الاتحاد لصناعة الأنابيب
UNION PIPES
INDUSTRIES

PRE-INSULATED HDPE PIPING SYSTEM



COMPLETE PIPING, FITTINGS & ON-SITE FUSION SOLUTIONS

Advanced pre-insulated HDPE piping system engineered for maximum performance, energy efficiency and long service life.

EXCELLENT THERMAL INSULATION
Low thermal conductivity for maximum energy efficiency

CORROSION & MOISTURE RESISTANT
High chemical resistance and waterproof protection

LONG SERVICE LIFE
Durable system for extended operational life

LIGHTWEIGHT & EASY TO INSTALL
Easy handling, transportation and fast installation

SAFE & RELIABLE
Safe operation with reliable leak-free performance

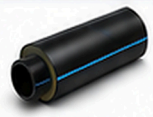
COMPLETE SYSTEM & SITE SUPPORT
Pipes, fittings and professional on-site fusion services

PIPES
Manufactured in accordance with
ISO 4427-2
PE piping systems for water supply and pressure applications

FITTINGS
Manufactured in accordance with
ISO 4427-3
PE fittings for water supply and pressure applications

SCAN FOR MORE INFORMATION

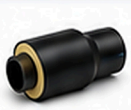
COMPLETE PRE-INSULATED HDPE PRODUCT RANGE


PIPES


ELBOWS 90°


ELBOWS 45°


EQUAL TEE


REDUCER


END CAP

الاتحاد لصناعة الأنابيب
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Continuing Excellence

Reliable systems. Efficient solutions.
Sustainable for tomorrow.



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QUALITY, CERTIFICATIONS & APPROVALS

Reliable systems. Efficient solutions.
Sustainable for tomorrow.

UNION PIPES INDUSTRIES is a leading manufacturer of HDPE pipes, fittings, and pre-insulated piping systems, serving a wide range of applications including water supply, district cooling, industrial and fire protection systems.

We are committed to providing high quality products through advanced manufacturing, continuous improvement, and strict quality control at every stage of production.

Our pre-insulated HDPE piping systems are designed for long service life, excellent thermal performance, and reliable operation in demanding environments.

OUR APPROVALS & CUSTOMER ACCEPTANCE

FM APPROVED

FM APPROVED
FM Approvals for HDPE Pipe and Fittings (Pressure applications)

WRAS
WATER REGULATIONS ADVISORY SCHEME

WRAS APPROVED
WRAS Approved Materials (Water Regulations Advisory Scheme)

أرامكو السعودية
saudi aramco

SAUDI ARAMCO
Approved Manufacturer (PMT)

nwc
المياه الوطنية

NWC APPROVED
Approved Supplier (National Water Company)

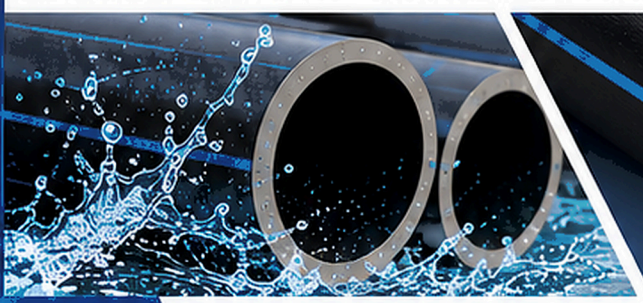
HIGH QUALITY
Manufactured to international standards and customer requirements.

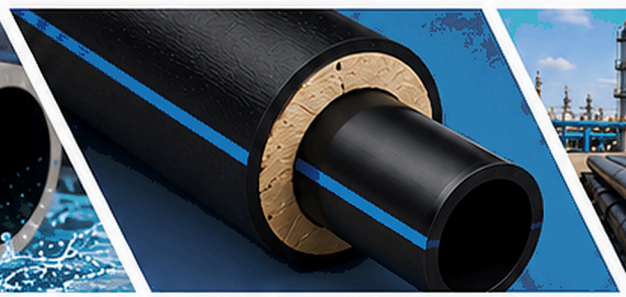
ADVANCED MANUFACTURING
State-of-the-art equipment and skilled workforce.

STRICT QUALITY CONTROL
Comprehensive testing and quality assurance at every stage.

LONG SERVICE LIFE
Durable, corrosion resistant and designed for extended performance.

