



SAUDI PIPE SYSTEMS CO. PRE-INSULATED PIPING SYSTEM



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SGS

Certificate SA10/2178

The management system of

Saudi Pipe Systems Co.

P.O. Box 34572,
Jeddah 21478
Kingdom of Saudi Arabia



has been assessed and certified as meeting the requirements of

ISO 9001:2008

For the following activities

The Scope certification appears on page 2 of this certificate

Further clarifications regarding the scope of this certificate and the applicability of ISO 9001:2008 requirements may be obtained by consulting the organisation

This certificate is valid from 08 June 2010 until 24 May 2013 and remains valid subject to satisfactory surveillance audits.
Re certification audit due before 20 March 2013
Issue 1. Certified since 10 December 1998

Authorised by

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Saudi Pipe Systems Co.

ISO 9001:2008



Issue 1

Detailed scope

Production of Valves (Gate, Butterfly, Globe, Air Release, Pressure Reducing, Check float Strainer, Foot, Fire Hydrant) used in water supply /fire fighting & drainage systems including machining of castings, ductile iron fittings, drilling, shot-blasting, powder coating, hydraulic testing, inspection and testing of raw materials and finished products.

Manufacture of Glass Fiber Reinforced Polyester Pipes (GRP/FRP).

Manufacturing of High Density Polyethylene Pipes (HDPE) Pipes of different sizes.





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SAUDI PIPE SYSTEMS CO.

Preinsulated Piping Division

SAUDI PIPE SYSTEMS COMPANY is one of the biggest manufacturers of pre-insulated piping systems in the Kingdom of Saudi Arabia. We provide superior quality products and services to a large-scale clientele base. Our products are fully engineered to job specifications based on the client's requirement thereby reducing costs by providing custom-made and fabricated fittings which reduce the number of field connections. We also provide onsite technical service team to monitor and resolve critical issues involving installation, usage and application.

We have top of the line electronic detection system and technical equipments for monitoring and safety standards. We have competent, well-experienced, qualified and expert professionals who painstakingly oversee to ensure that quality is never compromised.

We offer our best pre-insulated piping system with the following types of pipes; ERW, SAW and seamless steel pipes, GRP/FRP pipes and HDPE pipes. The insulation material is fine-celled polyurethane foam applies onto inner pipe by means of injection or spray. This insulated piping system is suitable for both above and underground application which minimizes the heat transfer in the following medium; chilled water system, heating system, steam application, gas, oil and industrial application.

We have excellent Quality Control procedures and monitoring system making sure every product conforms to a specific requirements and highest standards. We therefore assure you that all our products are of 100% free from defects, deficiencies and flaws.

We are promoting pre-insulated piping system as most suited for efficient and effective ways to distribute toxic wastes in industrial applications. This has been proven to be efficient, durable and environmentally safe.

We had successfully established a reputable name in the business industry and our products have been proven of world-class quality and marketability. We continue to receive commendable feedbacks from our customers (in local and international markets) engaged in projects including aviations/airports, school/universities, housing/mosques, petro-chemical plants and Royal Commission.

We have been very serious in our commitment of providing our customers a superior quality products and services, and giving them full satisfaction to the outmost level.



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LIMITED WARRANTY

Saudi Pipe System Co., warrants only to the original purchaser of its products, and that those products will be free from defects in material and workmanship under normal use for one year after the date of purchase. SPS reserves the right, before having any obligation under this limited warranty, to inspect the damaged SPS product, and all costs of shipping the SPS product to SPS for inspection shall be borne solely by the purchaser. In order to recover under this limited warranty, Purchaser must present acceptable proof of original ownership (such as original receipt, delivery note, warranty or other documents (SPS deems acceptable) for the product. SPS, at its option, shall repair or replace the defective unit covered by this warranty. In order to keep this limited warranty in effect, the product must have been handled, used, or installed in accordance within application. This limited warranty does not cover any damage due to accident, misuse, abuse or negligence.



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PRE-INSULATED PIPE

Is a piping system comprising of a primary pipe and a secondary pipe. The primary pipe which is the inner pipes also called the **CORE PIPE** and it is the one conveying the fluid medium. The foam that is filling the space between the primary pipe and the secondary pipe is the **INSULATION**. The secondary pipe which is the outer pipe is also called the **JACKET**. The jacketing pipe is the one protecting and holding together the core pipe and the insulation.

A. CORE PIPE

The inner pipe may be any material suited to convey the fluid media.

SPS PROVIDES THE FOLLOWING CARRIER/CORE PIPES:

1. Steel Pipes Consist of ERW, SAW and Seamless Black Steel Pipes.
2. GRP/FRP Pipes made from filament and continuous winding.
3. Extruded High Density Polyethylene Pipe (HDPE).

B. INSULATION

The insulation material is a fine celled polyurethane foam. It is applied onto the inner pipe by means of **injection** and **spray**.

C. JACKET

The outer pipe protects the insulation from mechanical damage and water intrusion.

SPS PROVIDES THE FOLLOWING CASING/JACKET ING PIPES:

1. GRP/FRP Pipes made from filament and continuous winding.
2. Extruded High Density Polyethylene Pipe (HDPE)



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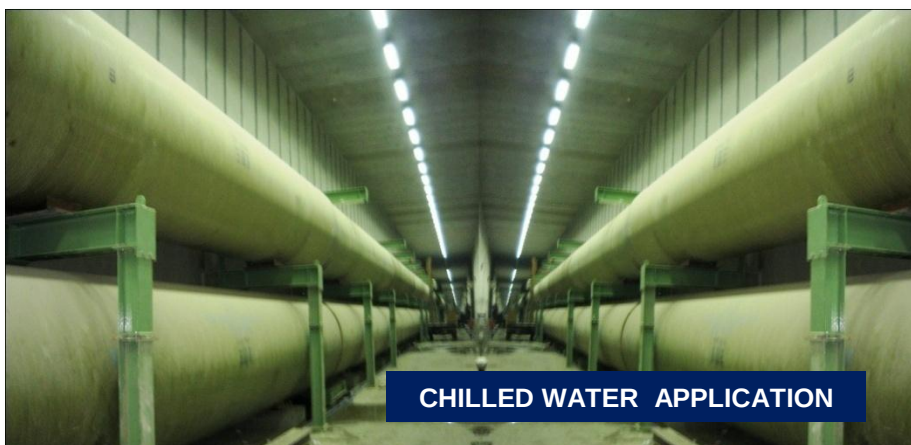
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APPLICATION

Pre-insulated pipe are utilized to minimize the heat transfer of the following mediums:.

- ❖ Chilled Water System
- ❖ Heating System
- ❖ Steam Application
- ❖ Gas and Oil
- ❖ Industrial Application

The systems are comprised of a specified carrier pipe insulated with polyurethane insulation and jacketed by either a HDPE or FRP/GRP pipe.



ADVANTAGES OF USING PRE-INSULATED PIPES:

- ❖ 100% Water Tight
- ❖ 100% Corrosion Protected
- ❖ Energy Saving
- ❖ No Maintenance Costs
- ❖ UV Resistant
- ❖ Increase Surface Strength



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A. CARRIER PIPES/CORE PIPES

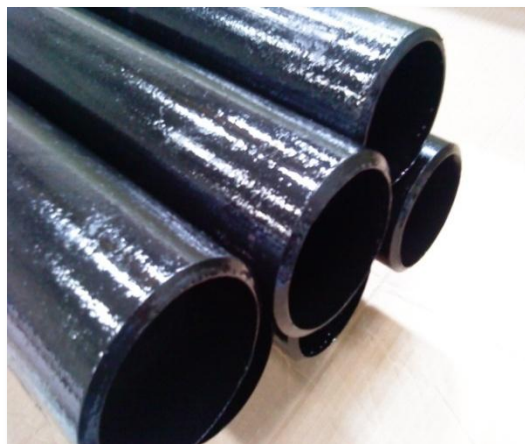
A1. STEEL PIPES

Seamless Pipes / SAW Pipes and ERW Pipes according to ASTM A53, API 5L or ASTM A106 Grade A and B, Standard weight wall thickness Schedule 40, 80 and XS wall thickness with bevelled ends for welded joints or with grooved ends for mechanical coupling joint.

Surface Condition: EN 253

In order to ensure proper bonding between the steel service pipe and the PUR-foam insulation, the following procedure shall be followed:

Prior to insulation, the outer surface of the pipe shall be cleaned so that it is free from rust, mill scale, oil, grease, dust, paint, moisture and other contaminants.



A2. GRP/FRP PIPES

GRP pipes produced by filament winding and continuous winding process conforming to ASTM and other international standard such as ASTM 2996, ASTM 3517, AWWA C-950 and many others.



A3. HDPE PIPES

Seamless Extruded High Density Polyethylene (HDPE) Pipes PE100 and PE 80 conforming British Standard EN 12201.



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A1. STEEL PIPES

❖ Pipes size 30" Ø up to 60" Ø shall be SAW Carbon Steel Pipe conforming to API 5L, grade B, Extra Strong (XS) wall thickness with bevelled ends/grooved ends.

❖ Pipe size 22" Ø up to 28" Ø shall be ERW, SAW and Carbon Steel Pipe conforming to ASTM A53, grade B, Extra Strong (XS) wall thickness with bevelled end/grooved ends.

❖ Pipe size 20" Ø and below shall be ERW or Seamless Carbon Steel Pipe conforming to ASTM A53, grade A 106, grade B schedule 40 wall with bevelled ends/grooved ends.

NPS Ø	Core Pipe OD	Wall Thickness		
		STD	Sch 40	XS
inch	inch	inch	inch	inch
22	22	0.375	-	0.500
24	24	0.375	0.688	0.500
26	26	0.375	-	0.500
28	28	0.375	-	0.500
30	30	0.375	-	0.500
32	32	0.375	0.688	0.500
34	34	0.375	0.688	0.500
36	36	0.375	0.750	0.500
38	38	0.375	-	0.500
40	40	0.375	-	0.500
42	42	0.375	-	0.500
44	44	0.375	-	0.500
46	46	0.375	-	0.500
48	48	0.375	-	0.500
52	52	0.375	-	0.500
56	56	0.375	-	0.500
60	60	0.375	-	0.500

NPS Ø	Core Pipe OD	Wall Thickness		
		STD	Sch 40	XS
inch	inch	inch	inch	inch
½	0.84	0.109	0.109	0.147
¾	1.05	0.113	0.113	0.154
1	1.315	0.133	0.133	0.179
1¼	1.66	0.14	0.14	0.191
1½	1.9	0.145	0.145	0.200
2	2.357	0.154	0.154	0.218
2½	2.875	0.203	0.203	0.276
3	4	0.216	0.216	0.300
4	4.5	0.237	0.237	0.337
5	5.563	0.258	0.258	0.375
6	6.625	0.280	0.280	0.432
8	8.625	0.322	0.322	0.500
10	10.75	0.635	0.365	0.500
12	12.75	0.375	0.406	0.500
14	14	0.375	0.438	0.500
16	16	0.375	0.500	0.500
18	18	0.375	0.562	0.500
20	20	0.375	0.594	0.500





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A2. GRP/FRP PIPES

SPS GRP pipe is manufactured using the **Filament Winding** process on computer controlled machines (CAM). By adjusting the relative speed of mandrel rotation and glass distribution head movement, helical reinforced layer with different angles can be wound.

The inside diameter of the finished pipe is defined by the mandrel outside diameter and the designed wall thickness is achieved by repeated passes. Therefore the (OD) is determined by the pipe wall thickness.

In order to increase the stiffness, specially on large diameter pipe, silica sand can be added to parallel layers of the mechanical wall.

Another means of manufacturing SPS GRP pipe is by **Continuous Winding** process.





