ALPHA-PIR Air Duct System
Technical specifications

Introduction

ALPHA-PIR air duct system is a closed cell Polyisocyanurate pre-insulated duct system.

ALPHA-PIR 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-20-10, AD-PIR-30-10, AD-PIR-20-20 and AD-PIR-30-20 for normal applications. AD-PIR-S-20-10, AD-PIR-S-30-10, AD-PIR-S-20-20 and AD-PIR-S-30-20 for special applications.

Operation range

ALPHA-PIR 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 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. Bonding to the foam core by heat reaction during the manufacturing process without using additional adhesives. Finishing embossed on both sides for normal applications. Finishing smooth on internal side and embossed on external side for special applications.
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:	Green for normal applications / internal usage. Pink for normal applications / external usage. Blue for special applications.	
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:	50 kg/m^3	ASTM D1622 for 20 mm and 30 mm thickness, normal applications / internal usage.
	60 kg/m^3	ASTM D1622 for 20 mm and 30 mm thickness, normal applications / external usage.
	55 kg/m^3	ASTM D1622 for 20 mm and 30 mm thickness, special applications / internal usage.
	60 kg/m^3	ASTM D1622 for 20 mm and 30 mm thickness, special applications / external usage.
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 aluminium foil covering both sides of the panel.
Panel stiffness:	R5	BS EN 13403

ALPHA-PIR 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 on the facer used in the production of the panel.