SUSTAINABLE SOLUTIONS
Efficient systems that support a better tomorrow.







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PRE-INSULATED PIPES

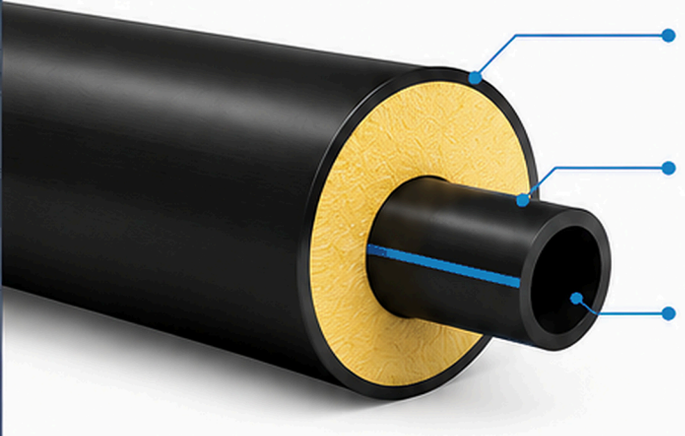
About the Pipe Insulation

INTRODUCTION

UPI Pre-Insulated Pipes are widely used for energy related applications. The main purpose of such pipes is to maintain the temperature of the fluid in the pipes. A common application is the chilled/hot water from District Cooling/Heating Plant.

UPI Pre-Insulated Pipes and Fittings are manufactured in accordance with EN 253:2009 Standard.

UPI supplies Pre-Insulated pipes which are manufactured under factory controlled conditions, so that the system ensures a high level quality standard, excellent durability as well as complete thermal integrity throughout its service life. Efficient working life of district heating pipeline networks can be accomplished by the effective usage of the pre-insulated system.



HDPE OUTER PIPE
Provides mechanical protection and resistance to external environment.

PU FOAM INSULATION
Polyurethane (PU) foam with excellent thermal insulation properties.

HDPE INNER PIPE
Carries the fluid and offers excellent chemical resistance, flexibility and long service life.

THERMAL EFFICIENCY
Minimizes heat loss and maintains fluid temperature for maximum efficiency.

HIGH DURABILITY
Engineered for long service life even in demanding conditions.

QUALITY ASSURED
Manufactured under strict factory control and tested to meet international standards.

HDPE INNER PIPE
Both inner and outer pipes are made of HDPE (High Density Polyethylene) for corrosion resistance, leak-free performance and long service life.

WIDE APPLICATIONS
District heating & cooling, chilled & hot water, industrial process lines and more.

EASY INSTALLATION
Lightweight and flexible system allows fast installation and reduces on-site time.

ENVIRONMENT FRIENDLY
CFC-free insulation with low environmental impact and energy saving performance.

SAFE & RELIABLE
Leak-free system with excellent reliability for continuous and safe operation.



