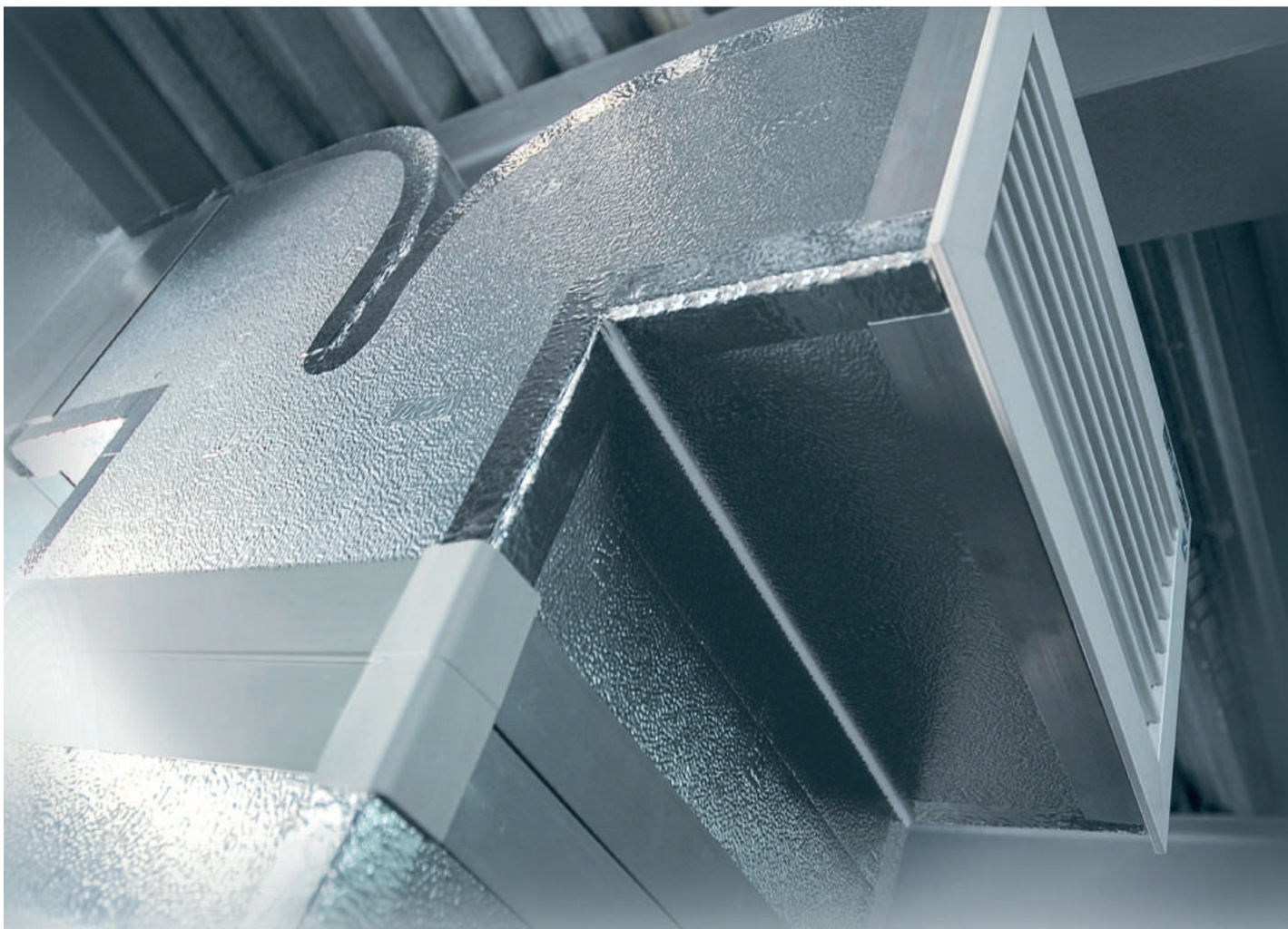


Insulation



# PalDuct™ PIR System

Product Catalogue



Fibre-free  
Core

  
**Kingspan®**

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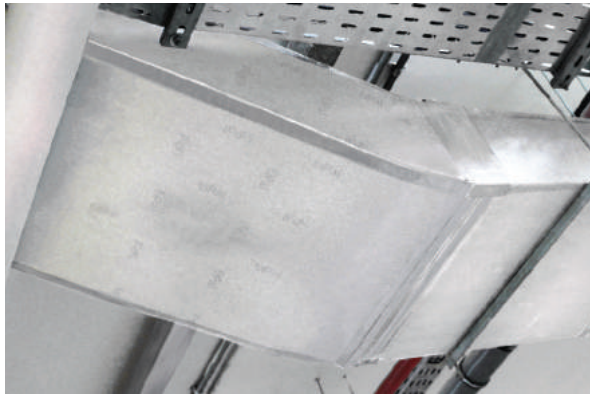
# Introduction

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## Overview

The heating, ventilation and air-conditioning (HVAC) industry is in the midst of a dynamic era. However, air-distribution ductwork, a critical component of HVAC systems, has remained virtually unchanged since the early 1900s.

Several factors have introduced the need to revolutionise HVAC ductwork. Energy use has continued to escalate, and thus the demand for energy reducing solutions has intensified. Requirements for clean air are becoming increasingly prevalent. Speed of construction has become a valuable asset. Floor space and headroom are under constant pressure.



Kingspan PalDuct systems have been the pioneer in pre-insulated ducting. Pal was the first company in the world to introduce the innovative and revolutionary rigid pre-insulated ductwork as an alternative to sheet metal ductwork. It was invented by Claudio Ferraro of Bologna, Italy in 1965.

Kingspan Insulation has proven the value of its products and Kingspan PalDuct has been used in some of the most prestigious projects around the world, due to its known advantages over the traditional galvanised sheet metal ductwork.



Kingspan Insulation has commissioned state of the art manufacturing plants, established workshops in different regions worldwide and also provided specialised and comprehensive training courses conducted by service oriented and experienced trainers well-equipped with the latest technologies, all to ensure quality HVAC ductwork fabrications and installations. This is closely supervised by the representatives from subsidiary companies and sales offices worldwide.

In 2014 Kingspan Group acquired Pal International and assimilated it into its Insulation Division, which subsequently became responsible for the sales and marketing of Kingspan PalDuct products across the globe.

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# Introduction

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## What is Kingspan PalDuct Technology?

