



شركة عكل للتجارة والصناعة
AKEL Trading & Industrial Co.



مصنع أنظمة التهوية و العزل الحديثة
Modern Ventilation & Insulation Systems Factory

في سعيينا نحو التكامل والتطور

تم إضافة مصنع أنظمة التهوية و العزل الحديثة (هويا) إلى

الشركة لخدمة قطاع الإنشاءات

WE ARE EXPANDING

Achieved Another Milestone Towards One Stop Solution For
Construction Sector

AKEL Acquired HUYA PIR Insulation Factory

Manufacturers Of Most Reliable & Efficient Pre-Insulated Duct System
In Middle East.



GRUNDFOS



Schneider
Electric

DRAIN

AQUASYSTEM

WELL PUMPS

CAG
Electric Motors

socomec
Innovative Power Solutions

P.O. Box: 33491 Riyadh 11448, Street# 170, 2nd Industrial City, Riyadh, K.S.A.

AKEL
Call Us: 9200 2535 9
Visit Us: www.akel.com.sa



akel80_



akel80



akel80_



akel80



PRE-INSULATED DUCT AND GALVANISED DUCT SYSTEM

The **HUYA** panel incorporates Polyisocyanurate (PIR) closed-cell foam, with embossed aluminum facing on both sides. Applying precise procedures to manufacture the panel makes it possible to carry out ductwork of any shape and dimensions according to the standards of American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE).



INTRODUCTION- PRE-INSULATED DUCT

HUYA Pre-Insulated Duct Factory is a pioneer in pre-insulated foam ducting. **HUYA** is the first company in the Kingdom of Saudi Arabia to introduce the innovative and revolutionary foam based pre-insulated ductwork as the new generation material that replaces traditional sheet metal in ductwork.

Thanks to the special technical and structural characteristics, **HUYA** panel ductwork can be used in any project typology: offices, industries, commercial centers, airports, hospitals, clean rooms, laboratories, public buildings, hotels, quarantine rooms, isolation rooms, etc.

In addition to the panel, **HUYA** offers a complete set of tools and accessories that allow **HUYA** ductwork to satisfy any project and installation requirement as well as thermal insulation panels for roof insulation, wall insulation, floor insulation and false ceiling with different sorts of facing like Kraft Paper, Asphalt Paper and Glass Fleece.

Approved by:
 **warringtonfire**
global safety

HUYA DUCT SYSTEM

Panels

Sandwich panels with external aluminum sheet covering a closed-cell insulating material.

+ Equipment

Automatic machinery and manual working tools specially designed to realize in a simple and professional way, both in a completely equipped workshop and directly at the job site, all the manufacturing and installation operation required by ductwork (plotting, cutting, bending, gluing, duct closing, section bar application, and installation).

+ Accessories

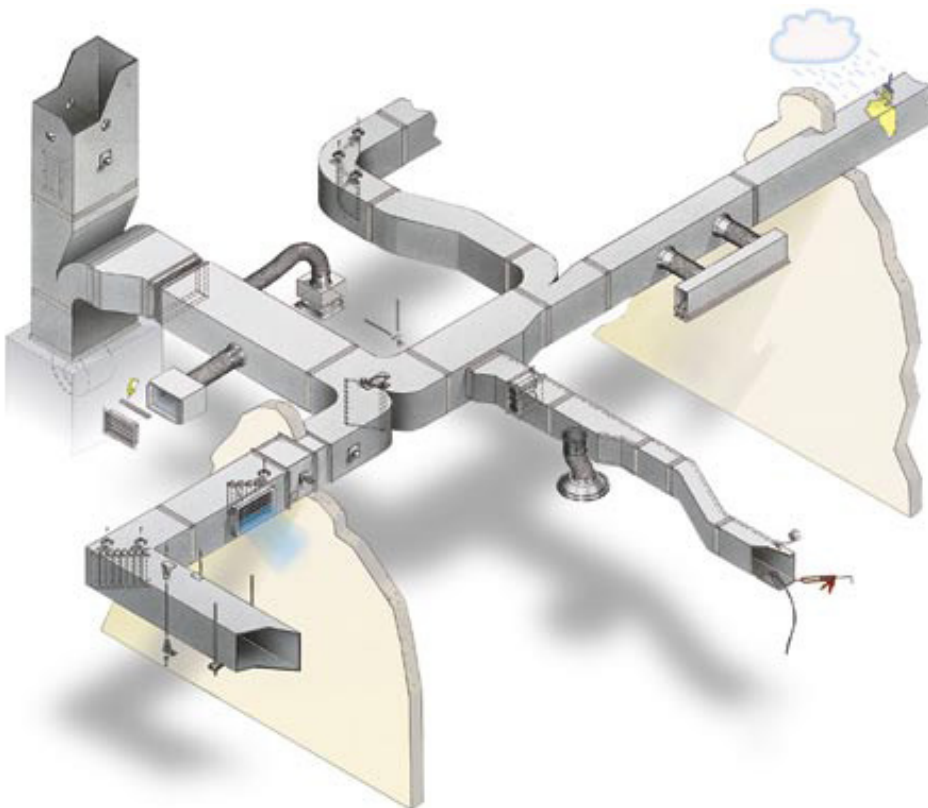
Flange, section bar, and accessories for duct joining and installation.

