

**PERMA-PIPE**  
MIDDLE EAST

**Pre-insulated pipe for  
DISTRICT COOLING, INDUSTRIAL  
and OIL & GAS Industries**



**XTRU-THERM**

**HDPE Jacketed Polyurethane  
Insulated Steel & FRP Piping Systems**

# PERMA-PIPE

MIDDLE EAST

## XTRU THERM HIGH QUALITY INSULATION

The XTRU-THERM insulation is a high thermal efficient polyurethane foam insulation, suitable for medium temperature to cryogenic applications.

In contrast to foam injected insulated piping systems, the XTRU-THERM spray process assures void-free insulation. By applying insulation before the jacket is applied, a complete visual inspection of the insulation is performed, assuring void-free insulation and therefore, providing maximum thermal efficiency.



## SEAMLESS EXTRUDED HDPE JACKET

PERMA-PIPE's extrusion process produces a high strength, seamless, high density polyethylene (HDPE) jacket over the insulation for maximum insulation protection from the environment.

Elbow insulation jackets are constructed of seamless, molded HDPE. Tee insulation jackets are extrusion welded construction.

PERMA-PIPE applies this high strength HDPE jacket to systems having an outside insulation diameter as large as 72 inches. The XTRU-THERM Jacket is an excellent choice for both underground and above ground installations.

### RECOMMENDED INSULATION THICKNESS

Pipe Size (mm)	Minimum Insulation Thickness (mm)
≤ 400 mm	50 mm
≥ 450 mm	75 mm

### APPLICATIONS

District Heating & Cooling  
 Process Fluid Piping  
 Domestic Hot Water Systems  
 Geothermal Collection & Distribution  
 Condensate Return  
 Waste Heat Recovery  
 Chilled Water Distribution  
 Solar Collection & Distribution  
 Cryogenic Piping  
 Fuel & Heavy Oil Transport

### SYSTEM FEATURES

Seamless Extruded HDPE Jacket  
 Low Thermal Conductivity  
 Polyurethane Insulation  
 Insulation Thickness to meet Application Needs  
 Fully Bonded Jacket / Insulation / Service Pipe System  
 Available in a Variety of Service Pipe Materials  
 Preengineered Components



### TYPICAL PROPERTIES OF INSULATION AND JACKET

Property	Value	Test Method
Density	≥ 50 kg/m <sup>3</sup>	ASTM D1622
Thermal Conductivity	≤ 0.023 W/m°C	ASTM C518
Compressive Strength	≥ 300 kPa	ASTM D1621
Closed Cell Content	≥ 90%	ASTM D2856



## SERVICE PIPE MATERIALS FOR ANY APPLICATION

Steel, stainless steel, copper, ductile iron and plastics can all be supplied with the XTRU-THERM system. These materials can be supplied in a wide range of sizes, with the exact insulation thickness to meet the needs of your application.

## FULLY ENGINEERED

The XTRU-THERM piping system is completely engineered by PERMA-PIPE's experienced engineering staff. Straight lengths, elbows, tees, anchors and end seals are all preengineered components.

Thermal stress and displacement, heat loss/gain, soil loading calculations and layout drawings can be provided. The XTRU-THERM system is engineered to reduce field costs by providing factory fabricated fittings and components to reduce field connections, as compared to the field kit method.

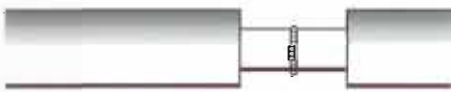
## FULLY BONDED SYSTEM

PERMA-PIPE treats the HDPE jacket so that it bonds to the polyurethane foam insulation. This bonding, along with the insulation bond to the service pipe, results in a completely bonded system. All components expand and contract as a system.

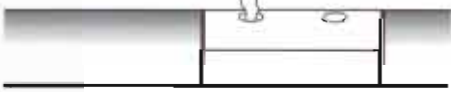
There are no gaps for water to travel through, which can degrade the insulation or service pipe.