APPLICATIONS & STRUCTURE

Where to Use

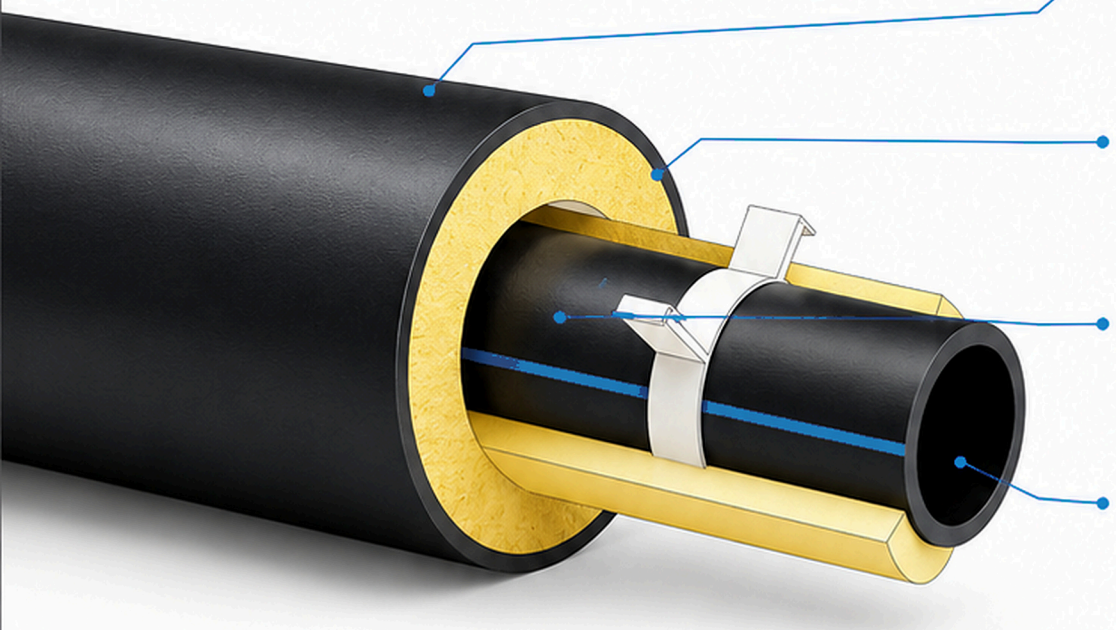
LIST OF APPLICATIONS

UPI Pre-Insulated Pipes provide safe, cost effective, energy conscious and fuel efficient solutions in a wide range of industrial, commercial and domestic applications:

- District Cooling Systems
- District Heating Systems
- Oil & Gas Applications
- Domestic Hot/Cold Water Systems
- Transportation of Gas/Steam/Fuel & Lubricants
- Other Temperature Dependent Industrial Requirement

STRUCTURE OF PRE-INSULATED PIPES

UPI Pre-Insulated Pipe is a three layered pipe system consisting of an inner service pipe, outer jacket and high quality polyurethane (PU) foam insulation sandwiched between the two.



OUTER JACKET

HDPE outer pipe provides mechanical protection and resistance to external environment.

PU FOAM INSULATION

High density polyurethane (PU) foam provides excellent thermal insulation and minimizes heat loss.

CENTRE SUPPORT

Centre support maintains the position of the inner pipe and ensures system stability.

HDPE INNER PIPE

HDPE inner pipe carries the fluid and offers excellent chemical resistance, flexibility and long service life.



CARRIER / SERVICE PIPE

The Inner Pipe

In UPI Pre-Insulated Piping System, the carrier / service pipe is manufactured from high quality HDPE (PE100) material to ensure excellent performance, long service life and complete compatibility with the insulation system.

Our HDPE pipes are produced in accordance with international standards to satisfy the most demanding project requirements.

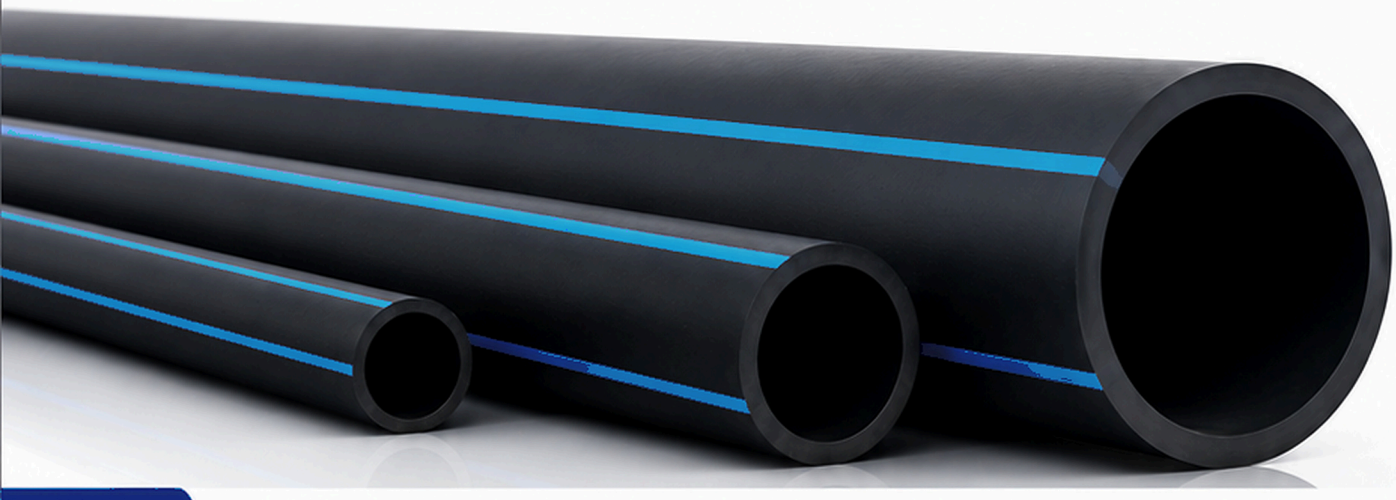
HDPE PE100 CARRIER PIPE

MATERIAL
High Density Polyethylene PE100 for pressure applications.

