ISLAMUDDIN & SONS

THERMAL INSULATION MANUFACTURER

PU PIPE & SHEET INSULATION

TECHNICAL PRODUCT BROCHURE

ISLAMUDDIN & SONS

Polyurethane (PU) Pipes and Sheets

High Quality Rigid Polyurethane Foam insulation — manufactured for pipes from ½″ to 12″ N.P.B. and sheets from 25mm to 50mm insulation thickness. Trusted since 1969.

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PU POLYURETHANE PIPE INSULATION SECTIONS



90° BEND SECTIONS



PU INSULATION SHEETS

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Product Description, Properties & Features

ISLAMUDDIN & SONS · POLYURETHANE (PU) PIPES AND SHEETS

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Description

Islamuddin & Sons PU Pipe sections are manufactured from Rigid Polyurethane Foam, characterised by its chemical synthesis, closed cell structure, low density and excellent thermal stability. The product ranges to fit for Pipe of **½″ to 12″ N.P.B.** and from **25mm to 50mm insulation thickness.**

Application Fields

- Within the temperature range of **–180°C to +120°C**
- Indoor or outdoors concealed or exposed uses
- In commercial and institutional buildings, housing complexes, industrial facilities and plants

Salient Features

Rigid Polyurethane foam is a combination of strength, the most versatile insulation material for the building industry:

- High thermal insulation
- High structural rigidity
- High water-vapour resistance
- High dimensional stability
- Lightweight

Facings

Glass yarn reinforced Aluminium foil and Kraft paper is factory applied over the Sections. Especially recommended for the insulation of cold pipes running through warm and humid spaces, to prevent vapour condensation. Longitudinal and transverse joints are wrapped with self adhesive tape.

Dimensions & Packing

Standard length of PU Pipe Sections is **2 feet**. The product is in two longitudinal sections. Packed in corrugated cardboard boxes resistant to impact.

Advantages

- → Excellent heat deflection temperatures with low coefficient of thermal expansion
- → High surface hardness, high flexural rigidity and high impact strength
- → Very easy to transport, handle and install
- → Excellent resistance to alkalis, organic and inorganic acids, and hydrocarbon solvents, oils and greases
- → Rot proof, mildew resistant, antiseptic — physiologically suitable for most applications

Typical Properties — Valid for PU Pipes and Sheets

50 kg/m³ **DENSITY** ASTM D 1622	200±50 kN/m² **COMPRESSIVE STRENGTH** ASTM D 1622	0.020 W/m°K **THERMAL CONDUCTIVITY** ASTM C 518	1.5 Perm-In **WATER VAPOUR PERM** ASTM C 355	-180 to +120°C **WORKING TEMP** —
2.0% Vol. **WATER ABSORPTION** ASTM D 2842	2.0% **DIMENSIONAL STABILITY** ASTM D 2126	7×10^{-5} **COEFF. LINEAR EXP.** BS 4370	B1 **FLAMMABILITY CLASS** DIN 4102	90–95% **CLOSED CELL CONTENT** ASTM D 2856



Islamuddin & Sons PU Insulation Sheets

Fire Behaviour, Pipe Sizes & Technical Comparison

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Characteristic Parameters of Fire Behaviour

a) Ignitability

When exposed to heat, Polyurethane Foam remains stable up to temperature of **190°C to 200°C**. Longer exposure to elevated temperature may result in melting and decomposition. The flash ignition value of **290°C – 300°C** was obtained using the Setchkin apparatus in accordance with ASTM D 1920(53).

b) Contribution to Flame Spread

The contribution to Flame Spread of rigid Polyurethane foam is considerably reduced if provided with non-combustible facings such as **Aluminium foil**. Composite building materials attain a favourable fire safety classification such as **DIN 4102, NEN 3383, BS 476** etc.

Thermal Conductivity

Rigid Polyurethane foam is characterised by its unrivalled insulating effect. The closed cells are filled with the vaporised blowing agent, which has an extremely low thermal conductivity. The rigid polyurethane foam, enclosed and impervious to diffusion, achieves calculated values of **0.020 W/m°K or lesser.**

PU Pipe Sections — Steel Pipes BS 1387 & BS 3601-5

Nominal Bore (inch)	OD (mm)	1″	1½″	2″
½″	21	★	★	—
¾″	27	★	★	★
1″	33	★	★	★
1¼″	42	★	★	★
1½″	48	★	★	★
2″	60	★	★	★
2½″	73	★	★	★
3″	89	★	★	★
4″	114	★	★	★
5″	141	★	★	★
6″	168	★	★	★
8″	219	★	★	★
10″	273	—	★	★
12″	324	—	★	★

★ Available | Pipes up to 24″ dia available.
Thicknesses > 2″ available in nested form.

Technical Comparison of Insulation Materials

Detailed comparison of performance of different insulating materials in terms of density, strength and thermal conductivity.