- Complete line of components and accessories.
- Professional hand tools and automated machinery.
- Specialised training courses for ductwork fabricators.
- “Duct Design Software” to size the ductwork and estimate the material needed.
- Technical Support.



## Advantages of Kingspan PalDuct Technology

- Easy to clean and hygienic.
- CFC/HCFC-free: helping to minimise the effects of Ozone Depletion and Global Warming
- Clean air: fibre-free insulation core.
- Lightweight: only 15% of the weight of sheet metal ductwork.
- Resistance to fungus growth.
- Space saving: flush-fitting installation possible.
- Low leakage: fully sealed systems conform to the air-leakage limit of DW 144 Class C-high pressure.
- Low  $\lambda$  value.
- Energy-saving: up to 20% annually.
- Fast-track installation: rapid erection combined with single-x installation.
- On-site fabrication capability.
- No limits to duct sizes.
- High-compressive strength.
- High rigidity/integrity.
- Base material is impermeable to moisture.



Kingspan Insulation also provides technical support to appointed distributors and clients in order to ensure the consistent quality of HVAC ductwork fabrication and installations.

## Certifications & Compliance

Kingspan Insulation is ISO certified and complies with Management System standards: ISO 9001: 2015 (Quality management systems. Requirements), ISO 14001: 2015 (Environmental Management Systems. Requirements) and ISO 45001: 2018 (Health and Safety Management Systems. Requirements). Kingspan PalDuct PIR products have Factory Control, Product Level certification and Product Approval issued by Warrington Certifire. Kingspan PalDuct PIR has been tested in accordance with the requirements of EN 13403:2013 (Ventilation for buildings non-metallic ducts. Ductwork made from insulation duct boards.)

## Specialised Training & Technical Support

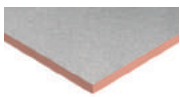
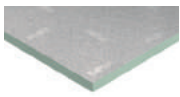
Kingspan Insulation provides specialised and comprehensive training courses to appointed distributors and clients in order to ensure that fabricators carry out the fabrication of Kingspan PalDuct Systems for any project directly on-site, assuring fast and more accurate execution of duct installation requirements.

