



Insulated Panels

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KS600/900/1000 Optimo Wall Panel

KS1000 Optimo represents a dramatic breakthrough in pre-engineered wall systems delivering a clean, smooth and aesthetically appealing modern solution.

Whether considering a new build or refurbishment project, the Optimo wall system allows specifiers to be confident that there is a practical and cost effective solution which maximises visual impact.

Optimo's slim sight lines create a visually striking appearance for the building's all-important wall envelope. Available in cover widths of 900 or 1000mm, the system has a hidden joint detail which conceals fasteners from view. The advanced Optimo system also includes a broad range of project specific accessories which ensures an integrated wall solution is achieved.

Features

- ☛ Fully complies with Part L2 (England & Wales) and Part J (Scotland) Thermal Regulations and Standards.
- ☛ Insurer approved FIRCSAFE Loss Prevention Certification Board (LPCB) and Factory Mutual (FM) specifications..
- ☛ Available in cover widths 900 & 1000mm.
- ☛ Suitable for horizontal or vertical applications.
- ☛ Reliable low air leakage - $5\text{m}^3/\text{hr}/\text{m}^2$.
- ☛ Guaranteed U-value lifecycle.
- ☛ Concealed fix joint
- ☛ 100% reliable thermal performance and insulation continuity, no cavities, no gaps, no cold bridges or interstitial condensation risk.
- ☛ Pre-engineered - single component - single fix installation reduces build time by up to 50%..
- ☛ All side joints have a factory fitted seal
- ☛ Complies with HSE and CDM safety requirements.
- ☛ Architecturally enhancing ancillary package
- ☛ Can incorporate aluminium extrusion top hat features
- ☛ Creative freedom for designers & simple integration with doors, windows & louvres etc.
- ☛ Non-deleterious materials:
- ☛ Guaranteed long term performance with up to 25 years to first maintenance and overall life expectancy of up to 40 years.
- ☛ Kingspan provide a project specific design and construction solution service.
- ☛ Pre-engineered BS EN ISO 9002 quality approved product.

NBS Specifications

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KS600/900/1000 Optimo Wall Panel

APPLICATION

KS600/900/1000 Optimo Wall and Facade systems are secret fixed and can be laid horizontally or vertically. Suitable for all building applications except where there are low temperature internal conditions.

Product Reference
KS600/900/1000 Optimo-LPCB



Ref. No. 260a/03 to LPS 1181

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KS600/900/1000 Optimo Wall Panel

Core Thickness (mm)	45†	60	70*	80**	100
Weight kg/m ² 0.63/0.4 steel	11.5	12.1	12.5	12.9	13.7

*This panel thickness complies with Part L2 (England & Wales)
 **This panel thickness complies with Part J (Scotland)
 †For 45mm joint detail please contact Kingspan Technical Design Bureau

Flatness Tolerance

L (mm)	200	400	700	1000
F (mm)	0.6	1.0	1.5	1

Note: Measurements not to be taken within 100mm of joint ie joint is excluded. Bow is also excluded.

Product Tolerances

Length	-5mm	+5mm
Width	-2mm	+2mm
Thickness	-2mm	+2mm
End Squareness	-3mm	+3mm

Available Lengths

Panel lengths 1.8 to 7.2 metres. Panels less than 1.8m long can be supplied and are subject to extra charge. The panels cannot be end lapped.

Flatness tolerance based upon CEN/TC128SC11 draft Pr En Eu Standard for Self-supporting double-skin insulated sandwich p Factory made products - Specification.

KS600/900/1000 Optimo Wall Panel**MATERIALS -STEEL****Substrate**

- PVDF: Galvatite, hot-dipped zinc coated steel to BS EN 10147 : 1992. Grade Fe E220G with a Z275 zinc coating.
- Standard external sheet thickness 0.63mm, standard internal sheet thickness 0.4mm.

Coatings - External Weather Sheet

- PVDF: 27 micron thick stoved fluorocarbon coating which has excellent colour stability even at temperatures as high as 120° C.
- Reverse side of sheet coated with a light grey polyester coating.
- The sheet is available in a plain finish.

Coatings - Internal Liner Sheet

- Lining Enamel: 22 micron thick coating developed for the internal lining of insulated panels. Standard colour "bright white" with an easily cleaned surface.
- HPS200 Plastisol: 200 micron thick coating used in areas where there is high internal humidity, or a corrosive environment.
- Stelvetite Food & Hygiene Safe: This is a 120 micron thick chemically inert polymer film bonded to steel suitable for cladding the interior of cold stores, food processing buildings and other hygiene applications.
- Reverse side of sheet coated with a light grey polyester coating.
- The sheet is available in a plain finish.