+ know How

Technical and commercial support for consultants and contractors.

= HUYA Duct System

A professionally designed and constructed duct system as diagramed below.



Product Code: P-2A60E20
PUR/PIR Foam Panel for
Indoor Application



PUR/PIR foam panel with 45 Kg/m³ density, 20 mm thickness, coated on both sides with 60 micron aluminum foil for Indoor Application.

Thickness	20mm	Density	45 Kg/m ³
Thermal Conductivity	0.021 W/m K	Facing	Aluminum Foil (60/60 embossed)
Application	Indoor HVAC ducting	HUYA	

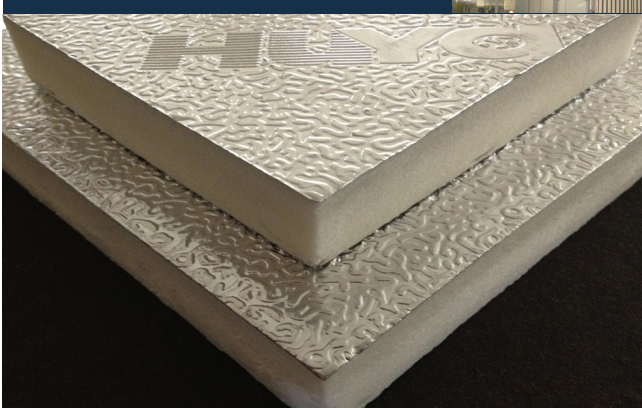
Product Code: P-2A80E20
PUR/PIR Foam Panel for
Indoor Application



PUR/PIR foam panel with 45 Kg/m³ density, 20 mm thickness, coated on both sides with 80 micron aluminum foil for Indoor Application.

Thickness	20mm	Density	45 Kg/m ³
Thermal Conductivity	0.021 W/m K	Facing	Aluminum Foil (80/80 embossed)
Application	Indoor HVAC ducting	HUYA	

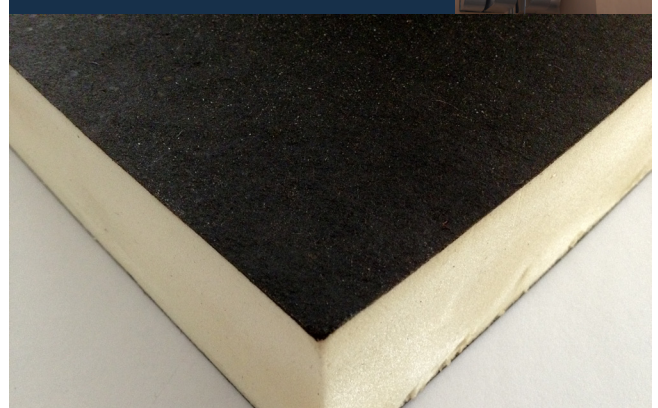
Product Code: P-2A80/200E30
PUR/PIR Foam Panel for
Outdoor Application



PUR/PIR foam panel with 43 Kg/m³ density, 30 mm thickness, coated on one side with 80 micron and the other side with 200 micron aluminum foil for Outdoor Application.

Thickness	30mm	Density	43 Kg/m ³
Thermal Conductivity	0.021 W/m K	Facing	Aluminum Foil (80/200 embossed)
Application	Outdoor HVAC ducting	HUYA	

Product Code: P-2B50 (for Asphalt)
and P-2C50 (for Kraft paper)
Thermal Insulation Panel



PUR/PIR Foam Panel with 40 Kg/m³ density, 50 mm thickness, coated on both sides with Asphalt/Kraft Paper. It can be easily and effectively applied to the insides of roofs and walls as well as for floor insulation. The seamless foam layer follows all the contours of the surface and sticks to all kinds of materials and surfaces. PIR insulation protects against cold, heat, damp and draughts. It is the perfect insulation.