# Kingspan PalDuct PIR Panels

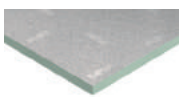
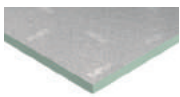
## Polyisocyanurate Insulation Panel

Kingspan PalDuct PIR Panels comprise a fibre-free high performance rigid thermoset polyisocyanurate (PIR) insulation core, faced on both sides with an embossed aluminium foil. The aluminium foil is lacquered with corrosion-resistant polymer varnish.

### Kingspan PalDuct PIR Panel (Internal Use)

 1010	Thickness (mm)	20/30
	Min. Density (kg/m <sup>3</sup> )	45
 1100	Panel Dimensions (mm)	4000 x 1200
	Thermal Conductivity (W/m.K)	0.020
	Aluminium Foil Finish	Embossed / Embossed

### Kingspan PalDuct PIR Panel (External Use)

 1075	Thickness (mm)	20/30
	Min. Density (kg/m <sup>3</sup> )	50
 1150	Panel Dimensions (mm)	4000 x 1200
	Thermal Conductivity (W/m.K)	0.020
	Aluminium Foil Finish	Embossed / Embossed
	Aluminium Foil Thickness (External Side)	200 microns

### Kingspan PalDuct PIR Panel (Smooth Facing)

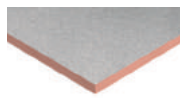
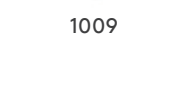
 1075	Thickness (mm)	20
	Min. Density (kg/m <sup>3</sup> )	50
	Panel Dimensions (mm)	4000 x 1200
	Thermal Conductivity (W/m.K)	0.020
	Aluminium Foil Finish	Smooth / Embossed
	Aluminium Foil Thickness (External Side)	200 microns

## CFC/HCFC-free Insulation Panel

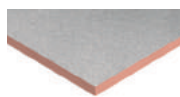
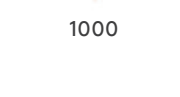
People, nowadays, are becoming even more conscious of their impact on the environment. Kingspan PalDuct PIR Panel complies to the concern for the increasing Ozone Depletion and Global Warming.

The system uses panels which comprise a polyisocyanurate (PIR) insulation core, that is manufactured with a CFC/HCFC-free blowing agent. The blowing agent used has zero Ozone Depletion Potential (ODP) and low Global Warming Potential (GWP).

### Kingspan PalDuct PIR Panel (Internal Use)

 1009	Thickness (mm)	20
	Min. Density (kg/m <sup>3</sup> )	50
 1009	Panel Dimensions (mm)	4000 x 1200
	Thermal Conductivity (W/m.K)	0.020
	Facer Finish	Embossed / Embossed

### Kingspan PalDuct PIR Panel (Internal Use)

 1000	Thickness (mm)	10
	Min. Density (kg/m <sup>3</sup> )	50
 1000	Panel Dimensions (mm)	4000 x 1200
	Thermal Conductivity (W/m.K)	0.0272
	Facer Finish	Embossed / Embossed

# Kingspan PalDuct Eco Panels

## Antimicrobial Coated Panel

Micro-organisms are unavoidably present in the air we breathe. Bacteria can be harmful and can be the cause of unwanted odours, stains and infectious diseases.

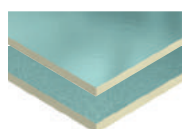
The HVAC industry has become to be increasingly concerned with the quality of air that is distributed through the ductwork in a building. Hygienic coatings for HVAC ductwork have been designed for use in locations such as food preparation areas, clinics, schools and hospitals, where it is important to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

## Description

The Kingspan PalDuct Eco System uses Panels and components, which are coated in an innovative antimicrobial technology that inhibits the growth of bacteria.

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 protected with Biomaster antimicrobial technology. The panels can be joined together with antimicrobial coated, green coloured aluminium and polymer profiles and adhesive materials to create a pre-insulated HVAC ductwork system that can resist the spread of surface bacteria.