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GRP PIPE WALL THICKNESS

2,500 Pa					5,000 Pa					10,000 Pa				
ND	3 Bar	6 Bar	10 Bar	16 Bar	ND	3 Bar	6 Bar	10 Bar	16 Bar	ND	3 Bar	6 Bar	10 Bar	16 Bar
100	3.00	3.00	3.00	3.52	100	3.00	3.00	3.00	3.52	100	3.00	3.00	3.52	3.52
150	3.00	3.00	3.00	3.78	150	3.00	3.00	3.04	3.78	150	3.00	3.00	3.78	3.78
200	3.04	3.04	3.04	4.43	200	3.04	3.04	3.47	4.43	200	3.04	3.04	4.43	4.43
250	3.48	3.48	3.48	5.39	250	3.48	3.48	4.43	5.39	250	3.48	3.48	5.39	5.39
300	4.00	4.00	4.00	5.90	300	4.00	4.00	4.95	5.90	300	4.00	4.00	5.90	5.90
350	4.16	4.16	4.16	7.18	350	4.16	4.16	5.61	7.18	350	4.16	4.16	7.18	7.18
400	4.93	4.93	4.93	7.68	400	4.93	4.93	6.50	7.42	400	4.93	4.93	8.07	8.07
500	6.50	6.50	7.68	8.07	500	6.50	8.00	7.68	7.68	500	10.10	10.10	9.15	9.15
600	7.60	7.60	9.23	9.23	600	7.60	9.60	9.23	9.23	600	12.20	12.20	11.56	11.56
700	8.70	8.70	10.78	10.78	700	8.70	11.00	10.78	10.78	700	14.10	14.10	13.13	13.13
800	9.55	9.55	11.69	11.69	800	9.55	12.64	11.69	11.69	800	16.30	16.30	14.71	14.71
900	11.21	11.21	13.25	13.25	900	11.21	14.40	13.25	13.25	900	18.50	18.50	16.28	16.28
1000	12.55	12.55	14.81	14.81	1000	12.55	16.10	14.81	14.81	1000	20.70	20.70	18.50	18.50
1100	13.86	13.86	15.91	15.91	1100	13.86	17.80	15.91	15.91	1100	22.90	22.90	20.62	20.62
1200	14.50	14.50	16.66	16.66	1200	14.50	19.60	16.66	16.66	1200	24.20	24.20	21.13	21.13
1300	16.00	16.00	19.05	19.05	1300	16.00	20.50	19.05	19.05	1300	26.40	26.40	23.75	23.75
1400	16.54	16.54	19.77	19.77	1400	16.54	22.20	19.77	19.77	1400	28.60	28.60	25.12	25.12
1500	18.70	18.70	21.33	21.33	1500	18.70	23.90	21.33	21.33	1500	30.80	30.80	26.70	26.70
1600	20.00	20.00	23.11	23.11	1600	20.00	25.70	23.11	23.11	1600	31.80	31.80	28.46	28.46
1800	22.70	22.70	26.25	26.25	1800	22.70	29.20	26.25	26.50	1800	35.30	35.30	32.53	32.53
2000	24.20	24.20	28.46	28.46	2000	24.20	31.20	28.46	28.46	2000	39.50	39.50	36.31	36.31
2200	26.50	26.50	31.60	31.60	2200	26.50	34.70	31.60	31.60	2200	42.70	42.70	39.45	39.45
2400	28.50	28.50	34.09	34.09	2400	28.50	37.30	34.09	34.09	2400	46.30	46.30	42.58	42.58
2500	29.20	29.20	35.66	35.66	2500	29.20	38.80	35.66	35.66	2500	48.10	48.10	45.08	45.08
2600	31.30	31.30	37.23	37.23	2600	31.30	40.40	37.23	37.23	2600	49.30	49.30	46.65	46.65



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A3. HDPE PIPES

POLYETHYLENE (PE100) is considered as the most heavily duty among other types of PE pipes. Compared to PE80 and PE63, PE100 pipes is best for water and gas application because of its maximum working pressure. It has enhanced toughness, higher permissible design strength and improved resistance to rapid crack propagation. High Strength HDPE (PE100) pipes offer the water engineer substantial benefits in performance efficiency and economy of its use.

Polyethylene pipe utilizes heat fusion methods such as butt fusion, socket fusion, sidewall fusion, and electro-fusion to join the material, which creates a joining system stronger than the pipe itself.

PE100 APPLICATION

1. Sewage/Drainage/Irrigation
2. Fire/Potable water
3. Chilled Water
4. Submarine/Underwater
5. Industrial/Chemical

ADVANTAGES

1. High Impact and breakage resistance
2. UV resistant
3. Elastic that can be bend 20 times its diameter
4. Required less fittings
5. Light Weight/Mobilization advantaged
6. Adopt unnecessary earth movement
7. Highly Chemical resistant





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DIMENSIONAL CHARACTERISTICS OF HDPE PE100

HDPE PE100 (Outside Diameter, Wall Thickness)				
NOMINAL OUTSIDE DIAMETER	SDR			
	SDR 26	SDR 17	SDR 13.6	SDR 11
	NOMINAL PRESSURE			
OD mm	PN 6 en	PN 10 en	PN 12.5 en	PN 16 en
16				
20				2.00
25				2.30
32		2.00		3.00
40		2.40	3.00	3.70
50	1.80	3.00	3.70	4.60
63	2.40	3.80	4.70	5.80
75	2.70	4.50	5.60	6.80
90	3.30	5.40	6.70	8.20
110	4.00	6.60	8.10	10.00
125	4.50	7.40	9.20	11.40
140	5.10	8.30	10.30	12.70
160	5.80	9.50	11.80	14.60
180	6.50	10.70	13.30	16.40
200	7.20	11.90	14.70	18.20
225	8.20	13.40	16.60	20.50
250	9.10	14.80	18.40	22.70
280	10.10	16.60	20.60	25.40
315	11.40	18.70	23.20	28.60
355	12.90	21.10	26.10	32.20
400	14.50	23.70	29.40	36.30
450	16.30	26.70	31.10	40.90
500	18.10	29.70	36.80	45.40
560	20.50	33.20	41.20	50.80
630	22.80	37.40	46.30	57.20



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B. INSULATION

SPS insulation material is fine celled polyurethane foam (PUR). It is applied onto the inner pipe by **injection** or **spraying**. The foam expands using cyclopentane as a blowing agent and is completely free from water.



FOAM SPRAYER
MACHINE



FOAM INJECTION
MACHINE





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Service pipe insulation shall be sprayed layer by layer directly to the core pipe with nominal 48~50 kg/m³ density. After sprayed of foam completed it shall be machined to the rectifying machine to ensure smooth surface, fully concentric and precise thickness of the foam.

To ensure no voids are present, all insulation shall be visually inspected prior to apply the outer GRP jacketing. All polyurethane foam insulation shall be minimum 90% closed cell. Open foams will not be allowed.

GENERAL

Polyol rigid polyurethane systems are of two components. Blended Polyol and polymeric MDI are available in various nominal density grades; 32, 40, 48 and 55 kg/m³. The systems have 1:1 volume ratio.

APPLICATION

Polyol resin components is a low-medium viscosity blend of Polyols, fire retardants, HCFC 141b as blowing agent, surfactants and catalysts. The Polyol offers increase resistance to burning and spread of flames, specially developed for Spray Insulation with the use of a spray machine.

TYPE OF SPRAY SYSTEMS

The systems modified with catalyst for improved performance during the cold winter weather (below 25°C) and the hot summer (above 25°C). The choice of grade is not mandatory where the type of substrate, equipment and the other factors influence the choice of systems used.

PIPE SIZE mm	INSULATION THICKNESS (mm)	
	CHILLED WATER	HOT WATER
25 ~ 150	25	25
200 ~ 350	25	50
400 ~ 600	50	50
700 ~ 900	50	75
1000 ~ GREATER	100	100





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Ambient Temp. - Min / Max	Winter Grade	05°C - 25°C	Summer Grade	20°C - 50°C
Substrate Temp. - Min / Max	Winter Grade	10°C - 30°C	Summer Grade	25°C - 70°C

TECHNICAL DATA

Polyol Components	32 kg/m ³	40 kg/m ³	48 kg/m ³	55 kg/m ³
Appearance	Clear Amber Coloured			
Viscosity at 20°C - (cps)	300±50	450±50	800±100	900±100
Specific Gravity / 20°C - (gm/cc)	1.2 gm/cc	1.18	1.16	1.14
ISO Components				
Appearance	Dark Brown Viscous Liquid			
Viscosity at 25°C - (cps)	200±40 cps		Tested to 2011-0313702-92	
Specific Gravity / 25°C - (gm/cc)	1.23 -1.25 gm/cc		Tested to ASTM D 1638	

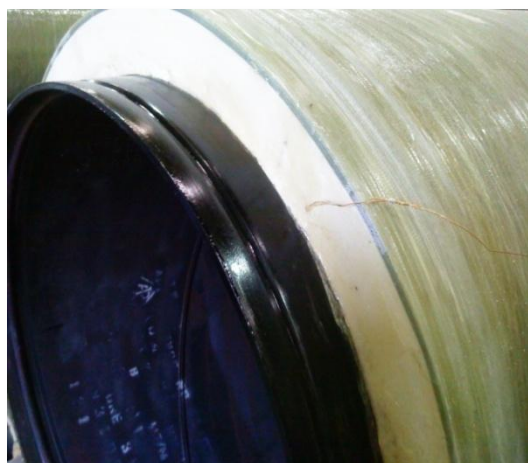
TYPICAL REACTION RATE AND DENSITY (Hand Mixed/Cup Test)

Grade / Sprayed Density	32 kg/m ³	40 kg/m ³	48 kg/m ³	55 kg/m ³
Cream Time	7 - 10	7 - 10	7 - 10	7 - 10
Tack Free Time - (sec)	15 - 25	15 - 25	15 - 25	15 - 25
Free Rise Density - (kg/m ³)	26 - 27	30 - 32	38 - 42	42 - 45

TYPICAL PHYSICAL PROPERTIES

Values are based on 60mm total thickness obtained in 3 application to metal or concrete substrate.

Nominal Sprayed Density - ASTM D 1622	32 kg/m ³	40 kg/m ³	48 kg/m ³	55 kg/m ³
Comp. Strength w/rise - (kg/m ³)	1.4 - 1.7	2.0 - 2.5	2.7 - 3.0	3.5 - 4.0
Tensile Strength w/rise - (kg/cm ²)	2.5 - 2.9	3.0 - 3.2	3.2 - 3.4	3.5 - 4.0





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THERMAL CONDUCTIVITY W/M°K

Grade	32 kg/m ³	40 kg/m ³	48 kg/m ³	55 kg/m ³
Initial Value - W/M°K - ASTM C 117	0.017	0.017	0.017	0.017
Aged Value - W/M°K - ASTM C 518	0.023	0.023	0.023	0.023

DIMENSIONAL STABILITY

Grade - (% Linear Changes) ASTM D 2126	32 kg/m ³	40 kg/m ³	48 kg/m ³	55 kg/m ³
7 Days at 15°C	1.0	1.0	1.0	1.0
7 Days at 100°C	2.0+	1.5+	1.5+	1.5+
7 Days at 70 - 100% RH	2.0+	2.0+	2.0+	2.0+

WATER VAPOR TRANSMISSION

MVT: (per inch) 25mm samples at 38° - 100% RH - ASTM E 96	32 kg/m ³	40 kg/m ³	48 kg/m ³	55 kg/m ³
All cut surface - (ugr/Nh)	7.7	7.7	7.7	7.7
With Skin Retained - (Ugr/Nh)	5.3	5.3	4.2	4.2
Water absorption - No Head ATM D 2842	0.20 kg/m ²			
Closed Cells% - ASTM D 2856	95 - 97	95 - 97	96 - 98	96 - 98

STRENGTH

Grade -	32 kg/m ³	40 kg/m ³	48 kg/m ³	55 kg/m ³
Compressive Parallel - ASTM D 1621	2.0 - 2.5 kg/cm ²			
Shear - ASTM C 273	1.9 - 2.3 kg/cm ²			
Tensile / Parallel - ASTM D 1623	3.0 - 3.2 kg/cm ²			

BURNING CHARACTERISTICS:

Self extinguishing to (ASTM 1692 – MD/74)

Classification – B2

Frame Spread: <40 – 45mm

Extinguishing Time: <40 sec

PACKING:

Polyol: 220 kg Steel Drum

MD/ISO: 250kg Steel Drum



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C. JACKETING PIPES

The purpose of the outer jacket over the insulation is to protect the foam from mechanical damage and water intrusion. SPS has provided two jacketing processes and these are by the use of **FRP/GRP** Pipes and **HDPE** Pipes .
For sizes 630mm and smaller.



The GRP jacket has a top coat inhibitors for ultra violet protection, if installed above ground for an unlimited period of time. The jacket allows the insulation to retain flexibility almost identical to that of the core pipe. This permits the jacketed pipe to conform in unstable soils. For above ground application in abusive environments, generally a heavier wall thickness is desirable.