Insulant	Density kg/m³	Therm. Con. W/m°K @10°C	Comp. Strength kPa	Shear Strength kPa	Rel. Moisture Absorption
EPS	15	0.040	35	100	Medium
EPS	30	0.037	110	N/A	Medium

Insulant	Density kg/m³	Therm. Con. W/m°K @10°C	Comp. Strength kPa	Shear Strength kPa	Rel. Moisture Absorption
XPS	32	0.027	300	170	Low
PUR — Islamuddin & Sons	**32**	**0.020**	**200**	**150**	**Medium**
Phenolic Foam	32	0.027	170	50	High/Med
Cellular Glass	125	0.041	700	150	Low
Mineral/Glass Fibre	20	0.045	N/A	N/A	High

EPS — Expanded Polystyrene | XPS — Extruded Polystyrene | PUR — Polyurethane | **PUR achieves the lowest thermal conductivity of all standard insulation materials.**

90° Elbow / Bend Section

Moulded Two-Piece Construction

Our Polyurethane rigid foam 90° elbow / bend sections are **factory-moulded** and supplied as two-piece split sections for clean, fast installation around pipe bends. Standard **2″ insulation thickness**, with sizes including **3″ NB, 4″ NB, 6″ NB** and other sizes available to customer specification.

- Uniform insulation thickness throughout the bend
- Eliminates gaps commonly created by site-cut pieces
- Ensures professional installation quality
- Pre-formed sections dramatically reduce labor time
- Lowers overall installation cost



Islamuddin & Sons PU 90° Elbow / Bend Insulation Sections — moulded two-piece split design

Performance & Protection

By maintaining surface temperatures above the dew point, our moulded elbow sections help prevent the most common failure modes in pipe insulation systems:

- Condensation on cold pipework
- Water damage to surrounding structures
- Mold growth in damp insulation
- Corrosion under insulation (CUI)

Application Diagrams — Valves, Elbows & Reducers

Technical diagrams showing the correct method of applying PU pipe insulation to elbows, valves, and reducers.

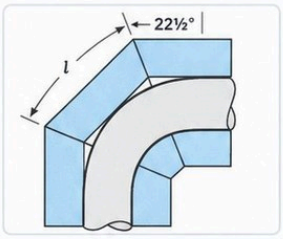
METHOD OF APPLICATION TO VALVES & ELBOWS

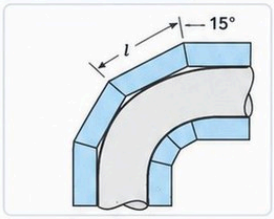
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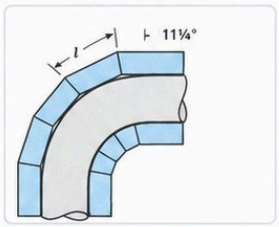
A) ELBOWS:

The insulation of elbows are made by cutting HeatLock pipe Sections into a single piece or several pieces of required sizes depending on the diameter (D) of pipe and radius (R) of elbow. Where the radius of elbow is small, a single adapter piece will meet the need. As the radius of elbow increases relative to pipe diameter, the number of adapter pieces to be used should be increased accordingly as follows:

- **If R = 2D,** 1 adapter piece (l = 45°) is cut and used.
- **If R = 3D,** 2 adapter piece (l = 30°) is cut and used.
- **If R = 5D,** 3 adapter piece (l = 22.5°) is cut and used.

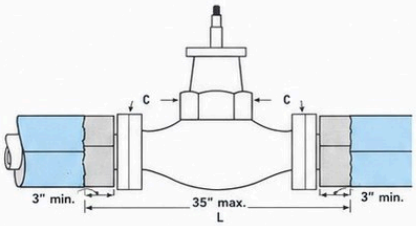


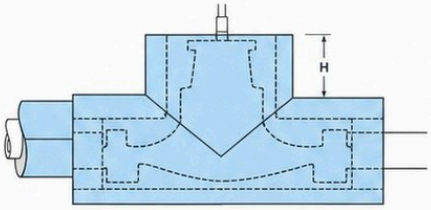


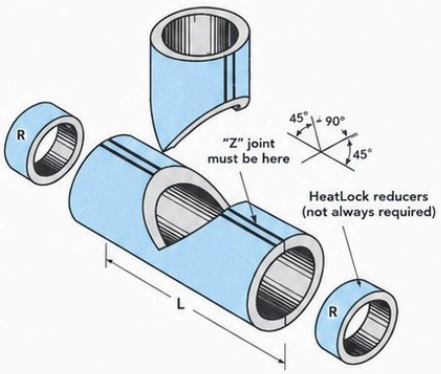


B) VALVES:

Install HeatLock pipe insulation on adjacent pipes. Measure maximum Valve dimension (C) to be cleared. Choose proper size of HeatLock pipe to cover flange and valve body. Cut and notch straight section of HeatLock pipe. Measure height of stem and cut and miter section HeatLock pipe to cover stem. Cut HeatLock reducers if required.







SUPERIOR THERMAL PERFORMANCE
DURABLE & LONG LASTING
EASY TO INSTALL & MAINTAIN

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Manufacturers of high-quality EPS Thermopore and Polyurethane (PU) insulation products since 1969. For orders, technical enquiries, and custom specifications — contact our team.

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