Thickness	50mm	Density	40 Kg/m ³
Thermal Conductivity	0.021 W/m K	Facing	Asphalt/Kraft Paper
Application	Thermal Insulation	HUYA	

STRENGTHS OF HUYA PRE-INSULATED DUCT SYSTEMS

2 Friction loss:

The low number of flanges and limited surface roughness keep linear friction losses at very low levels.

4 Energy saving:

Excellent thermal insulation and optimum airtight seal allow for maximum exploitation of air handling unit capacity, increasing efficiency and reducing operating costs.

6 Safety:

HUYA ducts have a high resistance to fire, do not drop and smoke has a reduced opacity and toxicity. HUYA conforms to the requirements of the most restrictive international regulations.

8 Silent operations:

The sandwich structure (aluminum – insulating material – aluminum) guarantees a good acoustic behavior. Vibration and reverberation are prevented by the insulating material, contributing to a higher comfort in the environment where HUYA is installed.

1 Thermal insulation:

Constant and continuous in all duct sections. Special closed-cell insulation guarantees low thermal conductivity and limits the risk of condensation.

3 Airtight seal:

Airtightness of HUYA ducts is eight times more than traditional ducts.

5 Hygiene and air quality:

Using aluminum for duct's internal surface ensures hygiene and cleanliness. The problem of aging of the insulation and consequent release of particles is non-existent.

7 Light weight:

The significantly light weight of HUYA panels allows a reduction of weight on the structures, supporting points, workmanship costs and materials necessary for the installation.

9 Duration:

The outer aluminum coating coupled with the insulating material provides sturdiness, rigidity and good resistance to corrosion, erosion and deformation even in special applications.

10 Construction easiness:

Possibility of manufacturing ducts in the workshop or directly at jobsite with considerable advantages on transportation costs.



Light weight

CONSTRUCTION OF AIR DUCT



1 Plotting

In this phase, the perimeter of the single piece, that will compose the finished duct (linear or fitting) after cutting and assembly, is plotted on the panel.



2 Cutting

Using the appropriate tools (manual or automatic) in this phase, the single pieces to be used in the fabrication of the duct are cut from the panel.



3 Bending

In this phase (required only for the production of duct fittings), indentations are applied to the piece of panel allowing the panel to be adapted to the shapes of the finished duct.



4 Gluing

During gluing, all the pieces produced above are assembled with the use of special glues and the finished duct takes shape.



5 Closing

In this phase, the duct is trimmed and finished through pressing and taping.



6 Accessories Application

Using specific tools and glues, the section bars required are applied to the finished duct. When the duct is installed, these section bars permit easy connection of the single pieces to complete the air distribution system.



HUYA TOOLS



COMPLETE TOOLBOX

Quick access to all your tools is essential if you want to work quickly with precision. Our toolbox provides you with a professional portable work bench. The interior created through special thermoforming provides handy storage of all your fabrication tools like jack planes and the tool slide cartridge-holder on one side and complementary tools like folding rulers on the other.