Straight section of insulated pipes systems shall be jacketed with GRP pipe resin with fibreglass reinforcement , directly applied on the insulating foam to the minimum thickness as follows:

16 inch and smaller: 2 ~ 3mm thick
18 inch and larger: 3 ~ 5mm thick

The resin saturated system shall contain 60 to 70% glass by weight. The filament wound casing will be as per ASTM D 2580 : 34 SHORE, ASTM 2584 : 60 to 70 by weight. The jacket will be helically and circumferentially applied on the insulating foam.



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GRP JACKET TECHNICAL SPECIFICATION

SPS GRP carrier and jacket pipes are manufactured in diameters ranging from 100mm to 2500mm. The nominal diameter of the jacketing pipe coincides with the internal diameter. Glass reinforcements and isophthalic resin are the raw materials in making GRP pipes.

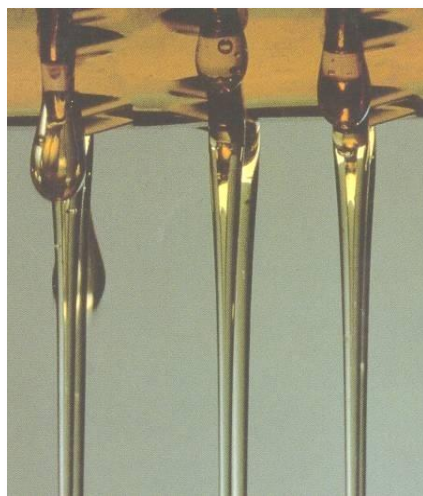
Typical Properties of Liquid Resin

Viscosity	500
Percent Styrene	38
Specific gravity	1.2
Gel Time 25°C	25
Cure Time in Hours De Mould Time	3

Resin properties are measured on every single batch according to SPS internal Quality Control and Inspection Plan.

Cured Resin at Room Temperature

Glass Content by Weight	32%
Flexural Strength (psi)	23200
Flexural Modulus x 10 (psi)	9.6
Tensile Strength (psi)	12400
Tensile Modulus x 10 (psi)	11
Tensile Elongation (Cast Resin)	1.9
Compressive Strength (psi)	22300
Heat Distortion Temperature (resin) °C	80
HDT (Laminate) °C	200





SAUDI PIPE SYSTEMS CO.

Preinsulated Piping Division

Glass Reinforcement

Glass reinforcements are made starting from two different types of glass compositions:



C Glass

Performs very good properties of chemical inertness versus chemical corrosion.

E Glass

Has very high mechanical strength. The glass reinforcement specified by SPS consist of the following:

Surfacing Veils of C Glass used as reinforcement for the first ply of the laminate.

Mat of chopped strands of E Glass used in hand lay up operations such as the manufacturing of fittings.

Continuous roving of E Glass to be wound, used in winding operations to obtain anisotropic structures where the distribution of the mechanical strength depends upon the orientation of the continuous fibers.

Woven roving used in hand lay-up operations alternating layers of woven roving to layers of mats to improve the mechanical strength of the laminate.

The significant mechanical properties of fiberglass used as reinforcement are the following:

Property	Value
Ultimate Tensile Strength, Mpa	1400
Modulus of Elasticity GPA	70



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Properties of Laminates

The following figures refer to laminates obtained by filament winding process with a winding angle of 55 degrees. The winding angle can be varied to increase properties in the axial or circumferential directions.

Design Basis Properties

Property	Test Method	Pipe N/sq. mm
Ultimate Hoop Stress	ASTM D159	250
Hydrostatic Design Basis 10 ⁵ Hours	ASTM D2992 Method B	172
Hydrostatic Design Basis 10 ⁵ Hours	ASTM D2992 Method B	86

Mechanical Properties

Property	Test Method	Pipe N/mm ²	Fitting N/mm ²
Allowable Axial Tensile Stress	ASTM D1599	30	25
Axial Tensile Modulus	ASTM D1599	13000	10000
Allowable Hoop Tensile Stress	ASTM D1599	55	25
Hoop Tensile Modulus	ASTM D1599	23000	10000

Other Physical Properties

Property	Pipe	Fitting
Coeff. Of Linear Thermal Expansion 1/°C	1.8 x 10 ⁻⁵	3.0 x 10 ⁻⁵
Specific Gravity kg/m ³	1850	1650
Glass / Resin Ratio (by weight) %	About 60	About 40

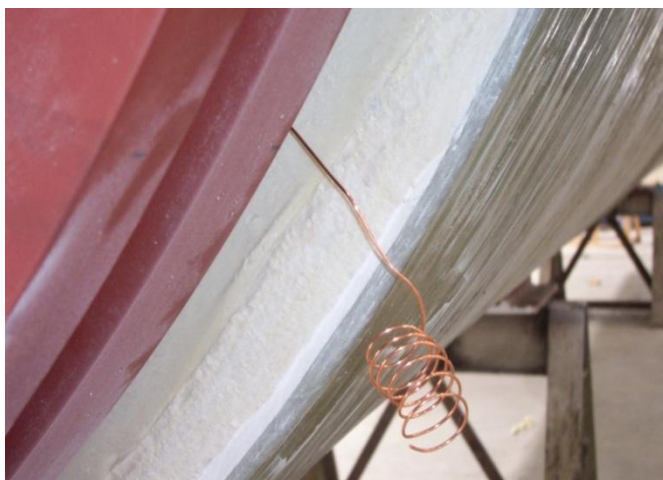


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LEAK DETECTION SYSTEM

SPS pre-insulated pipes are also provided with a Leak Detection System. CWA sensor wire simply a bare copper wire embedded within the insulating foam 15-20mm from the carrier pipe. At field joints, the installing contractor has to crimp a short jumper cable to tie the adjacent pieces together.



The installed piping system will then have a continuous copper wire embedded within the foam. Since the foam is not a conductor of electricity, there will be very high resistance between the wire and the metal pipe.

This electrical resistance within the copper wire can be monitored with a simple Analog Ohmmeter to determine if there is a leak at any time.





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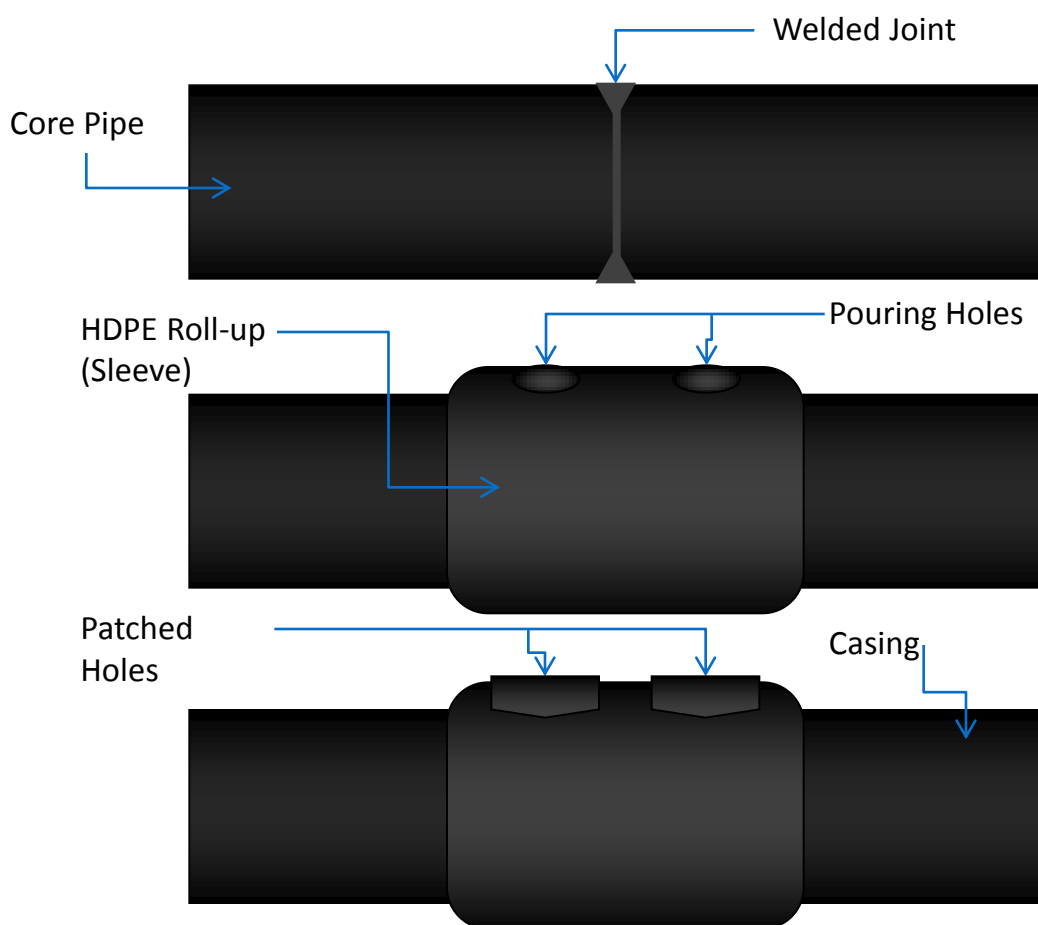
Preinsulated Piping Division

FIELD JOINT INSULATION

After the core pipe is site-jointed by welding or by mechanical coupling, and the joint is tested according to project specification, the joint is insulated using the same polyurethane foam used in pre-insulated pipes and fittings.

WELDED JOINT

An oversized HDPE sleeve is supplied with each pipe and fitting. The sleeve is slid over the casing prior to joining the core pipe. After joining, the sleeve is moved back to cover the bare joint. The contact areas between the HDPE sleeve and the HDPE casing are wrapped with polyolefin sleeve and then heat shrunk to make both ends water tight. Two holes are drilled in the HDPE sleeve, one for pouring and the other for venting. The predetermined quantities of Polyol and MDI are mixed together and poured into the HDPE sleeve. After the PU foam stops rising, the excess foam is cleaned and the two holes are patched with polyolefin sleeve.



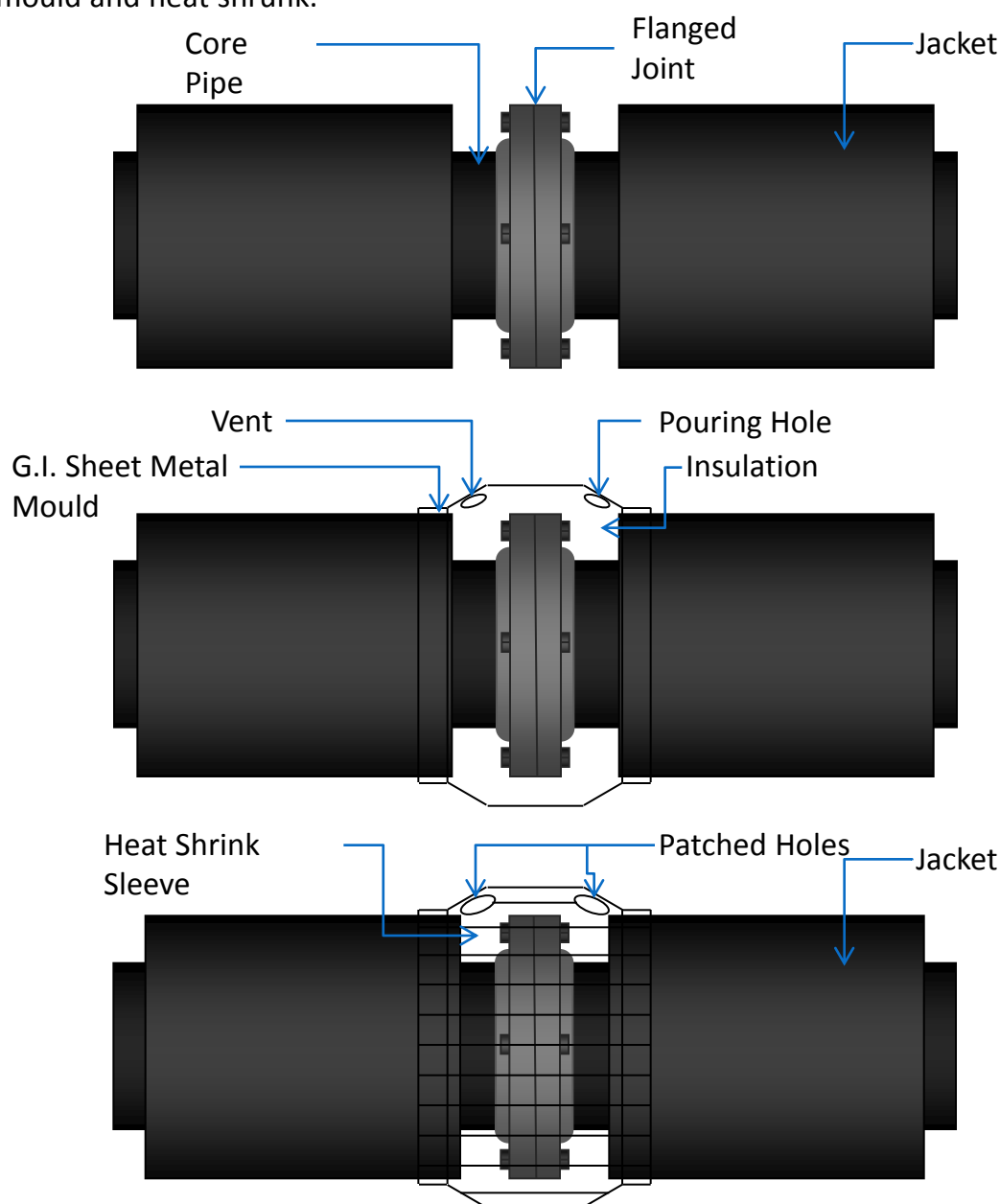


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MECHANICAL JOINT

A sheet metal is supplied with each pipe and fitting. After jointing, the mould is fixed on top of the bare joint with plastic straps or wire. The predetermined quantities of Polyol and MDI are mixed together and poured into the mould. After the PU foam stop rising, the excess foam is to be cleaned. For water tightness, a 24" polyolefin heat shrinkable sleeve is to be wrapped around the mould and heat shrunk.