STANDARD
ISO 4427-2

SIZE RANGE
From 20 mm up to 1200 mm

AVAILABLE SDR
SDR 17 • SDR 11 • SDR 9 • SDR 7.4



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PRE-INSULATED FITTINGS

What We Offer

FITTINGS

UPI pre-insulated fittings are factory manufactured from PE100 HDPE to ensure leak-free performance and long service life.
Fittings are produced to match the system requirements and are fully compatible with HDPE fusion welding (Butt Fusion / Electrofusion).



HDPE FITTINGS OPTIONS

- Manufactured from premium quality **PE100 HDPE** as per **ISO 4427** standards.
- Available in various pressure ratings to suit project requirements.
- Designed for excellent hydraulic performance and easy installation.

STANDARD HDPE FITTINGS RANGE

- Elbow with different angels.
- Equal Tee
- Reducing Tee
- Concentric & Eccentric Reducers
- Flange Adaptors.
- End Caps
- Other special fittings on request



NOTE: Other fittings types can be supplied as per network requirements.

KEY FEATURES

- Factory insulated with high quality PU foam for consistent insulation and thickness.
- 150 – 200 mm long beveled end extensions factory welded at each end.
- All fabrication joints are 100% pressure tested prior to insulation.
- Smooth internal bore for low flow resistance.
- Lightweight, durable and easy to handle.
- Ready to install – save time and cost on site.

ELBOWS WITH DIFFERENT ANGLES



SURFACE FINISH

HDPE fittings are cleaned and coated with **high performance polyethylene (PE)** coating to protect against mechanical damage and environmental conditions during transportation, storage and installation.

END SEAL OF PRE-INSULATED FITTINGS

The exposed ends of insulation are sealed with a moisture barrier coating to prevent water ingress and protect the PU foam during handling, storage, transportation and field installation.



HDPE JACKET PIPES



UPI provides high quality HDPE jacket pipes in full black color that protect the pre-insulated pipeline system against mechanical impact, moisture and external damage, ensuring long term performance and reliability.

KEY BENEFITS

Excellent Protection
Protects insulation from impact, moisture, and UV.

Thermal Stability
HDPE jacket maintains stable performance in various temperatures.

Corrosion Resistant
Resistant to water, chemicals and most environments.

Lightweight
Easy to handle, transport and install.

Durable & Reliable
Long service life with high mechanical strength.

HDPE JACKET PIPE, PE100 (DIMENSIONS)

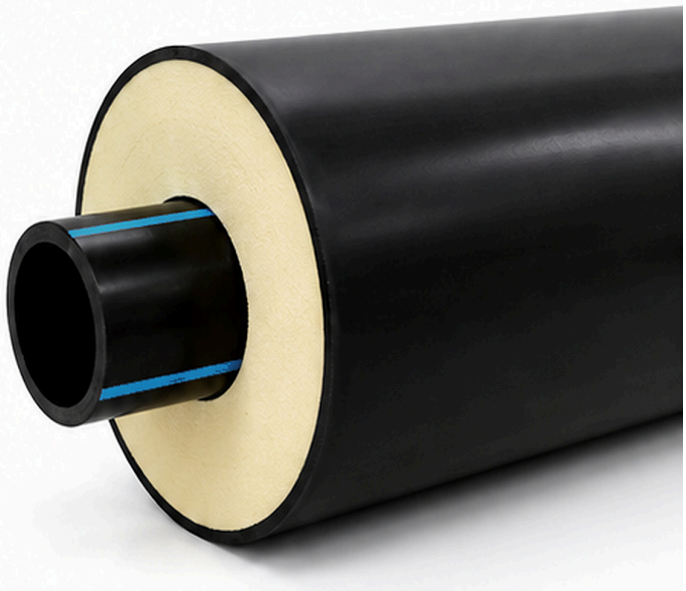
Outer Diameter (mm)	Wall Thickness (mm)	Tolerance (mm)	Length (m)
125	2.5	± 1 mm	Up to 12
140	3.0	± 1 mm	Up to 12
160	3.0	± 1 mm	Up to 12
180	3.0	± 1 mm	Up to 12
200	3.2	± 1 mm	Up to 12
225	3.5	± 1 mm	Up to 12
250	3.9	± 1 mm	Up to 12
280	4.4	± 1 mm	Up to 12
355	5.6	± 1 mm	Up to 12
400	6.3	± 1 mm	Up to 12
450	7.0	± 1 mm	Up to 12
500	7.8	± 1 mm	Up to 12
560	8.8	± 1 mm	Up to 12
630	9.8	± 1 mm	Up to 12
800	12.5	± 1 mm	Up to 12