## Kingspan PalDuct Eco Panel



1201

Thickness (mm)	20 – 30
Min. Density (kg/m <sup>3</sup> )	45
Panel Dimensions (mm)	4000 x 1200
Thermal Conductivity (W/m.K)	0.020
Aluminium Foil Finish	Smooth / Embossed Antimicrobial Coating
Antimicrobial Efficiency	ISO 22196

## Features

The Kingspan PalDuct Eco System has been developed to fight harmful airborne micro-organisms more effectively. Kingspan PalDuct Eco Panels are protected with Biomaster Antibacterial Technology, which has been shown to inhibit the growth of bacteria on the surface of the ductwork system.

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

- *Pseudomonas aeruginosa*;
- *Staphylococcus aureus*; and
- *Escherichia coli*.

## How does Biomaster protection work?

Biomaster is based on silver ion technology. When bacteria come into contact with a Biomaster protected surface, the silver ions prevent them from growing, producing energy or replicating; therefore, they die.

The controlled release of the active ingredient provides maximum antibacterial protection for the lifetime of the product.

The active antimicrobial agent in Biomaster complies with the required legislation including:

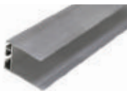

- Biocidal Products Regulation (BPR);
- Food and Drug Administration (FDA); and
- Environmental Protection Agency (EPA).



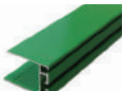


# Kingspan PalDuct Panel Accessories


## Polymer/Aluminium Invisible Profile/ Aluminium Joint Profile

	Thickness	20 mm
	Code	4010 (Aluminium Invisible Profile) 4100 (Polymer)
	Nominal Length	4 m
	Thickness	30 mm
	Code	4040 (Aluminium Joint Profile) 4041 (Aluminium Invisible Profile)
	Nominal Length	4 m


## Kingspan PalDuct Eco System Green Colour Polymer/Aluminium Invisible Profile

	Thickness	20 mm
	Code	4063 (Aluminium) 4110 (Polymer)
	Nominal Length	4 m



## H Bayonet in Polymer

	Thickness	20 mm
	Code	4105
	Nominal Length	4 m



## Aluminium Channel

	Thickness	30 mm
	Code	4080
	Nominal Length	4 m

## Corner Cover in Polymer

	Thickness	20 mm
	Code	4350
	Thickness	30 mm
	Code	4390

## Corner Plate for Invisible Profile

	Thickness	20 mm
	Code	4360
	Thickness	30 mm
	Code	4400

## Steel Corner



Code	4380
------	------

## Aluminium U Profile

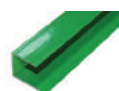


Thickness	20 mm
Code	4013
Nominal Length	4 m

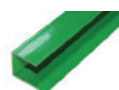


Thickness	30 mm
Code	4042
Nominal Length	4 m

## Kingspan PalDuct Eco System Green Aluminium U Profile

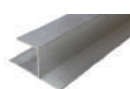


Thickness	20 mm
Code	4065
Nominal Length	4 m

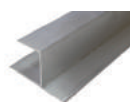


Thickness	30 mm
Code	4082
Nominal Length	4 m

## Aluminium Chair Profile



Thickness	20 mm
Code	4015
Nominal Length	4 m



Thickness	30 mm
Code	4043
Nominal Length	4 m

# Kingspan PalDuct Panel Accessories

## Kingspan PalDuct Eco System Green Colour Cover in Polymer



Code	4355
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## Kingspan PalDuct Eco System Green Aluminium Chair Profile

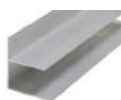


Thickness	20 mm
Code	4067
Nominal Length	4 m

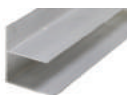


Thickness	30 mm
Code	4083
Nominal Length	4 m

## Aluminium F Profile

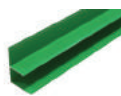


Thickness	20 mm
Code	4017
Nominal Length	4 m

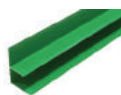


Thickness	30 mm
Code	4044
Nominal Length	4 m

## Kingspan PalDuct Eco System Green Aluminium F Profile



Thickness	20 mm
Code	4069
Nominal Length	4 m



Thickness	30 mm
Code	4084
Nominal Length	4 m

## Reinforcement Bar in Aluminium



Thickness	14 mm
Code	4450
Nominal Length	4 m

## Reinforcement Disc in Aluminium



Code	4454
------	------

## Reinforcement Disc in Polymer



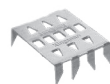
Code	4452
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## Duct Support