Colours Available

Optimo is only available in PVDF. The standard colours are silver metallic and white. Contact Kingspan Technical Design Bureau for availability of other colours.

Insulation Core

- Polyisocyanurate (PIR): with zero ozone depletion (Zero Ozone Depletion). Available in LPCB certified product range, please contact Kingspan Technical Design Bureau.

KS600/900/1000 Optimo Wall Panel

SEALS & FIXINGS

Seals

Factory Applied Side Joint Seal

All side joints have a factory applied seal fitted into the groove to automatically seal the joint between panels.

KS600/900/1000 Optimo Wall Panel: Performance

KS600/900/1000 Optimo Wall Panel

PERFORMANCE

Thermal Insulation

Panel Thickness (mm)	U value w/m ² k
45	0.44
60	0.33
70	0.35*
80	0.30*
100	0.23*

U - Thermal transmittance W/m² K
 * U Value calculated in accordance with the method required by the Building Regulations Part L2 (England & Wales) and Building Standards Part J (Scotland)
 (0.35 U Value not suitable for Scotland)

Biological

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

Fire

Steel and aluminium outer and inner facings have Class 1 surface spread of flame to BS 476 Part 7: 1987, and are Class 0, as defined by Building Regulations. KS600/900/1000 Optimo panels are available with LPCB certification, with steel facings.

Firewall specifications to provide fire resistance ratings to BS 476: Part 22 : 1987 are available on request from Kingspan Technical Design Bureau

Acoustics

KS600/900/1000 Optimo panels comply with Building Regulation Part E for non-domestic buildings. For residential, domestic, education and healthcare building applications, BB93 and HTM solutions, consult Kingspan Technical Design Bureau.

All Optimo Systems have a single figure weighted sound reduction = 25dB.

Frequency Hz	Sound Reduction Index (SRI)				
	125	250	500	1k	2k
SRI dB	20.1	21.1	24.6	24.9	29.6

Building Regulations & Standards



Kingspan insulated roof and wall systems conform to the following Building Regulations and Standards (Non-domestic buildings):

- i) Approved Document A: Structure (England & Wales)
- ii) Approved Document B: Fire (England & Wales)
- iii) Approved Document E: Resistance to the Passage of Sound (England & Wales)
- iv) Approved Document Part L2: Conservation of Fuel & Power (England & Wales)
- v) Building Standard Part D: Structural Fire Precautions (Scotland)
- vi) Building Standard Part H: Resistance to the Transmission of Sound (Scotland)
- vii) Building Standard Part J: Conservation of Fuel & Power (Scotland)
- viii) Building Standard Part L: Conservation of Fuel & Energy (Ireland)

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STRUCTURAL

Unfactored Load/Span Table (use calculated design windload values unfactored)

SPAN CONDITION	Core Thickness(mm)	LoadType	Uniformly Distributed Loads (kN/m ²) Span L in Metres									
			2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.8
SINGLE SPAN 	45	Pressure	2.32	1.96	1.66	1.42	1.22	1.05	0.92	0.80	0.70	0.62
		Suction	2.32	1.96	1.66	1.42	1.22	1.05	0.92	0.80	0.70	0.62
	60	Pressure	3.20	2.91	2.51	2.17	1.88	1.64	1.43	1.27	1.12	0.99
		Suction	3.11	2.57	2.16	1.84	1.59	1.38	1.22	1.08	0.96	0.86
	70	Pressure	3.73	3.39	3.10	2.69	2.35	2.06	1.82	1.61	1.43	1.27
		Suction	3.36	2.78	2.33	2.00	1.71	1.49	1.31	1.16	1.04	0.93
	80	Pressure	4.27	3.88	3.56	3.24	2.84	2.50	2.22	1.97	1.75	1.57
		Suction	3.46	2.86	2.40	2.05	1.76	1.54	1.35	1.20	1.07	0.96
	100	Pressure	5.44	4.99	4.61	4.35	3.86	3.39	3.04	2.73	2.45	2.22
		Suction	3.57	2.94	2.47	2.13	1.84	1.58	1.39	1.23	1.10	0.99
DOUBLE SPAN 	45	Pressure	1.90	1.71	1.57	1.44	1.33	1.24	1.16	1.10	1.03	0.96
		Suction	1.76	1.60	1.46	1.35	1.25	1.14	1.00	0.89	0.79	0.71
	60	Pressure	2.59	2.34	2.13	1.95	1.81	1.68	1.57	1.48	1.39	1.32
		Suction	2.42	2.19	2.00	1.84	1.59	1.38	1.22	1.08	0.96	0.86
	70	Pressure	3.06	2.76	2.51	2.30	2.13	1.96	1.85	1.74	1.64	1.45
		Suction	2.88	2.60	2.33	1.99	1.71	1.49	1.31	1.16	1.04	0.93
	80	Pressure	3.54	3.19	2.90	2.66	2.45	2.28	2.13	2.00	1.88	1.78
		Suction	3.34	2.86	2.40	2.05	1.76	1.54	1.35	1.20	1.07	0.96
	100	Pressure	3.34	2.86	2.40	2.05	1.76	1.54	1.35	1.20	1.07	0.96
		Suction	3.50	3.02	2.54	2.18	1.88	1.65	1.46	1.28	1.15	1.06