NOTE: Sizes up to 1600 mm at different specifications are available upon request.

PIPE INSULATION

THERMAL INSULATION MATERIAL

UPI uses high performance rigid polyurethane (PU) foam as thermal insulation for pre-insulated HDPE piping systems. The closed cell structure of the foam provides excellent thermal efficiency, low heat loss and long service life, making it the ideal solution for district heating, cooling and industrial applications.



LOW THERMAL LOSS
Excellent insulation performance

ENERGY EFFICIENT
Reduces energy consumption

LONG TERM RELIABILITY
Durable and stable in all environments

COST EFFECTIVE
Lower operation and maintenance cost

RIGID POLYURETHANE FOAM

Rigid polyurethane foam is a closed cell insulation material with low thermal conductivity, high strength and excellent adhesion to both the carrier pipe and the outer jacket. It provides durable protection against heat loss and external influences.

METHOD OF INSULATION

HIGH PRESSURE INJECTION

The polyurethane foam is injected under high pressure to completely fill the space between the HDPE carrier pipe and the outer HDPE jacket in one continuous operation.

POLYURETHANE FOAM PROPERTIES

Thermal conductivity (λ)	≤ 0.033 W/m·K
Density	40 – 80 kg/m^3
Compressive strength (10% deformation)	≥ 0.30 MPa
Shear strength	≥ 0.26 MPa
Flammability	According to DIN 4102 B3
Toxicity	Non-toxic

ADVANTAGES

- Low heat loss
- Moisture resistant
- High mechanical strength
- Excellent dimensional stability
- Long service life

CORE PIPES

HDPE CORE PIPE

UPI HDPE core pipes are manufactured from premium PE100 material to deliver high strength, excellent hydraulic performance and long service life in pre-insulated piping systems.



D = Jacket Outside Diameter
T = Jacket Wall Thickness
e = Core Pipe Wall Thickness
S = Bare Length (Weld Zone)
L = Unit Length

All dimensions in mm

HIGH STRENGTH
Excellent mechanical properties and impact resistance

LONG SERVICE LIFE
Designed for harsh environments with maximum reliability

LEAK PROTECTION
Closed cell insulation and HDPE jacket provide superior protection.

FLEXIBLE SOLUTIONS
Insulation thickness as per project requirement and operating conditions.