Code	4455
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## Tiger Clip



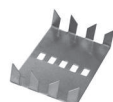
Code	3034
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## Tiger Connector



Code	4465
------	------

## Tiger Closure



Code	4456
------	------

## Cross Fixing Device



Code	4453
------	------

# Kingspan PalDuct Panel Accessories

## Kingspan PalDuct Sealant



Code	4250
------	------

## Kingspan PalDuct Adhesive



Capacity	15 kg/tin
Code	4200

## Gasket Self Adhesive



Code	4461
------	------

## Aluminium Tape



Width	50 mm
Code	4300



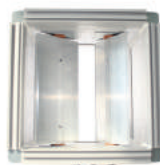
Width	75 mm
Code	4310

## Screw for Stiffening Rod



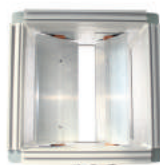
Code	4458
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## PIR Pre-insulated Volume Control Damper



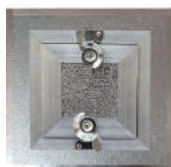
Thickness	20/30 mm
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## Phenolic Pre-insulated Volume Control Damper



Thickness	20/30 mm
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## PIR Pre-insulated Access Door



Thickness	20/30 mm
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## Phenolic Pre-insulated Access Door



Thickness	20/30 mm
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# Automated and Manual Fabrication Equipment

## Kingspan PalDuct Manual Fabrication Tool Kit



Left Cutter	45°
Right Cutter	45°
Double Blade Cutter	90°
Double Blade Cutter – 20 mm	45°
Compass	
Glue Spreading	Manual
Stiff Spatula	Aluminium
Manual Silicone Gun	
Measuring Tape	
Rivet Gun	
Rubber Hammer	
Knife	
Tape Marker	
Code	5053

## Square in Aluminium



Size (mm)	1200
Code	5057



Size (mm)	700
Code	5058

## Cutter Box



Left Cutter	45°
Right Cutter	45°
Double Blade Cutter 20 mm	45°
Straight Cutter	90°
Code	5082

## Manual Bending Machine



Code	5059
------	------

## Pneumatic Glue Spreader



Code	5060
------	------

## Manual Extended Silicon Tool



Code	5063
------	------

## Double Blade Cutter



Size (mm)	20/30 45° Double Blade
Code	5069 (20 mm) 5070 (30 mm)

## Single Blade Cutter



Size (mm)	20/30 90° Straight 45° Left 45° Right
Code	(20/30 mm) 5072 (90° Straight) 5068 (45° Left) 5071 (45° Right)

## Stiff Spatula



Code	5075
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## Glue Spreader Manual



Code	5081
------	------

## Tape Marker



Code	5077
------	------

## Rubber Hammer



Code	8040
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# Kingspan PalDuct Systems Order Guide

## 20 mm Panel (Internal Use)

To produce 1,000 m<sup>2</sup> of The Kingspan PalDuct PIR System, the following is a list of material and accessories for a standard construction requirement:

Code	Description	UOM	Approx. Qty.
1010	Panel 4000 x 1200 mm	m <sup>2</sup>	1,000
4010	Aluminium Invisible Profile	m	760
4105	H Bayonet in Polymer	m	400
4350	Corner Cover in Polymer	pc	900
4360	Corner Plate for Invisible Profile	pc	1,200
4013	Aluminium U Profile	m	80
4015	Aluminium Chair Profile	m	80
4017	Aluminium F Profile	m	80
4200	Kingspan PalDuct Adhesive	kg	91
4300	Aluminium Tape	roll	150
4250	Kingspan PalDuct Sealant	tube	90

## 30 mm Panel (External Use)

To produce 1,000 m<sup>2</sup> of The Kingspan PalDuct PIR System, the following is a list of material and accessories for a standard construction requirement:

Code	Description	UOM	Approx. Qty.
1150	Panel 4000 x 1200 mm	m <sup>2</sup>	1,000
4040	Aluminium Invisible Profile	m	760
4080	Aluminium Channel	m	400
4380	Steel Corner	pc	1,500
4400	Corner Plate for Invisible Profile	pc	1,500
4461	Gasket	pc	400
4042	Aluminium U Profile	m	80
4043	Aluminium Chair Profile	m	80
4044	Aluminium F Profile	m	80
4200	Kingspan PalDuct Adhesive	kg	90
4310	Aluminium Tape	roll	150
4250	Kingspan PalDuct Sealant	tube	90
4450	Reinforcement Bar in Aluminium	m	120
4454	Reinforcement Disc	pc	200





A nighttime photograph of the Burj Khalifa and The Dubai Mall. The Burj Khalifa is the central focus, a tall, slender skyscraper with a distinctive tiered design, illuminated with blue and white lights. It stands against a deep blue twilight sky. In the foreground, the Dubai Mall is visible, a large, modern shopping center with multiple levels, curved balconies, and a glass-enclosed roof. The mall is brightly lit with warm yellow and orange lights, and its reflection is visible in the water of the Dubai Fountain. The fountain is in the lower left, with water spraying upwards. Other skyscrapers of the Dubai skyline are visible in the background, also illuminated. The overall scene is a vibrant display of modern architecture and urban development.

# Prestige Projects

Project Name: The Dubai Mall  
Location: Dubai, United Arab Emirates  
Building Use: Retail  
Product: Kingspan PalDuct PIR System





Project Name: Aldar Headquarters  
Location: Abu Dhabi, U.A.E.  
Building Use: Offices  
Product: Kingspan PalDuct PIR System



Project Name: Khalifa University  
Location: Abu Dhabi, U.A.E.  
Building Use: Education  
Product: Kingspan PalDuct PIR System



Project Name: Arabian Ranches Golf Club  
Location: Dubai, United Arab Emirates  
Building Use: Leisure  
Product: Kingspan PalDuct PIR System



Project Name: Dubai Sustainable City  
Location: Dubai, United Arab Emirates  
Building Use: Residential  
Product: Kingspan PalDuct PIR System





Project Name: World Trade Center Doha  
Location: Doha, Qatar  
Building Use: Offices  
Product: Kingspan PalDuct PIR System



Project Name: Intercontinental Dubai Marina  
Location: Dubai, United Arab Emirates  
Building Use: Hotel  
Product: Kingspan PalDuct PIR System



Project Name: Nation Towers  
Location: Abu Dhabi, U.A.E.  
Building Use: Mixed Use  
Product: Kingspan PalDuct PIR System



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# Contact Details

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## Kingspan Insulation LLC

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Dubai, U.A.E.

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F: +971 (0) 4 883 8515

E: [info@kingspaninsulation.ae](mailto:info@kingspaninsulation.ae)

[www.kingspaninsulation.com](http://www.kingspaninsulation.com)

## Technical Service

Kingspan Insulation has one of the most technically advanced support services in the industry offering a full spectrum of advice, free of charge for all types of design projects.

The Kingspan Insulation technical team are continually updating their knowledge on building regulations, best practise, construction methods and the development of building materials to ensure the advice and services provided are always one step ahead.

### Services available:

- U-value calculations;
- condensation/dew point risk calculations;
- advice on product selection and product data for the full range of Kingspan Insulation products;
- installation and fixing advice on all applications and products;
- specification and construction advice; and
- Tapered Roofing Design service.

Email: [technical@kingspaninsulation.ae](mailto:technical@kingspaninsulation.ae)

Kingspan Insulation LLC reserves the right to amend product specifications without prior notice. Product thicknesses shown in this document should not be taken as being available ex-stock and advice should be sought directly from Kingspan Insulation LLC. The information, technical details and fixing instructions etc. included in this literature are given in good faith and apply to uses described herein. Recommendations for use should be verified as to the suitability and compliance with actual requirements, specifications and any applicable codes, laws and regulations. For other applications or conditions of use, contact Kingspan Insulation LLC. Advice should be sought for uses of Kingspan Insulation products that are not specifically described herein. The fire tests referenced in this literature and the assigned results are not intended to reflect hazards presented by the materials and products described herein under actual fire conditions. Please check that your copy of the literature is current by visiting [www.kingspaninsulation.com](http://www.kingspaninsulation.com)

Countries comprise: the Middle East as far North and East as (and including) Turkey, Iran and Oman and as far South and West as (and including) Saudi Arabia and Yemen.

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