Notes:

- Values have been calculated using the limit state method described in the "European Recommendations for the Design of Sandwich Panels" (ECCS document No.115, 2001), taking imposed loads, temperature and creep into account.
- For each value individual and combined load cases with appropriate load factors and temperatures have been considered. These are detailed under "Structural Performance" in the Building Design Section.
- The Table is for dark coloured panels.
- The following deflection limits have been used:
Downward loading L/150
Suction loading L/150
- For intermediate values linear interpolation may be used.
- The standard fastener pattern is shown in the construction details. When the micro-rib panels are fixed with single fasteners to 1.6mm thick cold rolled steel sheeting rails: centres the allowable suction load is 0.72kN/m². For other fastener and rail arrangements the allowable suction load to be calculated using the procedure shown in the design example under "Structural Performance" in the Building Design Section.
- The allowable steelwork tolerance between bearing plate adjacent sheeting rails is L/600, where L is the purlin span.
- Load span tables for panel specifications not shown are available from the Kingspan Technical Design Bureau.

KS600/900/1000 Optimo Wall Panel**PACKING****Standard Packing**

Kingspan wall panels are stacked horizontally (with weather sheet upward). Removable hot melt adhesive is laid between each panel. The top, bottom, sides and ends are protected with polystyrene and timber packing and the entire pack is wrapped in polythene. The number of panels in each pack depends on panel thickness, as shown in the table. Typical pack height is 1100mm.

Panel Core Thickness	45	60	70	80	100
No. panel/pack (max.)	21	16	12	11	10

Sea Freight

Fully timber crated packs are available on projects requiring d 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 transpo project site. Off loading is the responsibility of the client.

KS600/900/1000 Optimo Wall Panel**SITE INSTALLATION PROCEDURE**

The installation of Roof and Wall cladding on a particular building must be planned carefully to ensure the work can proceed in safety. The contractor normally prepares a method statement for his client, which indicates who is responsible for safety, what equipment and particularly what safety equipment, will be used for each stage of the work, and the sequence of installation.

The actual technique for fixing Kingspan KS600/900/1000 Optimo Wall Panels is described, but a number of general principles apply:

- Ensure that the purlins have been installed to provide a level fixing plane for the panels.
- Fasten the first panel at the edge of the roof area to be clad, ensuring it is correctly aligned and the right way round for lapping etc, and then fix as indicated on the project construction drawings. It is desirable to arrange the panels so that any side laps are not exposed to the prevailing wind.
- Install the recommended fasteners in their correct positions to fix the panel to the steelwork. Note that the number of fasteners may have to vary depending on the wind suction load. Fasteners should be installed in the direction of lay.

- The fasteners must be installed correctly in order to weathervest correctly, and any drilling swarf must be removed from the panel to prevent damage to the coating.

- When sealants are applied at laps or joints, ensure surfaces are clean and dry, apply the tape seal to the surface before removing the backing paper, and cut (do not tear) the sealant at the end of the lap.

- If the panels have to be cut on site always use a reciprocating type saw (jigsaw or similar), do not use abrasive wheel cutters. After cutting remove swarf from the panel surface, and any burrs from cut edges. Eye protection should always be worn when cutting. (See Health & Safety Data Sheet)

KS600/900/1000 Optimo Wall Panel

QUALITY & DURABILITY

Kingspan Insulated Wall and Facade Systems are manufactured from the highest quality materials, using state of the art production equipment to rigorous quality control standards, complying with ISO 9001: 2000 standard, ensuring long term reliability and service life.

GUARANTEES & WARRANTIES

Kingspan will provide external coating and product warranties guarantees on an individual project basis.