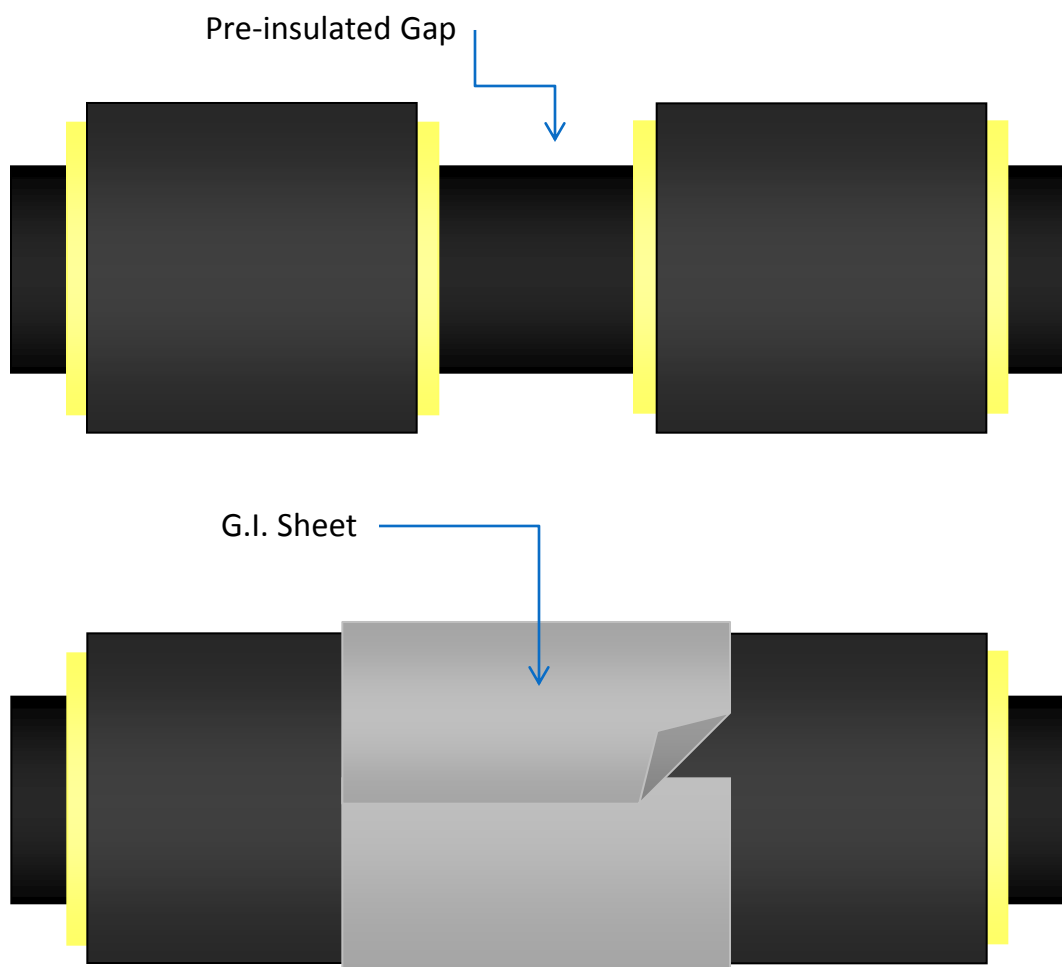


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Preinsulated Piping Division

OPTIONAL INSULATION

Another means of pre-insulating the gap after welding the core pipes is by using a galvanized sheet. G.I. sheet is to be wrapped around the gap overlapping a little portion of the insulated area as seen in the drawing below.

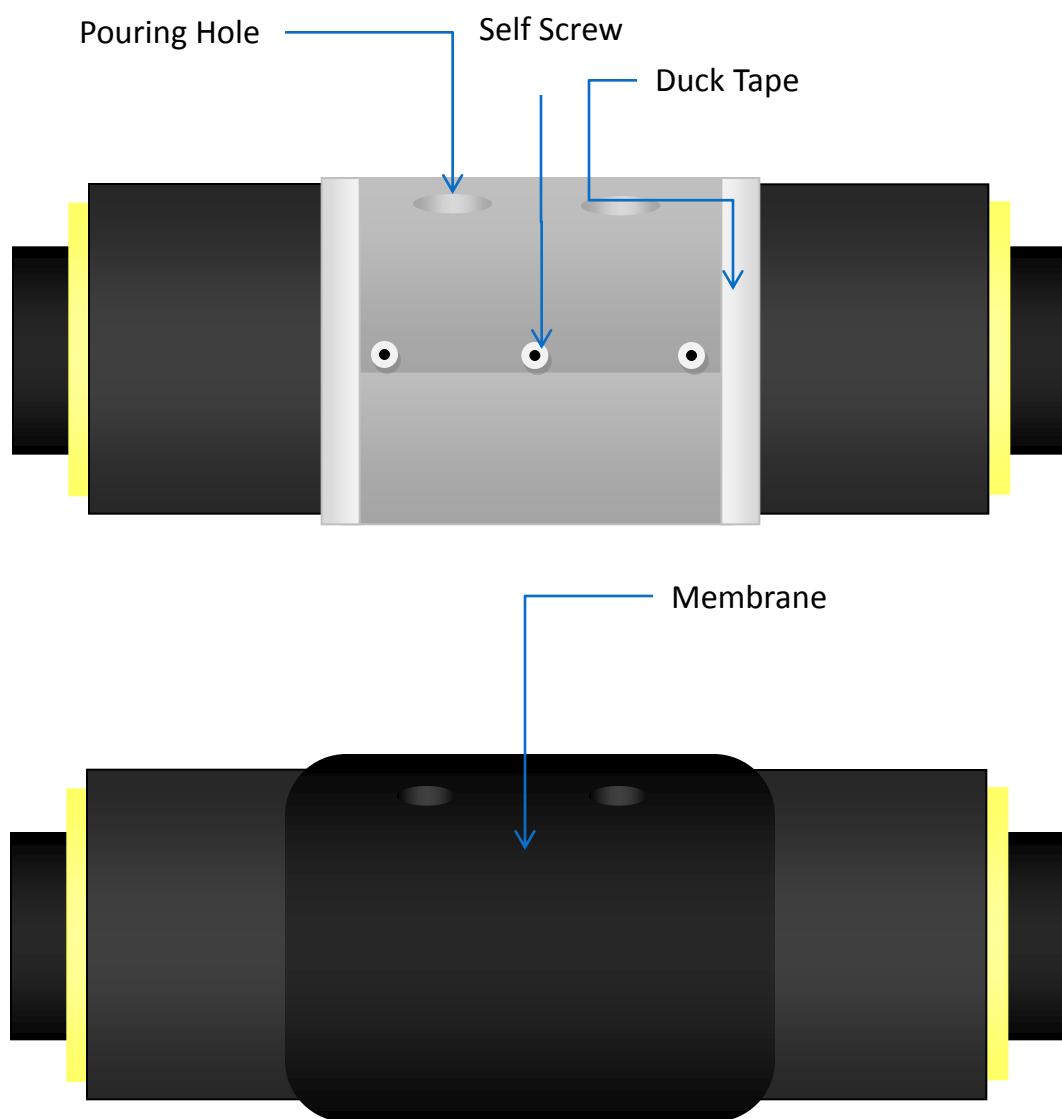




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Preinsulated Piping Division

Self locking screw is needed to hold and lock together the ends of the G.I. wrapping the area needed to be foamed. Securing the edges of the G.I. sheets so that the foam will not leak to the sides duck tapes can be used. Two holes are needed to where we can pour the foam to insulate the gap. After foaming a rubberized membrane can also be used to cover the G.I. sheet and to isolate the controlled temperature transferred from the core pipe to the insulation.





SAUDI PIPE SYSTEMS CO.

Preinsulated Piping Division

HANDLING and STORAGE

Spray Polyol Systems should be stored at a room temperature below 25°C in sealed drums. Drums should be released immediately after use to avoid loss of blowing agent and absorption of moisture. Agitate contents before use, particularly after long standing. Consult the polyol handbook for surface preparation and proper application. Pre-cautions should be observed to avoid prolonged or repeated skin contact with the production or its introduction in or near the eyes. If skin contact occurs all contaminated clothing should be removed and the affected skin area wipe with a cloth or paper towels saturated with the ethanol or equivalent solvent followed by washing with soap and water. Goggle or eye shields should be worn when there is a danger of splashing or eye contact.

Polyurethane Foam has an exceptional insulating and mechanical values characterized by very low vapor permeability resulting in long term steady dielectric and insulation properties. Its closed cell structure allows water absorption and CFC free formulation makes it more effective as thermal insulation material due to superior ageing properties.

OTHER TESTED PROPERTIES OF POLYURETHANE FOAMS

- Higher tensile, compressive and shear strengths
- Ductility at both high and low strain rates give good impact
- Good freeze – thaw characteristics
- Excellent bending / flexing fatigue properties
- Unsurpassed resistance to thermal cycling fatigue
- Good creep resistance
- Withstands abuse and rough handling
- CFC free material
- Thermal conductivity from 0.027 W/mK at 100°C (283K)
- Good cryogenic safely factor down to - 196°C (77K)
- Stable at temperature from - 200°C to +120°C (73 – 393K)
- Rot and chemical resistant



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Preinsulated Piping Division

STORAGE



- ❖ Finished pipes of the same dimensions must be stored on solid flat surface.
- ❖ Storing of pipes must be in rectangular or pyramid piling style
- ❖ Wedges must be used at the lowest layer of the pile to support from rolling or slipping.
- ❖ Timber planks should be used as the base surface of the pipes.
- ❖ The number of timber planks should depend on the dimensions and lengths of the pipes.
- ❖ Stacks must not exceed 2.50 m in height to ensure safety when storing and transporting the pipes.
- ❖ Piled pipes must be protected from cold, heat and direct sunlight to prevent any loss of quality.
- ❖ Recommended storage temperature ranges from 18°C to 29°C.



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Preinsulated Piping Division

LOADING AND UNLOADING

❖ Pipes loading area must be checked to ensure that it is clean from dirt or any sharp edged parts must be removed.

❖ Caps must be placed on the pipes to protect it from external influences.

❖ Timber planks should be used as the base surface of the pipes and belts must be strapped fixed to the trailer to ensure full stability during transporting.

❖ Piling of pipes on top of the trailer for transport must not exceed three tiers high.

❖ Timber planks be must used for each pipe layers



❖ Small dimensions fittings, shaped parts and pipes can be unloaded by hand.

❖ Larger sizes should preferably be unloaded using a crane or with the appropriate lifting gears.

❖ As not to jeopardise the quality of the pipes during the unloading process, chains and ropes are unsuitable for use.

❖ Only nylon straps or similar must be used to ensure the protection of the outer casing.

❖ It is not permissible to throw down, or roll them or pull the pipes off from the cargo area.





