

Insulation



See rear cover for applicable countries

Second Issue October 2015

Pal Duct Eco System

USING ANTI-MICROBIAL COATED ALUMINIUM FACED PANELS



Fibre-free
 Core


KingspanTM

*Low Energy –
Low Carbon Buildings*

Kingspan **PalDuct** Eco System

Introduction

Microorganisms are unavoidably present in the air we breathe. Microorganisms such as bacteria, fungi and algae can be harmful and can be the cause of unwanted odours, stains and infectious diseases. They are airborne and can be easily transmitted from one person to another.

The HVAC industry has become to be increasingly concerned with the quality of air that is distributed through the ductwork in a building. Hygienic coatings for HVAC ductwork have been designed for use in locations such as food preparation areas, clinics, schools and hospitals, where it is important to limit the growth of bacteria. Moreover, this may be especially important in high humidity areas where bacteria can multiply rapidly.

The *Kingspan PalDuct Eco* System is an advanced and innovative pre-insulated rectangular HVAC ductwork system. It comprises *Kingspan PalDuct Eco* panels, fabrication methods, coupling systems and a complete line of accessories to produce ductwork in sections up to 4 m long.

The *Kingspan PalDuct Eco* System uses Panels and components, which are coated in an innovative antimicrobial technology that resists against mould, mildew, bacteria, fungi and algae.

Operating Recommendations & Limitations

It is recommended that ductwork fabricated from The *Kingspan PalDuct Eco* System is used for operation as supply, return, fresh and exhaust air ductwork for HVAC systems within the limits shown in the table below. These limits assume that the ductwork has been fabricated in accordance with the *Kingspan PalDuct* Fabrication Guidelines.

Property	Value
Pressure Limit (Pa)	1000
Air Speed (m/s)	15
Application	Indoor
Temperature	Internal air temperature of -20°C to +80°C during continuous operation

Application Suitability

The *Kingspan PalDuct Eco* System is designed for use in building services / HVAC applications. It is suitable for both new build and refurbishment projects in the residential, commercial, public and light industrial and leisure sectors. Moreover, it is especially suitable for use in projects where the spread of bacteria may be a consideration, such as:

- clinics and hospitals;
- clean air and hygiene controlled environments;
- laboratories;
- food, beverage and pharmaceutical industries; and
- operating rooms.

Fabrication and Installation

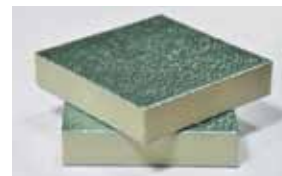
Ductwork fabricated from The *Kingspan PalDuct Eco* System should only be fabricated by specially trained fabricators who have completed the specialised and comprehensive training course provided for the System.



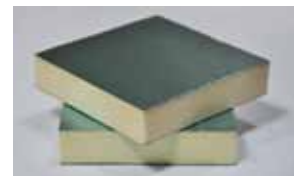
Kingspan **PalDuct** Eco Panels

Kingspan PalDuct Eco Panel comprises a fibre-free rigid thermoset polyisocyanurate (PIR) or polyurethane (PUR) insulation core, faced on one side with an embossed aluminium foil and the other with a smooth aluminium foil. Both facings are antimicrobial coated with silver ion technology. The panels can be joined together with antimicrobial coated, green coloured aluminium and polymer profiles and adhesive materials to create a pre-insulated

Fibre-free Core HVAC ductwork system that can resist the spread of bacteria.



Embossed



Smooth

Property	Value
Thickness (mm)	21–30
Panel Dimensions (mm)	4000 x 1200
Density (kg/m ³)	48–50
Thermal Conductivity (W/m·K)	0.020 @ 10°C (ASTM C 518)
Aluminium Foil	Smooth / embossed Antimicrobial Coating
Compressive Strength (kPa)	220.9 (ASTM D 1621)
Water Absorption Level (ASTM C209)	0.14% (24 hour immersion)

Fittings & Accessories

The *Kingspan PalDuct Eco* System comprises a complete line of profiles and accessories for joining panels, which produces pre-insulated rigid ductwork sections that resist the spread of bacteria.