HDPE CORE PIPE DIMENSION (PE100) Minimum Wall Thickness (SDR)				HDPE JACKET PIPE DIMENSION		PIPE INSULATION	BARE LENGTH (WELD ZONE)	UNIT LENGTH
Nominal Diameter	SDR 17 PN 10	SDR 11 PN 16	SDR 9 PN 20	Outside Diameter	Wall Thickness	Insulation Thickness (PU Foam) As per project specification	The Length of Weld Making Place	
DN (mm)				D (mm)	T (mm)	(mm)	S (mm)	L (m)
20	-	2.0	2.3	75	2.1	As per project specification	150 ± 10	6 / 12
25	-	2.3	2.8	90	2.3	As per project specification	150 ± 10	6 / 12
32	2.0	3.0	3.6	90	2.3	As per project specification	150 ± 10	6 / 12
40	2.4	3.7	4.5	110	2.4	As per project specification	150 ± 10	6 / 12
50	3.0	4.6	5.6	125	2.5	As per project specification	150 ± 10	6 / 12
63	3.8	5.8	6.8	160	3.0	As per project specification	150 ± 10	6 / 12
75	4.5	6.8	8.2	180	3.0	As per project specification	150 ± 10	6 / 12
90	5.4	8.2	10.1	200	3.2	As per project specification	150 ± 10	6 / 12
110	6.6	10.0	12.3	225	3.5	As per project specification	150 ± 10	6 / 12
125	7.4	11.4	14.0	250	3.9	As per project specification	150 ± 10	6 / 12
140	8.3	12.7	15.7	250	3.9	As per project specification	150 ± 10	6 / 12
160	9.5	14.6	17.9	280	4.4	As per project specification	150 ± 10	6 / 12
180	10.7	16.4	20.1	300	4.9	As per project specification	150 ± 10	6 / 12
200	11.9	18.2	22.4	315	5.2	As per project specification	150 ± 10	6 / 12
225	13.4	20.5	25.2	355	5.6	As per project specification	150 ± 10	6 / 12
250	14.8	22.7	27.9	400	6.3	As per project specification	150 ± 10	6 / 12
280	16.6	25.4	31.3	400	6.3	As per project specification	150 ± 10	6 / 12
315	18.7	28.6	35.2	450	7.0	As per project specification	150 ± 10	6 / 12
355	21.1	32.2	39.7	500	7.8	As per project specification	150 ± 10	6 / 12
400	23.7	36.3	44.7	560	8.8	As per project specification	150 ± 10	6 / 12
450	26.7	40.9	50.3	630	9.8	As per project specification	150 ± 10	6 / 12
500	29.7	45.4	55.8	630	9.8	As per project specification	150 ± 10	6 / 12
560	33.2	50.8	62.5	710	12.5	As per project specification	150 ± 10	6 / 12
630	37.4	57.2	70.3	800	12.5	As per project specification	150 ± 10	6 / 12
710	**42.1**	**64.5**	**79.3**	**900**	**14.0**	As per project specification	**150 ± 10**	**6 / 12**
800	**47.4**	**72.6**	**89.3**	**1000**	**15.6**	As per project specification	**150 ± 10**	**6 / 12**

NOTE: Sizes up to 800 mm are listed above.

Insulation thickness (PU foam) is selected based on design requirements such as operating temperature, application, ambient conditions and heat loss calculation. Thickness will be as per project specification.

JOINTING & PROTECTION

FOR PRE-INSULATED HDPE PIPING SYSTEMS

Reliable jointing and protection solutions designed for long term performance and maximum system reliability.



- WATERTIGHT PROTECTION
- INSULATION CONTINUITY
- MECHANICAL PROTECTION
- LONG TERM PERFORMANCE

STORAGE & HANDLING

Pre-insulated piping system is engineered for rugged application. Proper handling protects the product and ensures system reliability.



Do not drop pipes on hard or uneven surfaces



Do not drag or roll pipes on the ground



Do not throw pipes from vehicles



Do not use metal chains or hooks



Do not store pipes near sharp objects

TRANSPORTATION

- ✓ Use vehicles with flat bed and supports free from sharp edges or projections.
- ✓ Support pipes evenly along the full length and do not overhang more than 1 meter.
- ✓ When transporting different sizes together, load larger diameter pipes first and keep side supports at max. 1.5 meters intervals.
- ✓ All supports must be free from sharp edges.

CERTIFICATIONS & APPROVALS

Our products are manufactured in accordance with international standards and approved by leading authorities to ensure quality, safety and reliability.

ARAMCO APPROVED	FM APPROVED	NWC APPROVED	SASO CERTIFIED	WRAS APPROVED	BV APPROVED
أرامكو السعودية saudi aramco	FM APPROVED	المياه الوطنية NWC	SASO	WRAS WATER REGULATIONS ADVISORY SCHEME	BUREAU VERITAS

OUR BRANCHES

Branch Manager – Riyadh & Central Region
Mohamed Mansi
+966 55 333 1204
m.mansi@upi-sa.com

Branch Manager – Eastern Region
Islam Ezzeldin
+966 55 876 6277
i.ezzeldin@upi-sa.com

Branch Manager – Western Region
Eslam Galal
+966 53 335 9930
eslam.galal@upi-sa.com

STRONG PIPES. STRONG FUTURE.