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Preinsulated Piping Division

INSTALLATION

Before starting excavation, trench dimensions should be determined with the following considerations:

- ❖ Pipe size, outside diameter of jacket pipe.
- ❖ Anticipated traffic and surface load after backfill.
- ❖ Type of pipe joint; mechanical coupling joints require more space around the pipe.
- ❖ Field Joint Insulation
- ❖ Adequate space for installation
- ❖ Space for any other services
- ❖ Any local authority requirements



The base of the trench should have a sand bed of at least 100mm thick. This sand layer must be compacted and levelled to provide support for the pipe along its entire length.

After the pipes are installed and the joints are insulated, sand backfilling should be carried out manually and compacted by hand for a total thickness of 200mm above the casing pipe.



SAUDI PIPE SYSTEMS CO.

Preinsulated Piping Division

Welding Procedures

All factory welding procedures shall be according to the ASME Boiler & Pressure Vessel Code, the ASME Code of Pressure Piping B31 and the AWS Welding Code D1.1. All welds shall be made by shielded Metal Arc Welding (SMAW) process.

All welding shall be performed by qualified welders, certified in accordance with the requirements of section IX of the ASME Boiler & Pressure Vessel Code and Paragraph 127 of the ASME Code B31.1 and Part D Section 10 of the AWS Welding Code D1.1 and tested using equipment procedures and electrodes of the type that suited to the requirements of the manufactured products.



SAUDI PIPE SYSTEMS CO.

Preinsulated Piping Division

Welding Procedure Specifications (WPS)

Company Name: **Saudi Pipe Systems Co. (SPS)**

Welding Procedure Specification No.:

SPS-WPS-02

Revision: **0** Date: January 21, 2006

Welding process/es: **SMAW**

Type/s: **Manual**

(automatic, Manual, Machine
or Semi-auto)

Code: ASME IX ☒

API 1104 ☐

AWS D.1 ☐

ASME B31.3 ☐

Others ☐

BASE METAL

P-No.: **1**

Group No.: **1**

to P-NO.: **1**

Group No.: **1**

Specification type and grade: **ASTM A53 Grade B, API 5L Grade B or equivalent**

To Specification type and grade: **ASTM A53 Grade B, API 5L Grade B**

Chemical analysis and mechanical properties: **(See Mill Test Certificates)**

To Chemical analysis and mechanical properties: **(See Mill Test Certificates)**

Thickness range:

Base Metal:

Groove – **1.6mm – 14.22mm**

Fillet: **All**

Pipe Dia. Range: Groove – **2-7/8" NPS and larger** Fillet: **All**

Others:

JOINTS

Joint Design: Single V butt

Details:

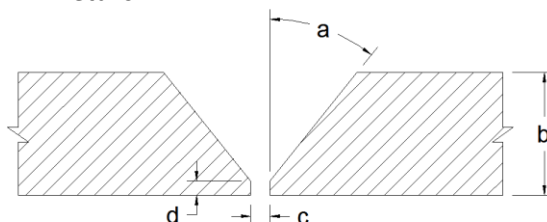
Backing: NA Type: N/A

a. 30±

b. 4.7mm – 14.22mm

c. 1/16" to 1/8"

d. 1/16" to 1/8"





SAUDI PIPE SYSTEMS CO.

Preinsulated Piping Division

FILLER METALS

F-No.	: <u>3 & 4</u>	Others: <u>N/a</u>
A-No.	: <u>1</u>	Others: N/a
Specs. No. (SFA)	: <u>E</u>	
AWS No. (Class)	: <u>E6010 & E7018</u>	
Size of filler metals (Electrode, cold wire, hot wire, etc.)	: <u>3.2mm dia. 2.4mm dia.</u>	<u>N/a</u>
Electrode-flux (Class)		<u>N/a</u>
Flux or electrode trade names		<u>Lincoln</u>
Consumable insert or Semi-auto)		<u>N/a</u>

POSITION

Position/s of groove: 6G (All)

Welding progression: Up ☒ Down

Position/s of filler: N/a

POSTWELD HEAT TREATMENT

Temperature range: N/a

Time range: N/a

Heating rate: N/a Cooling rate: N/a

PREHEAT

Preheat temperature: Min. 10 °C

Interpass temperature: Max. 315 °C

Preheat maintenance: N/a

(Continuous or special heating where applicable
Should be recorded)

GAS

Shielding gas/es: N/a

Percent composition (Mixtures): N/a

Flow rate: N/a

Gas backing: N/a



SAUDI PIPE SYSTEMS CO.

Preinsulated Piping Division

TECHNIQUE

String or weave bead: **String or weave**

Max. weave width:

N/a

Office or gas cup size: **N/a**

Initial and interpass cleaning (brushing, grinding, etc.): **Grinding and wire brushing**

Method of back gouging

N/a

Oscillation

N/a

Contact tube to work distance

N/a

Multiple or single pass (per side) **Multiple**

Multiple or single electrodes

Single

Travel speed (range)

3-6 IPM

Peening

N/a

Others _____

ELECTRICAL CHARACTERISTICS

Current AC or DC

DC

Polarity (straight or reverse)

Reverse

Amps (range)

50-160

Volts (range)

20-35

(Amps and volts range should be recorded for each electrode size, position thickness etc. This information should be listed in the tabular forms shown below.)

Tungsten electrodes size and type

N/a

(Pure tungsten, 2% thoriated, etc.)

Mode of metal transfer for GMAW

N/a

(Spray arc, short circuiting arc, etc.)

Electrode wire feed speed range

N/a

Weld layer/s	Process	Filler metal class	Filler metal dia.	Current type polairty	Current amp range	Volt range	Travel speed range	Others
1	SMAW	E 6010	3.2/2.4	DCRP	50-100	25-35	4-5	IPM
2	SMAW	E 7018	3.2/2.4	DCRP	110-120	22-30	3-4	IPM
3	SMAW	E 7018	3.2/2.4	DCRP	120-130	22-30	3-4	IPM
4	SMAW	E 7018	3.2/2.4	DCRP	125-130	22-30	3-4	IPM
5	SMAW	E 7018	3.2/2.4	DCRP	125-135	22-30	3-4	IPM



SAUDI PIPE SYSTEMS CO.

Preinsulated Piping Division

Thermal Expansion in Steel Pipes:

$$\Delta L = L \cdot \alpha \cdot \Delta T$$

ΔL = Linear thermal Expansion

Units: in.

L = Length of Steel Pipes

Units: in.

α = Linear Thermal Expansion Coefficient

Units: in./in./°F

ΔT = Temperature Difference

Units: °F

Typical values of α for carbon steel pipes are:

Temperature	-50	70	200	300	400	500
α (in./in./°F x 10 ⁻⁶)	5.80	6.07	6.38	6.60	6.82	7.02

Example:

Calculate the thermal expansion/contraction of a steel pipe 1000 feet long installed at 120°F ambient temperature, when chilled water at 50°F is running through it.

Find α at 120°F

$$(120 - 70) / (200 - 70) = (\alpha - 6.07) / (6.38 - 6.07)$$

Solving for $\alpha \rightarrow \alpha = 6.19$

$$\Delta L = L \cdot \alpha \cdot \Delta T$$

$$\Delta L = (1000 \text{ ft.} \times 12 \text{ in./ft.}) (6.19 \times 10^{-6} \text{ in./in./°F}) (50 - 120^\circ\text{F})$$

$$\Delta L = 5.19 \text{ in. (-ve sign for contraction)}$$



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Preinsulated Piping Division

Heat Loss Computation

The rate of heat flow through three underground concentric cylinders can be expressed with the following formula.

$$q = \frac{T_i - T_o}{\frac{\ln(r_s/r_{si})}{2\pi k_1 l}} = \frac{T_i - T_o}{\frac{\ln(r_{ji}/r_s)}{2\pi k_2 l}} = \frac{T_{hot} - T_{cold}}{\frac{[\ln(r_j/r_{ji})]}{2\pi k_3 l}} = \frac{(1)}{\Sigma R_n \text{ (Where } n = 1, 2, \dots)}$$

The overall heat transfer coefficient U for this system can be based on any area, but its numerical value will depend on the area selected. Since the outer diameter is the easiest to measure in practice, $A_o = 2\pi r_j l$ is usually chosen as the base area and the rate of heat flow is

$$q = U a_o (T_{hot} - T_{cold})$$

Then, by compression with the equation (1), the overall heat transfer coefficient becomes:

$$U = \frac{1}{\frac{r_j [\ln(r_s/r_{si})]}{K_s} + \frac{r_j \ln(r_{ji}/r_s)}{K_f} + \frac{r_j \ln(r_j/r_{ji})}{K_j}}$$

Where:

K_s = Thermal conductivity coefficient of steel pipe

K_f = Thermal conductivity coefficient of steel polyurethane foam

K_j = Thermal conductivity coefficient of HDPE pipe jacket

r_{si} = Inside radius of steel pipe

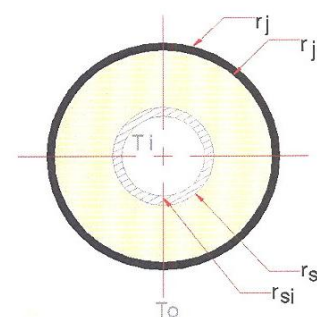
r_s = Outside radius of steel pipe

r_{ji} = Inside radius of HDPE pipe jacket

r_j = Outside radius of HDPE pipe jacket

Typical values:

$$\begin{aligned} \text{Assume: } K_s &= 45 \text{ W/m}\cdot\text{K} \\ K_j &= 0.43 \text{ W/m}\cdot\text{K} \\ K_f &= 0.03 \text{ W/m}\cdot\text{K} \end{aligned}$$



Substituting these values in equation (1), for the various pipe sizes; the overall heat transmission coefficient is calculated.



SAUDI PIPE SYSTEMS CO.

Preinsulated Piping Division

Pipe Trench and Backfill

Before starting excavation, trench dimensions should be determined with the following considerations:

- Pipe size, outside diameter of jacket pipe.
- Anticipated traffic and surface load after backfill.
- Type of pipe joint; mechanical coupling joints require more space around the pipe.
- Field joint installation
- Adequate space for installation
- Space for any other services
- Any local authority requirements

As a minimum, a typical trench cross-section should be as per figs. 4.3-A & B.

The base of the trench should have a sand bed of at least 100mm thick. This sand layer must be compacted and levelled to provide support for the pipe along its entire length.

After the pipes are installed and the joints are insulated, sand backfilling should be carried out manually and compacted by hand for a total thickness of 200mm above the casing pipe. Warning tape could be placed above the sand layer 200mm above the pipe, then the trench is refilled with the dug-out soil. This final layer of backfill could be compacted using a flat vibrator with a maximum plate pressure of 100 kPa.

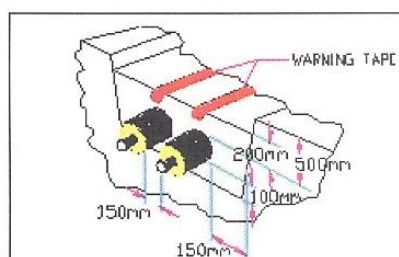


Fig. 4.3-A

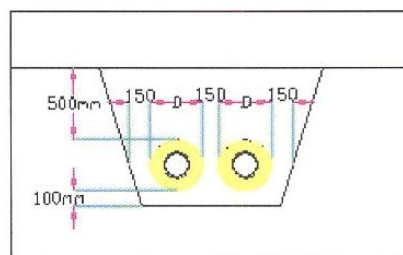


Fig. 4.3-B

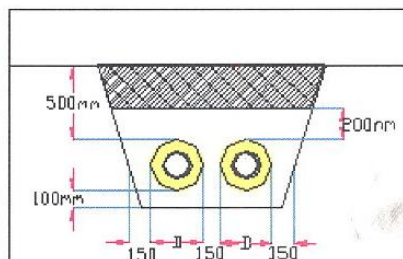


Fig. 4.3-C



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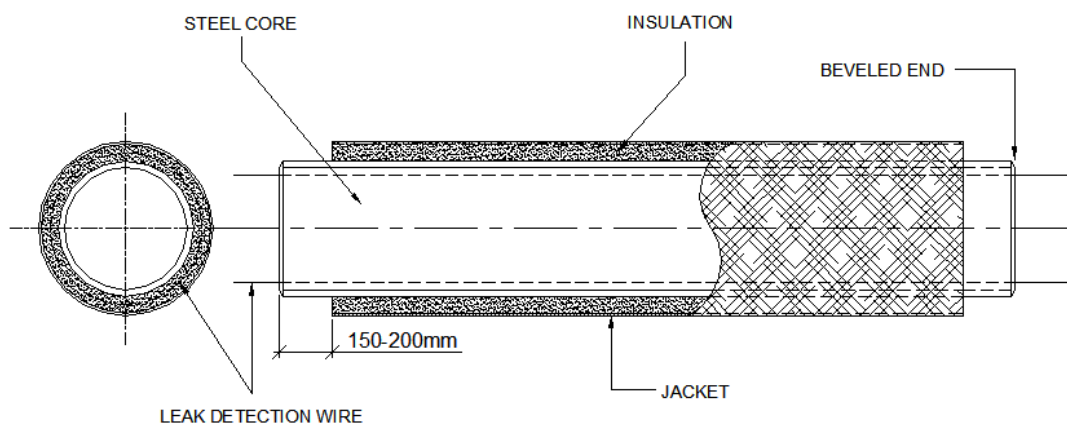
Conversion Table