BENDING MACHINE

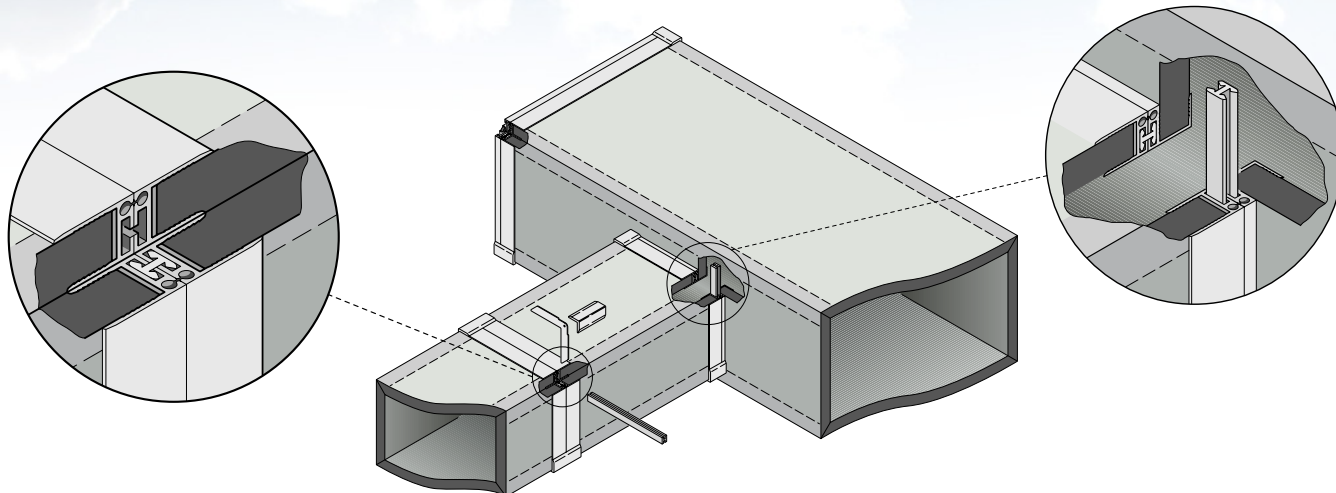
This steel bending machine is suitable for easy and precise panel bending. An eccentric cam lever system facilitates the bending of both 20 mm and 30 mm thick panels up to 1200 mm wide with any curvature angle. Compact dimensions and weight facilitate storage and transport.



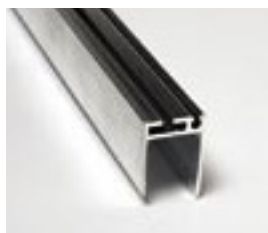
CUTTING MACHINE

Machine for cutting aluminum and plastic section bars.

HUYA ACCESSORIES

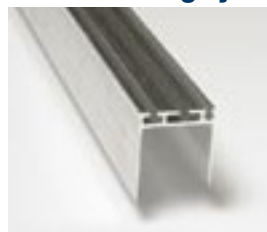


Invisible flange joint - Aluminum 20 mm



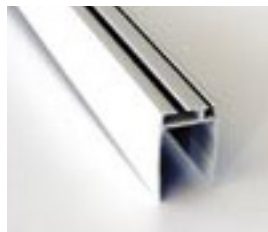
This special patented aluminum flange joins 20 mm ducts with extremely low leakage. The bars are supplied in 4 meter lengths.

Invisible flange joint - Aluminum 30 mm



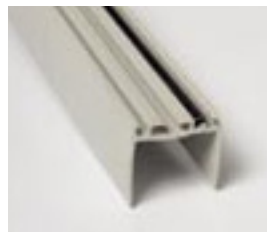
This special patented aluminum flange joins 30 mm ducts with extremely low leakage. The bars are supplied in 4 meter lengths.

Invisible flange joint - polymer 20 mm



This special patented polymer flange joins 20 mm ducts with extremely low leakage. The bars are supplied in 4 meter lengths.

Invisible flange joint - polymer 30 mm



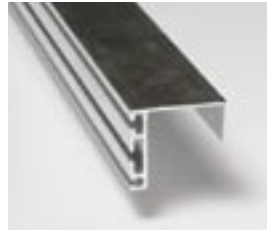
This special patented polymer flange joins 30 mm ducts with extremely low leakage. The bars are supplied in 4 meter lengths.

H polymer bayonet



Built-in shock-resistant polymer, this piece connects invisible flanges. Supplied in 2 meter rods.

Tee connector flange joint 20/30 mm.



This patented flange permits the flanging of one duct into the side of another take-offs as tap-in or plenum chamber. The bars are supplied in 4 meter length.