Features

The *Kingspan PalDuct Eco* System has been developed to fight harmful airborne micro-organisms more effectively. *Kingspan PalDuct Eco* Panels ensure that the air passing through the duct and the air moving around outside the duct is safe and clean due to its antimicrobial feature.

The *Kingspan PalDuct Eco* System has been tested by an American laboratory and found to have bacterial and fungal growth resistance on the following organisms:

- *pseudomonas aeruginosa*;
- *staphylococcus aureus*;
- *aspergillus niger*;
- *aureobasidium pullulans*;

- *chaetomium globosum*;
- *penicillium funiculosum*; and
- *trichoderma virens*.

The *Kingspan PalDuct Eco* System is CFC / HCFC-free which greatly helps to reduce the impact the manufacturing process has on the ozone layer. The System is easy to clean and maintain, which ensures that a consistent hygienic quality of air can be upheld inside the ductwork. In addition, due to its pre-insulated nature the System is lightweight, and therefore, easy to install.

Test Report & Certificate

Description	Test Method & Statement	Laboratory	Classification & Results
Bacterial and Fungal Growth Resistance	ASTM G21-Panel ASTM G21-Accessories	Biosan Laboratories	resistance to the following organisms: <i>aspergillus niger</i> <i>aureobasidium pullulans</i> <i>chaetomium globosum</i> <i>penicillium funiculosum</i> <i>trichoderma virens</i>
Bacterial and Fungal Growth Resistance	ASTM G22	Al Futtaim Exova	No growth for the following organisms: <i>pseudomonas aeruginosa</i> <i>staphylococcus aureus</i>
Bacterial Growth Resistance	ASTM E2180	Biosan Laboratories	resistance to <i>staphylococcus aureus</i>
Fire Propagation Index	BS 476: Part 6	Warringtonfire	Class 0
Surface Spread of Flame	BS 476: Part 7	Warringtonfire	Class 1
Certification of Product Listing No. 016	BS 476: Part 6, 7	Warringtonfire - mideast	Class 0
Certificate of Factory Production Control and Product Labels	Certificate of Approval ME0016	Warringtonfire - mideast	
Epiradiateur Test	NFP 92-501	Warringtonfire	M1
Flame Spread Index	ASTM E 84 NFPA 255 UL 723 NFPA 101 Life Safety Code	Commercial Testing Company	Class 'A'
Fire and Smoke Classification	EN 13501	Warringtonfire	c-s2-d0
Smoke Developed Index	ASTM E 84 NFPA 255 UL 723 NFPA 101 Life Safety Code	Commercial Testing Company	Class A
Toxicity Index	NES 713 IMO Resolution MSC 61 (67)	5.7 Warringtonfire	Average S.O.D. < 200
Flexural Strength	ASTM C203	Dubai Municipality	1170 kpa
Sound Attenuation Test	UNI 8270 DIN 52210	Instituto Giordano	Average SRI (100-3150 Hz) 14.1

Kingspan Insulation reserves the right to amend product specifications without prior notice. The information contained in the document is given in good faith and applies to the uses described. Recommendations for use should be verified as to the suitability and compliance with actual requirements, specifications and any applicable laws and regulations. Kingspan Insulation recommends using the Technical Advice service.



Kingspan Insulation LLC

P.O. Box 113826, Dubai Investment Park 2, Dubai, U.A.E.

Tel: +971 4 889 1000 Fax: +971 4 883 8515

info@kingspaninsulation.ae

www.kingspaninsulation.com

Countries comprise: all of Africa; South and Central America except Mexico; the Caribbean; the Middle East and Asia as far north and east (and including) Turkey, Georgia, Azerbaijan, Kazakhstan, Kyrgyzstan, Afghanistan, Pakistan, India, Nepal, Bhutan and Bangladesh.

™ Kingspan, the Pal Device and the Lion Device are Trademarks of the Kingspan Group plc.