Length		Energy	
1 ft	0.3048 m	1 J	9.478×10^{-4} Btu
1 in	25.4 mm	1 J	0.7376 ft-lbs
1 mile	5280 ft	1 kWh	3412.1 Btu
1 ft	12 in	1 kWh	2.655×10^6 ft-lbs
1 yard	3 ft	1 calorie	4.187 J
1 mile	1609.3 m		
Area		Power	
1 m ²	10 000 cm ²	1 W	3.412 Btu/h
1 ft ²	0.09290 m ²	1 W	1.341×10^{-3} hp
1 in ²	645 mm ²	1 hp	2545 Btu/h
1 yd ²	9 ft ²	1 hp	550 ft-lb/s
1 yd ²	0.836 m ²	1 hp	0.746 kW
		1kW	0.284 ton of refrigeration
Volume		Pressure	
1 ft ³	0.02832 m ³	1 atm	101.325 kPa
1 ft ³	28.32 L	1 atm	14.696 psi
1 m ³	61.02×10^3 in ³	1 bar	100 kPa
1 m ³	1000 L	1 bar	0.9869 atm
1 yd ³	0.7676 m ³	1 pa	1 N/m ²
1 gallon	3.7854 L		
1 ft ³	7.49 gallons		
1 L	1.056 quarts		
Mass		Temperature	
1 lb	0.4536 kg	° F	(°C x 1.8) + 32
1 lb	453.6 g	° K	°C + 273.15
		° R	°F + 459.67
			1.8°R
Density		Velocity	
1 kg/m ³	0.06243 lbs/ft ³	1 m/s	196.8 ft/min
Force		Volume Flow Rate	
1 kgf	9.807 Newton	1 m ³ /s	3.517 ft ³ /s
1 newton	0.2248 lbf	1 m ³ /s	15.850 gpm
1 kg-m/s	1N	1 gpm	0.0631 L/s
		1ft ³ /s	449.4 gpm
		1ft ³ /s	3.785 L
		1 gal	
Thermal Conductivity			
1 W/(m•K)		6.934 Btu•in/(hr•ft ² °F)	
1 W/(m•K)		0.837 Kcal•m/(m ² •hr °C)	



SAUDI PIPE SYSTEMS CO.

Preinsulated Piping Division



PRE-INSULATED PIPE

CORE PIPE

BLACK STEEL AS PER PRODUCT DESCRIPTION.

INSULATION

RIGID CELLULAR CFC-FREE POLYURETHANE FOAM, FACTORY SPRAYED ON ON THE CORE PIPE FOR SIZE 44" AND THE FACTORY INJECTED BETWEEN THE CORE PIPE AND OUTER CASING/PROTECTIVE JACKET FOR SIZES 36" AND BELOW HAVING A DENSITY OF 48KG/CU.M

JACKET

44 INCH FILAMENT WOUND REINFORCED POLYESTER (FRP) RESIN 36-20 INCH EXTRUDED HIGH-DENSITY POLYETHELENE (HDPE) PIPEHAVING A DENSITY OF 950KG/CU.M OR FILAMENT WOUND (FRP).18 INCH AND BELOW EXTRUDED HIGH-DENSITY POLYETHELENE HAVING A DENSITY OF 950KH/CU.M.

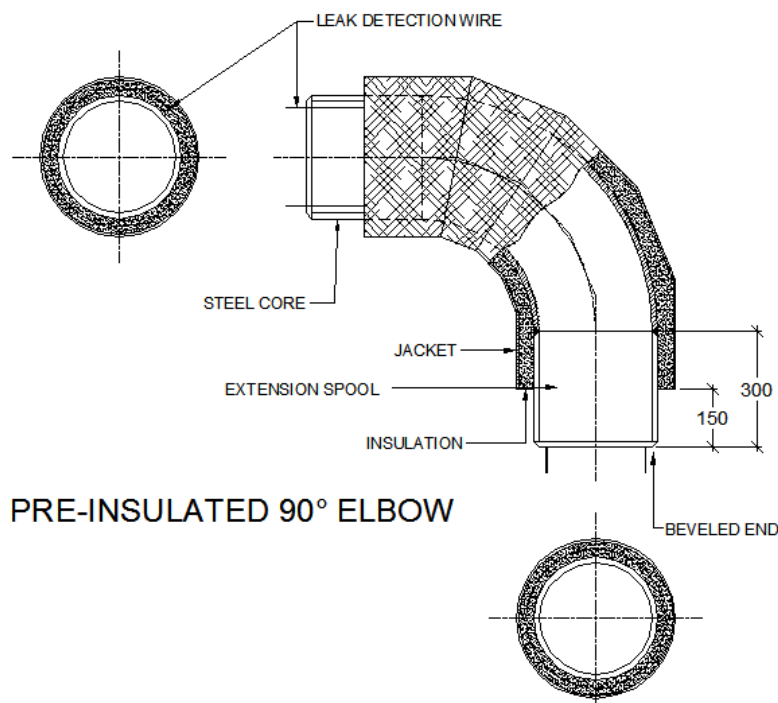
LEAK DETECTION WIRE

UTILIZING TWO MONITORING WIRES EMBEDDED IN THE FOAM INSULATION



SAUDI PIPE SYSTEMS CO.

Preinsulated Piping Division



PRE-INSULATED 90° ELBOW

FITTINGS

BLACK STEEL BUT WELDING TYPE, WALL THICKNESS SIMILAR TO THE CORE PIPE, CONFORMING ASTM A23A WPB AND DIMENSIONS IN ACCORDANCE WITH ASME B16.9 WITH 300MM LONG BEVELED END STEEL PIPE EXTENSION FACTORY WELDED TO EACH END.

INSULATION

RIGID CELLULAR CFC-FREE POLYURETHANE FOAM, FACTORY SPRAYED ON ON THE CORE PIPE FOR SIZE 44" AND THE FACTORY INJECTED BETWEEN THE CORE PIPE AND OUTER CASING/PROTECTIVE JACKET FOR SIZES 36" AND BELOW HAVING A DENSITY OF 48KG/CU.M

JACKET

44 INCH FILAMENT WOUND REINFORCED POLYESTER (FRP) RESIN 36-20 INCH EXTRUDED HIGH-DENSITY POLYETHYLENE (HDPE) PIPE HAVING A DENSITY OF 950KG/CU.M OR FILAMENT WOUND (FRP). 18 INCH AND BELOW EXTRUDED HIGH-DENSITY POLYETHYLENE HAVING A DENSITY OF 950KH/CU.M.

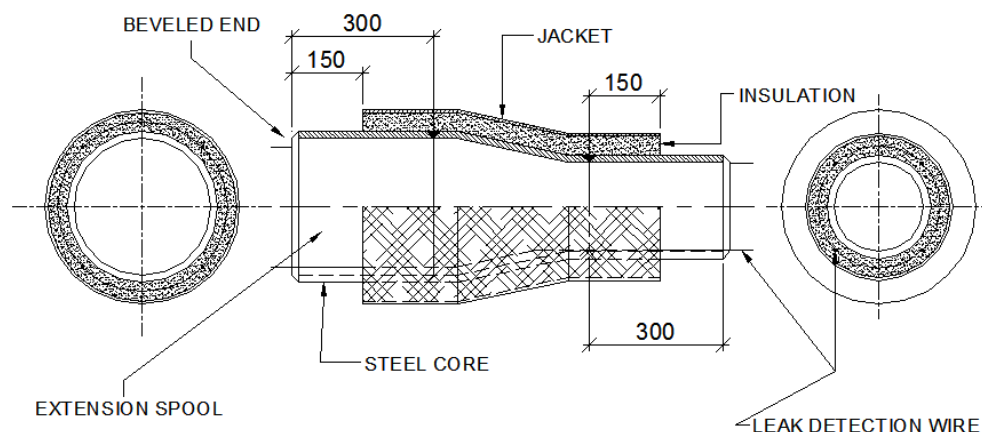
LEAK DETECTION WIRE

UTILIZING TWO MONITORING WIRES EMBEDDED IN THE FOAM INSULATION



SAUDI PIPE SYSTEMS CO.

Preinsulated Piping Division



PRE-INSULATED REDUCER

FITTINGS

BLACK STEEL BUT WELDING TYPE, WALL THICKNESS SIMILAR TO THE CORE PIPE, CONFORMING ASTM A23A WPB AND DIMENSIONS IN ACCORDANCE WITH ASME B16.9 WITH 300MM LONG BEVELED END STEEL PIPE EXTENSION FACTORY WELDED TO EACH END.

INSULATION

RIGID CELLULAR CFC-FREE POLYURETHANE FOAM, FACTORY SPRAYED ON ON THE ORE PIPE FOR SIZE 44" AND THE FACTORY INJECTED BETWEEN THE CORE PIPE AND OUTER CASING/PROTECTIVE JACKET FOR SIZES 36" AND BELOW HAVING A DENSITY OF 48KG/CU.M

JACKET

44 INCH FILAMENT WOUND REINFORCED POLYESTER (FRP) RESIN 36-20 INCH EXTRUDED HIGH-DENSITY POLYETHELENE (HDPE) PIPE HAVING A DENSITY OF 950KG/CU.M OR FILAMENT WOUND (FRP). 18 INCH AND BELOW EXTRUDED HIGH-DENSITY POLYETHELENE HAVING A DENSITY OF 950KH/CU.M.

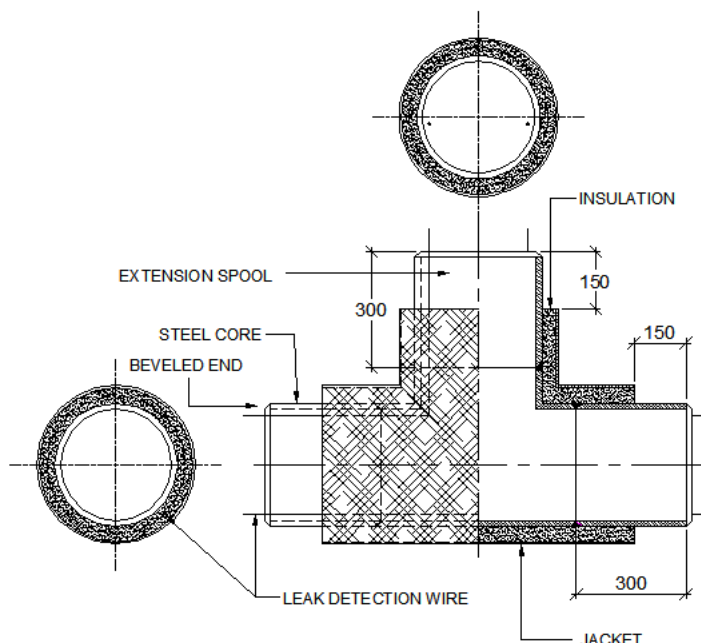
LEAK DETECTION WIRE

UTILIZING TWO MONITORING WIRES EMBEDDED IN THE FOAM INSULATION



SAUDI PIPE SYSTEMS CO.

Preinsulated Piping Division



FITTINGS

PRE-INSULATED TEE

BLACK STEEL BUT WELDING TYPE, WALL THICKNESS SIMILAR TO THE CORE PIPE, CONFORMING ASTM A23A WPB AND DIMENSIONS IN ACCORDANCE WITH ASME B16.9 WITH 300MM LONG BEVELED END STEEL PIPE EXTENSION FACTORY WELDED TO EACH END.