Zinc-coated steel angle bracket 20/30 mm



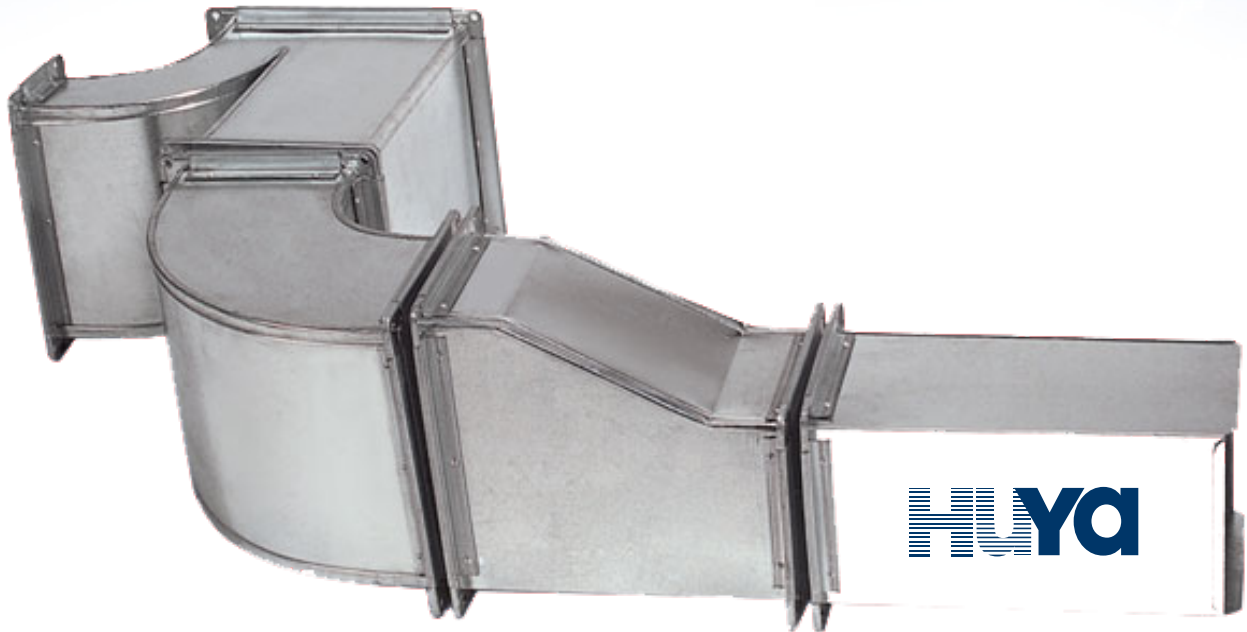
1.5 mm thick zinc-coated steel angle bracket.

Covering angle 20/30 mm.



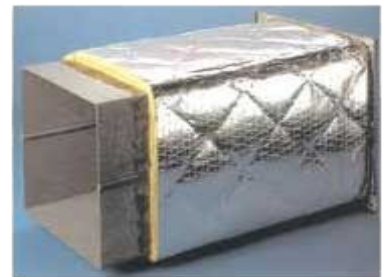
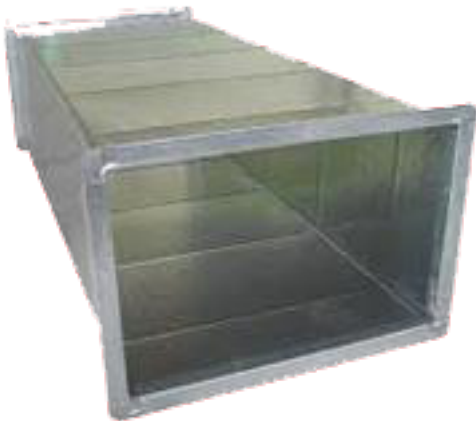
Grey polymer covering angle.

GALVANISED DUCT SYSTEM



Galvanised Rectangular Duct - Without Insulation

Galvanised Rectangular Duct - With Insulation



GI collar -without Damper

GI collar -with Damper



CERTIFICATES



test report

Bodycote

Class 'O' Summary Report

WF Report Numbers
183509 & 183510

Date:
23rd June 2009

Test Sponsor:
Huya PIR Insulation Factory

warringtonfire
global safety

Warrington Fire Certificates, United Kingdom:

- 1- Method of test for fire propagation for products BS 476: Part 6:1989
Fire Propagation Index, $i = 8.3$
- 2- Method for classification of the surface spread of flame of products. BS 476: Part 7:1997
Spread of Flame at 1.5 min < 50 mm
- 3- Class "O" Summary Report (For BS 476 Part 6 & Part 7)
- 4- Fire-worthiness requirements pressurized section of fuselage. Section 7.3: Determination of smoke density using AITM 2.0007 Section 7.4: Determination of toxicity using AITM 3.0005.