## FIELD JOINT CLOSURE

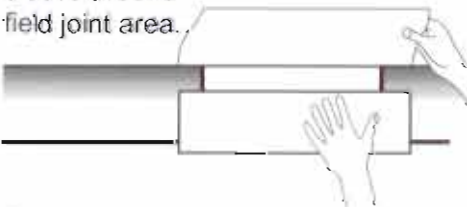
Step 1  
Complete service pipe joint.



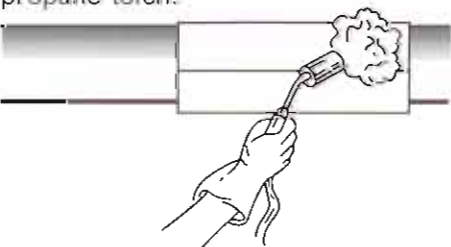
Step 2  
Pour foam insulation.



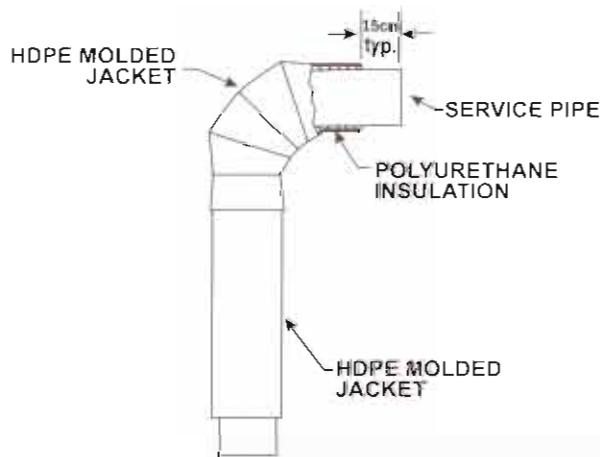
Step 3  
Wrap shrink sleeve around field joint area.



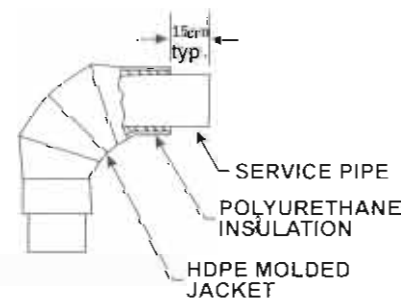
Step 4  
Shrink sleeve using propane torch.



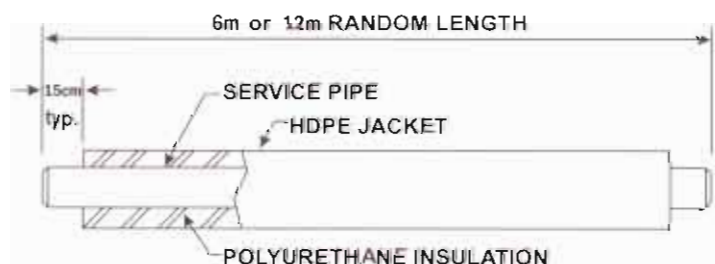
## TYPICAL XTRU-THERM COMPONENTS



90° ELBOW WITH EXTENDED LEG FOR EXPANSION LOOPS



STANDARD 90° ELBOW FOR DIRECTION CHANGES



STANDARD STRAIGHT LENGTH

## PERMA-PIPE Middle East

PERMA-PIPE Middle East is a wholly owned subsidiary of Perma Pipe, Inc. - the largest manufacturer of pre-insulated piping systems in North America. We are an engineering company with over 45 years of experience in designing and manufacturing complete insulated piping systems to meet the specific requirements of the District Cooling, Industrial and Oil & Gas industries.

### CAPABILITY

Ability to handle, insulate and jacket pipes from 2 inches to 72 inches in diameter.  
Ability to apply up to 10 inches of insulation.

### CAPACITY

Insulation and jacketing of up to 2,000 meters of straight pipe per day.

### FACILITY

8,000 m<sup>2</sup> manufacturing facility.

45,000 m<sup>2</sup> storage yard.

Two highly automated, state-of-the-art spray foam production lines.

Full-fledged fittings & fabrication workshop for welding, bending & cutting.

Material handling equipment for up to 20 Metric Tons.

### LOGISTICS

Less than 1 km from Fujairah Sea Port.

Less than 150 km away from five sea ports.



**PERMA-PIPE**  
MIDDLE EAST

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