INSULATION

RIGID CELLULAR CFC-FREE POLYURETHANE FOAM, FACTORY SPRAYED ON ON THE CORE PIPE FOR SIZE 44" AND THE FACTORY INJECTED BETWEEN THE CORE PIPE AND OUTER CASING/PROTECTIVE JACKET FOR SIZES 36" AND BELOW HAVING A DENSITY OF 48KG/CU.M

JACKET

44 INCH FILAMENT WOUND REINFORCED POLYESTER (FRP) RESIN 36-20 INCH EXTRUDED HIGH-DENSITY POLYETHYLENE (HDPE) PIPE HAVING A DENSITY OF 950KG/CU.M OR FILAMENT WOUND (FRP). 18 INCH AND BELOW EXTRUDED HIGH-DENSITY POLYETHYLENE HAVING A DENSITY OF 950KH/CU.M.

LEAK DETECTION WIRE

UTILIZING TWO MONITORING WIRES EMBEDDED IN THE FOAM INSULATION



SAUDI PIPE SYSTEMS CO.

Preinsulated Piping Division



Pre-insulated Pipe

Core: GRP Pipe Filament Wound
Insulation: Polyurethane Foam
Jacket: GRP Pipe Filament Wound



Pre-insulated Pipe

Core: Black Steel Pipe
Insulation: Polyurethane Foam
Jacket: GRP Pipe Filament Wound



Pre-insulated Pipe

Core: HDPE Pipe
Insulation: Polyurethane Foam
Jacket: HDPE Pipe



Pre-insulated Pipe

Core: Black Steel Pipe
Insulation: Polyurethane Foam
Jacket: HDPE Pipe



SAUDI PIPE SYSTEMS CO.

Preinsulated Piping Division



Pre-insulated Fittings

Core: Black Steel

Insulation: Polyurethane Foam

Jacket: GRP



Pre-insulated Jacket for Fittings

Insulation: Polyurethane Foam

Jacket: GRP



Pre-insulated Jacket for Pipe

Insulation: Polyurethane Foam

Jacket: GRP



SAUDI PIPE SYSTEMS CO.

Preinsulated Piping Division



PRE-MOULDED CLADDING

After the core pipe and fittings are site joined by welding or by mechanical joint and tested according to project specifications, Pre-moulded foam will be placed on the joint by applying an adhesive to bond together and then the outside GRP pipe and fitting jacket will be laminated to seal the gap.





SAUDI PIPE SYSTEMS CO.

Preinsulated Piping Division



PREINSULATED PIPE

Core: Black Steel Pipe

Insulation: Polyurethane Foam

Casing: GRP Pipe



PREINSULATED PIPE

Core: Black Steel Pipe

Insulation: Polyurethane Foam

Casing: HDPE Pipe



SAUDI PIPE SYSTEMS CO.

Preinsulated Piping Division

PIPE DIMENSIONS

NPS Ø	Core	Wall Thickness			Casing/Jacket OD		Insulation Thickness	
	Pipe OD	STD	Sch 40	XS	GRP/FRP	HDPE	GRP/FRP	HDPE
inch	inch	inch	inch	inch	mm	mm	mm	mm
½	0.84	0.109	0.109	0.147	100	140	54	53
¾	1.05	0.113	0.113	0.154	100	140	52	51
1	1.315	0.133	0.133	0.179	150	160	58	57
1¼	1.66	0.14	0.14	0.191	150	160	53	53
1½	1.9	0.145	0.14	0.200	150	160	50	50
2	2.357	0.154	0.154	0.218	200	180	70	55
2½	2.875	0.203	0.203	0.276	200	200	63	56
3	4	0.216	0.216	0.300	200	225	55	59
4	4.5	0.237	0.237	0.337	250	260	67	58
5	5.563	0.258	0.258	0.375	250	280	54	59
6	6.625	0.280	0.280	0.432	200	314	67	61
8	8.625	0.322	0.322	0.500	300	315	67	54



SAUDI PIPE SYSTEMS CO.

Preinsulated Piping Division

PIPE DIMENSIONS

NPS Ø	Core	Wall Thickness			Casing/Jacket OD		Insulation Thickness	
	Pipe OD	STD	Sch 40	XS	GRP/FRP	HDPE	GRP/FRP	HDPE
inch	inch	inch	inch	inch	mm	mm	mm	mm
10	10.75	0.635	0.365	0.500	400	400	65	48
12	12.75	0.375	0.406	0.500	450	450	62	46
14	14	0.375	0.438	0.500	500	500	69	53
16	16	0.375	0.500	0.500	500	560	44	55
18	18	0.375	0.562	0.500	600	630	67	62
20	20	0.375	0.594	0.500	600	710	42	74
22	22	0.375	-	0.500	700	710	66	48
24	24	0.375	0.688	0.500	800	710	40	65
26	26	0.375	-	0.500	800	900	64	85
28	28	0.375	-	0.500	900	900	83	60
30	30	0.375	-	0.500	900	1000	58	81
32	32	0.375	0.688	0.500	1000	1000	86	55



SAUDI PIPE SYSTEMS CO.

Preinsulated Piping Division

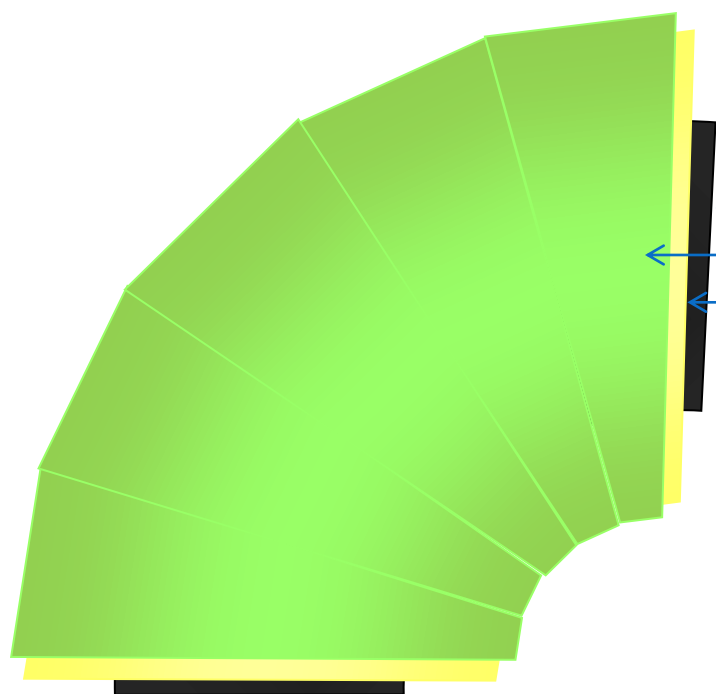
PIPE DIMENSIONS

NPS Ø	Core	Wall Thickness			Casing/Jacket OD		Insulation Thickness	
	Pipe OD	STD	Sch 40	XS	GRP/FRP	HDPE	GRP/FRP	HDPE
inch	inch	inch	inch	inch	mm	mm	mm	mm
34	34	0.375	0.688	0.500	1000	1100	61	91
36	36	0.375	0.750	0.500	1100	1100	84	65
38	38	0.375	-	0.500	1100	1100	59	40
40	40	0.375	-	0.500	1200	1200	82	62
42	42	0.375	-	0.500	1200	1200	57	37
44	44	0.375	-	0.500	1300	-	81	-
46	46	0.375	-	0.500	1300	-	55	-
48	48	0.375	-	0.500	1400	-	79	-
52	52	0.375	-	0.500	1500	-	77	-
56	56	0.375	-	0.500	1600	-	76	-
60	60	0.375	-	0.500	1700	-	76	-



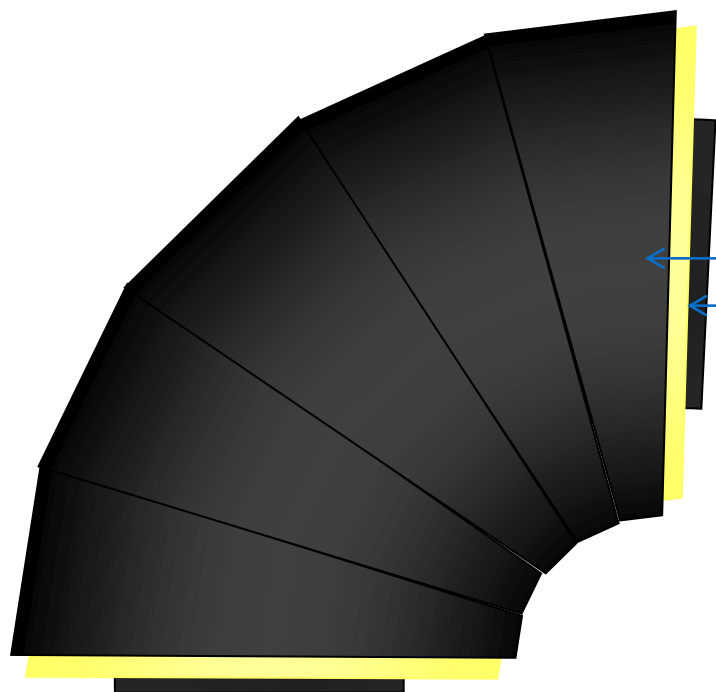
SAUDI PIPE SYSTEMS CO.

Preinsulated Piping Division



PREINSULATED ELBOW

Core: Black Steel
Casing: GRP
Insulation: Polyurethane Foam



PREINSULATED ELBOW

Core: Black Steel
Casing: HDPE
Insulation: Polyurethane Foam



SAUDI PIPE SYSTEMS CO.

Preinsulated Piping Division

ELBOW DIMENSIONS

NPS Ø	OD	Center to End				Casing/Jacket OD		Insulation Thickness	
		Long Radius		Short Radius		GRP/FRP	HDPE	GRP/FRP	HDPE
		90°	45°	90°	45°				
inch	inch	A (mm)	A (mm)	A (mm)	A (mm)	mm	mm	mm	mm
½	0.84	338	316	-	-	100	140	54	53
¾	1.05	328	311	-	-	100	140	52	51
1	1.31	338	322	325	-	150	160	58	57
1¼	1.66	348	325	332	-	150	160	53	53
1½	1.9	357	328	338	-	150	160	50	50
2	2.37	376	335	351	-	200	180	70	55
2½	2.87	395	344	364	-	200	200	63	56
3	3.50	414	351	376	332	200	225	55	59
4	4.50	452	364	402	342	250	250	67	58
5	5.56	491	379	427	353	250	280	54	59



SAUDI PIPE SYSTEMS CO.

Preinsulated Piping Division

ELBOW DIMENSIONS

NPS Ø	OD	Center to End				Casing/Jacket OD		Insulation Thickness	
		Long Radius		Short Radius		GRP/FRP	HDPE	GRP/FRP	HDPE
		90°	45°	90°	45°				
inch	inch	A (mm)	A (mm)	A (mm)	A (mm)	mm	mm	mm	mm
6	6.63	529	395	452	363	300	315	67	61
8	8.63	605	427	503	384	350	355	67	54
10	10.75	681	459	554	405	400	400	65	48
12	12.75	757	491	605	426	450	450	62	46
14	14.00	833	522	656	447	500	500	69	53
16	16.00	910	554	706	468	500	560	44	55
18	18.00	986	586	757	489	600	630	67	62
20	20.00	1062	618	808	510	600	710	42	74
22	22.00	1138	643	859	532	700	710	66	48
24	24.00	1214	681	910	553	700	800	40	65



SAUDI PIPE SYSTEMS CO.

Preinsulated Piping Division

ELBOW DIMENSIONS

NPS Ø	OD	Center to End				Casing/Jacket OD		Insulation Thickness	
		Long Radius		Short Radius		GRP/FRP	HDPE	GRP/FRP	HDPE
		90°	45°	90°	45°				
inch	inch	A (mm)	A (mm)	A (mm)	A (mm)	mm	mm	mm	mm
26	26.00	1291	706	960	574	800	900	64	85
28	28.00	1367	738	1011	595	900	900	83	60
30	30.00	1443	770	1062	616	900	1000	58	81
32	32.00	1519	802	1113	678	1000	1000	86	55
34	34.00	1595	833	1164	658	1000	1100	61	91
36	36.00	1672	865	1214	679	1100	1100	84	65
38	38.00	1748	900	-	-	1100	1100	59	40
40	40.00	1824	932	1316	721	1200	1200	82	62
42	42.00	1900	960	1367	742	1200	1200	57	37



SAUDI PIPE SYSTEMS CO.