For Flaming Mode:

1. HCN: 4 ppm
2. CO: 150 ppm
3. NO-NO₂: 15 ppm
4. SO₂+H₂S: Not Detected
5. HF: Not Detected
6. HCL: 6 ppm

دولة الإمارات العربية المتحدة
GOVERNMENT OF DUBAI

Dubai Central Laboratory
Engineering Materials Laboratory Section - Structural Unit
TEST REPORT
FLEXURAL STRENGTH OF THERMAL INSULATION

REPORT [O. : 201209675 DATE : 04/06/2012
WEB REQUEST [O. : DCL-23982012-0090
REQUEST [O. : 2012028599 SAMPLE [O. : 2012038359
PROJECT [O. : PS-1566
PROJECT NAME : TESTING SERVICE FOR HUYA PIR INSULATION FACTORY
CONTRACTOR : NO SPECIFIC CONSULTANT
LOCATION : NO SPECIFIC CONTRACTOR
SOURCE : HUYA PIR INSULATION FACTORY - DAMMAM, K.S.A.
HUYA PIR INSULATION FACTORY - DAMMAM, K.S.A.
SAMPLE DESCRIPTION : POLYISOCYANURATE INSULATION BOARD
SAMPLE TYPE : PIR PRE-INSULATED HVAC DUCT PANEL
SUPPORT / FACE : ALUMINIUM FOIL ON BOTH SIDE
[O. THICKNESS (mm) : 20
[O. FLEX STRENGTH : NG
Date of Sampling : 01/05/2012 Time : 10:00 Lat [n. : NG
Date of Receiving Sample : 23/05/2012 Time : 13:00 Lat Size : NG
Size of Sample : 8 pcs Area [n. : Sender [n. : NG

DATE SPECIMEN RECEIVED	23/05/2012			
NOM. LENGTH (mm)	300			
NOM. WIDTH (mm)	100			
NOM. THICKNESS (mm)	20			
PRE-CONDITIONING TEMP, RH, & DURATION	23±2°C, 50±5% RH			
TEST CONDITION	23±2°C, 50±5% RH			
DATE TESTED	24/05/2012			
SPECIMEN NO.	3	4	5	6
DIRECTION OF CUTTING & LOADING	L	L	C	C
MEASURED DENSITY (kg/m ³)	60.8	60.1	60.1	60.5
SUPPORT SPAN LENGTH (mm)	250			
CROSSHEAD SPEED (mm/min)	41.0			
DIAMETER OF SUPPORT EDGES (mm)	30			
DEFLECTION CORRESPONDING TO MAX. FORCE (%)	4.1	4.2	4.1	4.0
FLEXURAL STRENGTH (kPa)	692.4	706.6	703.6	743.5
AVG. FLEXURAL STRENGTH (kPa)	712.0			
STANDARD DEVIATION	22.18			
SAMPLED BY	ADAM MAHAT (MR.)			
SAMPLES BROUGHT IN BY	COURIER			
SAMPLING METHOD	NOT GIVEN			
SAMPLING REPORT NO.	NG			
TEST METHOD	ASTM C 203-05a METHOD 1: PROCEDURE B			
TEST METHOD VARIATION	NIL			
REMARKS	THIS REPORT REPRESENTS THE SUBMITTED SAMPLE ONLY.			
VERIFIED BY	HEAD OF UNIT			
This report is computer approved, it does not require any signature				
Doc Ref: F-034-2007-9	Rev. No.: 1			
Issue Date: 01/09/2011	Page: 1 of 1			
P.O. BOX 47003 DUBAI, TEL: 00971-4-5569900, FAX: 00971-4-5569399 E-Mail: info@dcl.gov.ae, Website: http://www.dcl.gov.ae				

Dubai Central Laboratory:

- 1- Compressive strength of rigid cellular plastics: ASTM D 1621:00
106.6 kPa
- 2- Apparent density of rigid cellular plastics
STM D 1622:03
45.1 kg/m³
- 3- Flexural strength of thermal insulation
ASTM C 203:05a
712 kPa
- 4- Thermal transmission properties by heat flow meter ASTM C 518:2010
0.021 W/m °K
- 5- Water absorption test (Thermal Insulation)
ASTM C 209:07a
0.32 vol % after 96 hrs
- 6- Water vapor transmission of insulation materials.
ASTM E 96-00
0 grains/h ft²
- 7- Dimensional stability under constant normal laboratory conditions: BS EN 1603: 1997
0 % Mean dimensional change in Length & Width

