ALPHA-PIR-PLUS Air Duct System
Technical specifications

Introduction

ALPHA-PIR-PLUS air duct system is a closed cell Polyisocyanurate pre-insulated duct system developped and used specifically in projects with high end hygiene specifications like hospitals, food and beverage industry and pharmaceutical industry where the surface resistance against bacteria and microbes is essential and critical.

ALPHA-PIR-PLUS air duct system is made of materials consistent with and for use in accordance with:
- NFPA 90A Installation of Air Conditioning and Ventilating Systems.
- NFPA 90B Installation of Warm Air Heating and Air Conditioning Systems.

For indoor and outdoor applications, above ground.

Models: AD-PIR-PLUS-20-10, AD-PIR-PLUS-30-10, AD-PIR-PLUS-20-20 and AD-PIR-PLUS-30-20.

Operation range

ALPHA-PIR-PLUS air duct system is recommended to be used in the systems of supply, return, fresh air and exhaust for air conditioning, heating and ventilation.

Maximum positive pressure:	2000 Pa	HVCA DW144
	2500 Pa	BS EN 13403
Maximum negative pressure:	750 Pa	HVCA DW144
	750 Pa	BS EN 13403
Maximum air velocity:	40 m/s	HVCA DW144
	40 m/s	BS EN 13403
Temperature range:	-20°C to +110°C	Standard industry practice
Air leakage:	Class C	HVCA DW144
	Class C	BS EN 13403

Panel physical and mechanical properties

ALPHA-PIR-PLUS panel consists of a formaldehyde free, fiber free, high performance rigid thermoset Polyisocyanurate foam core faced on both sides with an extremly durable, protective, low vapor permeability aluminum foil.

Facer:	80 and 200 micron aluminum foil coated with special blue color coating providing the resistance against bacteria and microbes tested and verified as per: - Bacteriological Analytical Manual USFDA January 2001. - Compendium of Methods for the Microbiological Examination of Foods, APHA, 5th Edition. - ISO 11731:2017, Second edition 2017-05. - Water Quality; Manual of Microbiological Methods for the Food and Drink Industry.

.	- Campden and Chorleywood Food Research Association. Bonding to the foam core by heat reaction during the manufacturing process without using additional adhesives. Finishing smooth on internal side and embossed on external side.	
Foam core:	Polyisocyanurate	
Blowing agent:	CFC and HCFC free having a zero Ozone Depletion Potential (ODP) and Low Global Warming Potential (GWP<5).	
Minimum closed cell content:	90%	BS EN ISO 4590
Color:	Blue	
Minimum density:	42 kg/m^3	ASTM D1622
Thermal conductivity:	0.022 W/mK at 10°C	ASTM C518
	0.024 W/mK at 24°C	ASTM C518
Panel thickness:	20 mm and 30 mm	
Minimum density:	55 kg/m^3	ASTM D1622 for 20 mm thickness
	60 kg/m^3	ASTM D1622 for 30 mm thickness
Maximum thermal conductivity:	0.023 W/mK at 35°C	ASTM C518
Minimum compressive strength:	200 kPa	ASTM D1621 at 10% deformation
Minimum flexural strength:	1200 kPa	ASTM C203
Water vapor transmission:	Nil	ASTM E96 The vapor barrier is granted by the aluminum foil covering both sides of the panel.
Panel stiffness:	R5	BS EN 13403
Anti-bacterial activity:	1.91 / 2.04 (good)	BS ISO 22196
Resistance to mold growth:	Rating 0-2 (no / light mold growth)	ASTM G21

ALPHA-PIR-PLUS panel is physiologically and chemically inert, insoluble, vermin and fungus proof, resistant to mold growth, anti-bacterial and non-metabolisable.

Panel fire and smoke properties

Fire classification:	Class 0	BS 476-6 and 7

Quality assurance

Model, batch number and production date are printed on the panel.

Manufacturer logo is embossed where applicable on the facer used in the production of the panel.