6.42	4.79	3.71	2.99	2.46	2.07	1.77	1.55	
200	Pressure	9.57	7.61	6.29	5.34	4.64	4.10	3.66	3.30	2.94	2.46	2.09
	Suction	10.10	8.13	6.81	5.87	4.55	3.65	3.00	2.52	2.16	1.88	1.65
Serviceability Limit State												
50	Pressure	1.14	0.57									
	Suction	4.04	3.12									
75	Pressure	2.52	1.58	0.98	0.59							
	Suction	5.29	4.19	3.49	3.00							
100	Pressure	3.93	2.62	1.78	1.21	0.80	0.50					
	Suction	6.09	4.80	3.98	3.41	2.98	2.68					
125	Pressure	5.50	3.81	2.72	1.97	1.43	1.02	0.72	0.49			
	Suction	6.09	4.80	3.98	3.41	2.98	2.68	2.41	2.12			
150	Pressure	6.10	4.71	3.64	2.71	2.04	1.54	1.15	0.85	0.61	0.42	
	Suction	6.16	4.83	3.99	3.41	2.99	2.69	2.42	2.22	2.05	1.91	
200	Pressure	6.24	4.80	3.88	3.24	2.78	2.42	2.08	1.64	1.29	1.01	0.78
	Suction	6.29	4.91	4.04	3.45	3.02	2.69	2.44	2.24	2.07	1.93	1.81

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