* All references available upon request

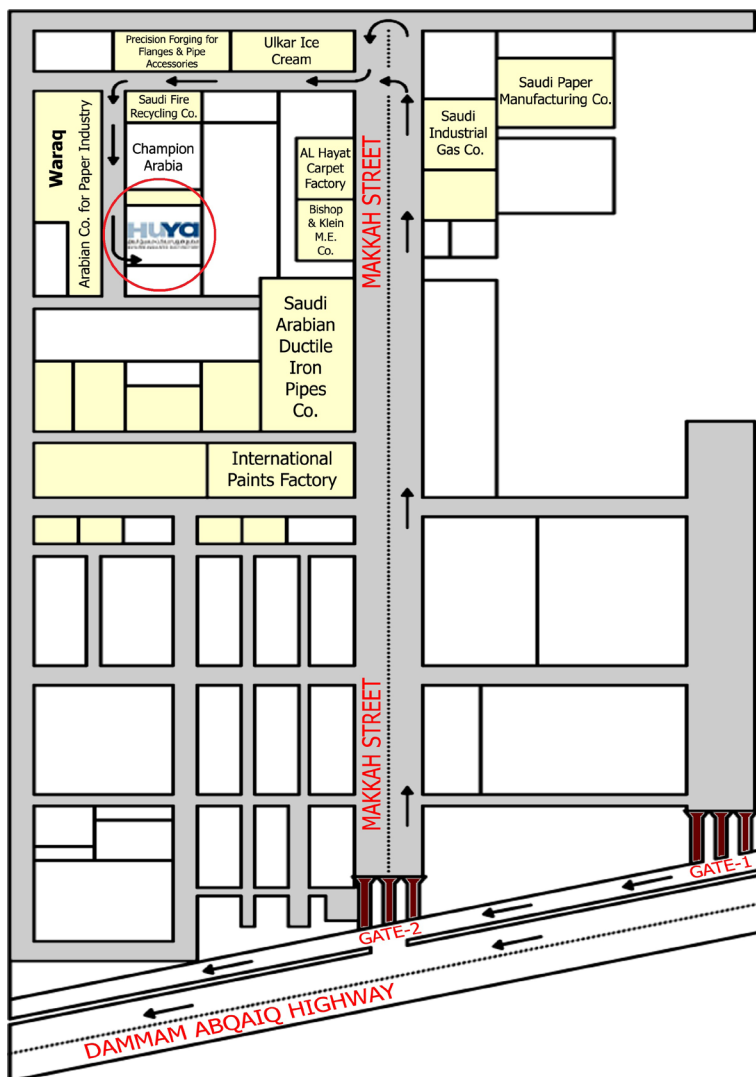
HUYA CORPORATE OFFICE & FACTORY



Al-Hussaini Commercial Center



HUYA Factory



Location Map:

Factory: 2nd Industrial City,
Dammam

A FEW PROJECTS THAT USED HUYA PRODUCTS



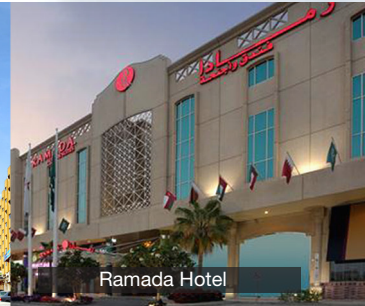
Al Rabiya Villas



Gold's Gym



Al Swailem Tower



Ramada Hotel



Holiday Inn



Al Ghamdi Masjid



Marina Cafe



Al Shiraa Mall



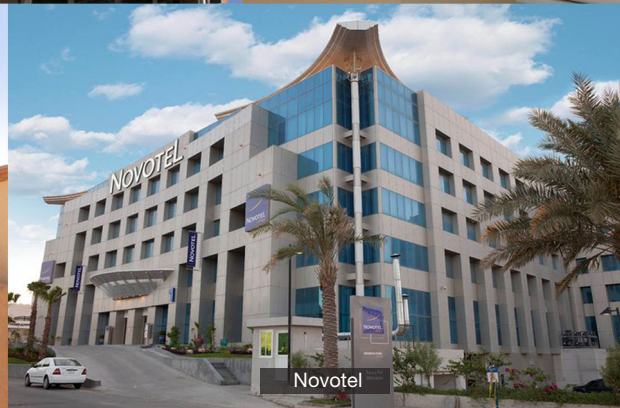
Salahiddin Masjid



Al-Hussaini Commercial Center



Muhammad Bin Ishaq Masjid



Novotel



Private Mansion



BaMardouf Compound



Al Shati Villas



Tower 7



Tadawi General Hospital



PRE-INSULATED DUCT AND GALVANISED DUCT SYSTEM

The **HUYA** panel incorporates Polyisocyanurate (PIR) closed-cell foam, with embossed aluminum facing on both sides. Applying precise procedures to manufacture the panel makes it possible to carry out ductwork of any shape and dimensions according to the standards of American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE).

Al Hussaini Commercial Center
Prince Mohammed Bin Fahad Street (1st Street)
P.O. Box 284 - Dammam 31411
Kingdom of Saudi Arabia
Tel: +966 3 833 3315 – Fax: +966 3 833 3347
Factory: 2nd Industrial City, Dammam
Tel: +966 3 812 3355 – Fax: +966 3 812 3366
Email: huya@huyapir.com

www.huyapir.com





مصنع أنظمة التهوية و العزل الحديثة
Modern Ventilation & Insulation Systems Factory

Technical Data Sheet

► DEFINITION

Rigid Polyisocyanurate foam thermal insulating boards, **laminated with flexible Aluminium Foil.**

► GENERAL CHARACTERISTICS

The **HUYA** panel incorporated a polyisocyanurate (PIR) closed cell foam, with embossed aluminium facing on both sides. PIR is essentially an improvement on Polyurethane (PUR). PIR foam is based on methylene di-phenyl di-isocyanate (MDI) reacted with special polyol with special additives.

► COMPLIMENTARY REFERENCES

Gulf Standards (GS 1156) and Saudi Arabian Standards Organisation (SASO 1519) for rigid Polyisocyanurate foam boards for thermal insulation. The product is used for thermal insulation purposes and has a high ignition resistant and prevents fire spreading also. It has a cellular structure consisting of more than 95 % closed cells.

► DESCRIPTION OF HUYA STANDARD PANELS FOR HVAC DUCTING SYSTEM

Facing:	Centesimal Aluminum foil thickness: 80μ
Core:	PIR or PUR
Density:	48 Kg/m ³
Length:	4000mm
Width:	1200mm
Thickness:	20mm (± 1mm) for internal use 30mm (± 1mm) for external use

*(Tolerance ranges in accordance with SASO GS 1156/2000)

► PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Boards are having a generally uniform and continuous cellular structure

Odor

The material is free from unpleasant odor.

Blowing Agent

HUYA panel doesn't enclose CFC.

► MECHANICAL PROPERTIES

Properties		Unit	Standards
Compressive Strength or stress		133.1 kPa	ASTM D 1621-00
Breaking Load and Flexural properties (Rigidity)		931 kPa	ASTM C 203-05a
Density (with aluminum facing)		40-80.3 Kg/m ³	ASTM D 1622:08
Water Absorption, as volume % (96 hrs immersion in water)		0.04 %	ASTM C 209:07a
Water Vapor Transmission		0.00 grains/hr.ft ²	ASTM E96-00
Thermal Conductivity		0.02 W/(m°K)	ASTM C518:2010
Dimensional Stability Test		0.00 % change in Length, width & thickness	BS EN 1603:1997
Fire Reaction	Fire Propagation Index, I	4.92	BS 476: Part 6:1989
	Surface Spread of Flame at 1.5 min	<50 mm	BS 476: Part 7:1997
	Smoke Density & Toxicity	Smoke Density < 250 Toxicity (ppm): HCN: 4, CO:150, NO-NO ₂ :15, SO ₂ +H ₂ S:nd, HF:nd, HCL:6.	ABD 0031

P.O. Box No: 284, Dammam 31411, Factory: 2nd Industrial City, Street 74, Office: First Street, Al-Hussaini Commercial Center, Dammam, KSA



مصنع أنظمة التهوية و العزل الحديثة
Modern Ventilation & Insulation Systems Factory

► PACKING

Huya rigid polyisocyanurate foam thermal insulation boards are packed with plastic film. Each part contains 10 boards equivalent to 48 m².
Other packs are available on request.

► MARKING

Each pack of Huya panels is legible and indelible marked, in Arabic and English with the following:

The name of the board material: (PUR OR PIR)

The name of the board facings: (Aluminium 80 µ)

The name and the trade mark of the manufacture: (HUYA)

The nominal dimensions: (Width, Length, Thickness and Density)

The date of production

The Country of origin

► NOTE

The data herein and the information are based on the technical knowledge of HUYA as well as on the commendations considered reliable but which has no binding value. The purchaser and the user assume the full responsibility to use the above described product.