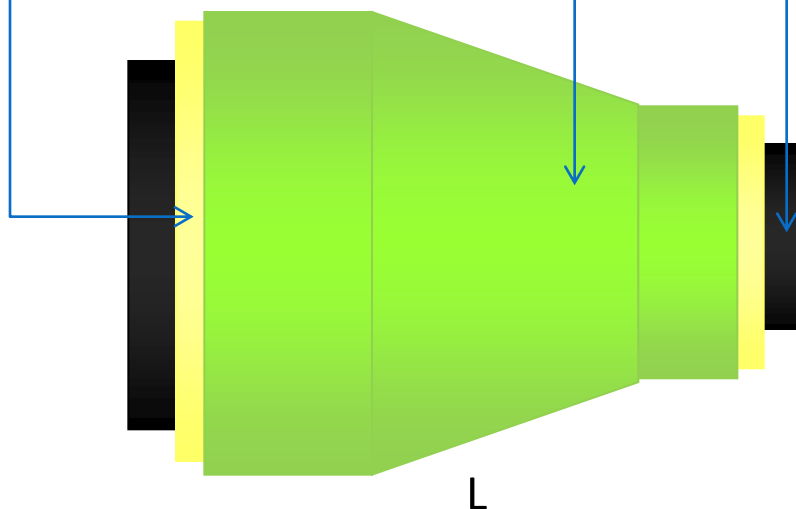
Preinsulated Piping Division

PREINSULATED REDUCER

Core: Black Steel

Casing: GRP

Insulation: Polyurethane
Foam

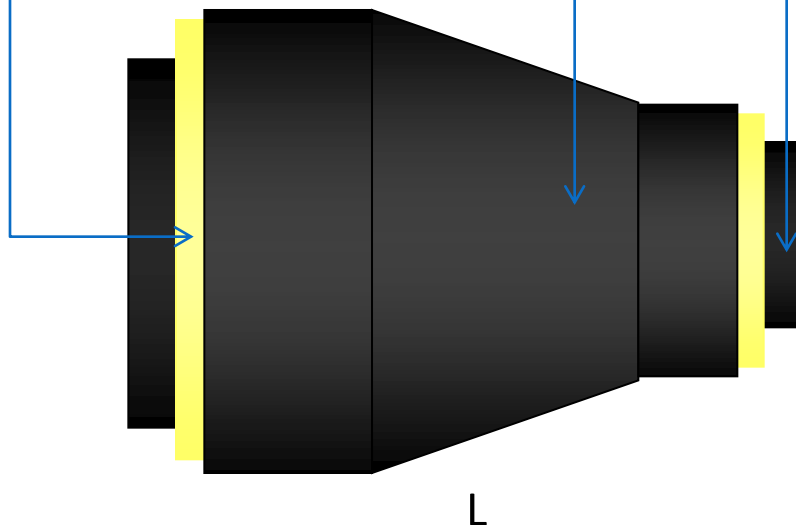


PREINSULATED REDUCER

Core: Black Steel

Casing: HDPE

Insulation: Polyurethane
Foam





SAUDI PIPE SYSTEMS CO.

Preinsulated Piping Division

REDUCER DIMENSIONS

NPS Ø	Core Pipe OD	Length	Casing/Jacket OD		Insulation Thickness	
			GRP/FRP	HDPE	GRP/FRP	HDPE
inch	inch	H (mm)	mm	mm	mm	mm
¾ x ½	1.05 x 0.84	638	100X100	140X140	52X54	51X53
1 x ¾	1.05 x 1.05	651	150X100	160X140	58X52	57X51
1 x ½	1.05 x 0.84	651	150X100	160X140	58X54	57X53
1¼ x 1	1.66 x 1.31	651	150X100	160X160	50X58	52X57
1¼ x 1¾	1.66 x 1.05	651	150X100	160X140	50X52	52X53
1¼ x 1½	1.66 x 0.84	651	150X150	160X160	50X48	52X50
1½ x 1¼	1.90 x 1.66	664	150X150	160X160	48X50	50X52
1½ x 1	1.90 x 1.31	664	150X150	160X160	50X58	50X57
1½ x ¾	1.90 x 1.05	664	150X100	160X140	50X52	50X51
1½ x ½	1.90 x 0.84	664	150X100	160X140	50X54	50X53
2 x 1½	2.37 x 1.90	676	200X150	180X160	70X50	55X50
2 x 1¼	2.37 x 1.66	676	200X150	180X160	70X52	55X52



SAUDI PIPE SYSTEMS CO.

Preinsulated Piping Division

REDUCER DIMENSIONS

NPS Ø	Core Pipe OD	Length	Casing/Jacket OD		Insulation Thickness	
			GRP/FRP	HDPE	GRP/FRP	HDPE
inch	inch	H (mm)	mm	mm	mm	mm
2 x 1	2.37 x 1.31	676	200X150	180X160	70X58	55X57
2 x ¾	2.37 x 1.05	676	200X100	180X140	70X52	55X51
2½ x 2	2.87 x 2.37	689	200X200	200X160	63X70	56X55
2½ x 1½	2.87 x 1.90	689	200X150	200X160	63X50	56X50
2½ x 1¼	2.87 x 1.66	689	200X150	200X160	63X52	56X52
2½ x 1	2.87 x 1.31	689	200X150	200X160	63X58	56X57
3 x 2½	3.50 x 2.87	689	200X200	225X200	55X63	59X56
3 x 2	3.50 x 2.37	689	200X200	225X160	55X70	59X55
3 x 1½	3.50 x 1.90	689	200X150	225X160	55X50	59X50
3 x 1¼	3.50 x 1.66	689	200X150	225X160	55X52	59X52
3 x 1	3.50 x 1.31	689	200X150	225X160	55X58	59X57
4 x 3	4.50 x 3.50	702	250X200	250X225	67X55	58X59



SAUDI PIPE SYSTEMS CO.

Preinsulated Piping Division

REDUCER DIMENSIONS

NPS Ø	Core Pipe OD	Length	Casing/Jacket OD		Insulation Thickness	
			GRP/FRP	HDPE	GRP/FRP	HDPE
inch	inch	H (mm)	mm	mm	mm	mm
4 x 2½	4.50 x 2.87	702	250X200	250X200	67X63	58X56
4 x 2	4.50 x 2.37	702	250X200	250X180	67X70	58X55
4 x 1½	4.50 x 1.90	702	250X150	250X160	67X50	58X50
5 x 4	5.56 x 4.50	727	250X250	280X250	54X67	59X58
5 x 3	5.56 x 3.50	727	250X200	280X225	54X55	59X59
5 x 2½	5.56 x 2.87	727	250X200	280X200	54X63	59X56
5 x 2	5.56 x 2.37	727	250X200	280X180	54X70	59X55
6 x 5	6.63 x 5.56	740	300X250	315X280	67X54	61X59
6 x 4	6.63 x 4.50	740	300X200	315X250	67X67	61X58
6 x 3	6.63 x 3.50	740	300X200	315X225	67X55	61X56
6 x 2½	6.63 x 2.87	740	300X200	315X200	67X63	61X56
8 x 6	8.63 x 6.63	752	350X300	355X315	67X67	54X61



SAUDI PIPE SYSTEMS CO.

Preinsulated Piping Division

REDUCER DIMENSIONS

NPS Ø	Core Pipe OD	Length	Casing/Jacket OD		Insulation Thickness	
			GRP/FRP	HDPE	GRP/FRP	HDPE
inch	inch	H (mm)	mm	mm	mm	mm
8 x 5	8.63 x 5.56	752	350X250	355X280	67X54	54X59
8 x 4	8.63 x 4.50	752	350X250	355X250	67X67	54X58
8 x 3	8.63 x 3.50	752	350X200	355X250	67X55	54X59
10 x 8	10.75 x 8.63	778	400X350	400X355	65X67	48X54
10 x 6	10.75 x 6.63	778	400X300	400X315	65X67	48X61
10 x 5	10.75 x 5.56	778	400X250	400X280	65X54	48X59
10 x 4	10.75 x 4.50	778	400X250	400X250	65X67	48X58
12 x 10	12.75 x 10.75	803	450X400	450X400	62X65	46X48
12 x 8	12.75 x 8.63	803	450X350	450X355	62X67	46X54
12 x 6	12.75 x 6.63	803	450X300	450X280	62X67	46X61
12 x 5	12.75 x 5.56	803	450X250	450X280	62X54	46X59
14 x 12	14.00 x 12.75	930	500X450	500X450	69X62	53X46



SAUDI PIPE SYSTEMS CO.

Preinsulated Piping Division

REDUCER DIMENSIONS

NPS Ø	Core Pipe OD	Length	Casing/Jacket OD		Insulation Thickness	
			GRP/FRP	HDPE	GRP/FRP	HDPE
inch	inch	H (mm)	mm	mm	mm	mm
14 x 10	14.00 x 10.75	930	500X400	500X400	69X65	53X48
14 x 8	14.00 x 8.63	930	500X350	500X355	69X67	53X54
14 x 6	14.00 x 6.63	930	500X300	500X315	69X67	53X61
16 x 14	16.00 x 14.00	956	500X500	560X500	44X69	55X53
16 x 12	16.00 x 12.75	956	500X450	560X450	44X62	55X46
16 x 10	16.00 x 10.75	956	500X400	560X400	44X65	55X48
16 x 8	16.00 x 8.63	956	500X400	560X355	44X67	55X54
18 x 16	18.00 x 16.00	981	600X500	630X560	67X44	62X55
18 x 14	18.00 x 14.00	981	600X500	630X450	67X69	62X46
18 x 12	18.00 x 12.75	981	600X450	630X450	67X62	62X56
18 x 10	18.00 x 10.75	981	600X400	630X400	67X65	62X48
20 x 18	20.00 x 18.00	1108	600X600	710X630	42X67	74X62



SAUDI PIPE SYSTEMS CO.

Preinsulated Piping Division

REDUCER DIMENSIONS

NPS Ø	Core Pipe OD	Length	Casing/Jacket OD		Insulation Thickness	
			GRP/FRP	HDPE	GRP/FRP	HDPE
inch	inch	H (mm)	mm	mm	mm	mm
26 x 24	26.00 x 24.00	1210	800X800	900X710	64X40	85X65
26 x 22	26.00 x 22.00	1210	800X700	900X710	64X66	85X48
26 x 20	26.00 x 20.00	1210	800X600	900X710	64X67	85X74
26 x 18	26.00 x 18.00	1210	800X600	900X630	64X67	85X62
28 x 26	28.00 x 26.00	1210	900X800	900X900	83X64	60X85
28 x 24	28.00 x 24.00	1210	900X800	900X710	83X40	60X65
28 x 22	28.00 x 22.00	1210	900X700	900X710	83X66	60X48
28 x 20	28.00 x 20.00	1210	900X600	900X710	83X42	60X74
28 x 18	28.00 x 18.00	1210	900X600	900X630	83X67	60X62
30 x 28	30.00 x 28.00	1210	900X900	1000X900	58X83	81X60
30 x 26	30.00 x 26.00	1210	900X800	1000X900	58X64	81X85
30 x 24	30.00 x 24.00	1210	900X800	1000X710	58X40	81X65



SAUDI PIPE SYSTEMS CO.

Preinsulated Piping Division

REDUCER DIMENSIONS

NPS Ø	Core Pipe OD	Length	Casing/Jacket OD		Insulation Thickness	
			GRP/FRP	HDPE	GRP/FRP	HDPE
inch	inch	H (mm)	mm	mm	mm	mm
32 x 30	32.00 x 30.00	1210	1000X1000	1000X1000	86X58	55X81
32 x 28	32.00 x 28.00	1210	1000X900	1000X900	86X83	55X60
32 x 26	32.00 x 26.00	1210	1000X800	1000X900	86X64	55X85
32 x 24	32.00 x 24.00	1210	1000X800	1000X710	86X40	55X65
34 x 32	34.00 x 32.00	1210	1000X1000	1100X1000	61X86	91X55
34 x 30	34.00 x 30.00	1210	1000X900	1100X1000	61X58	91X81
34 x 28	34.00 x 28.00	1210	1000X900	1100X900	61X83	91X60
34 x 26	34.00 x 26.00	1210	1000X800	1100X900	61X64	91X85
36 x 34	36.00 x 34.00	1210	1100X1100	1100X1100	84X61	65X91
36 x 32	36.00 x 32.00	1210	1100X1000	1100X1000	84X86	65X55
36 x 30	36.00 x 30.00	1210	1100X900	1100X900	84X58	65X81
36 x 28	36.00 x 28.00	1210	1100X900	1100X900	84X83	65X60



SAUDI PIPE SYSTEMS CO.

Preinsulated Piping Division

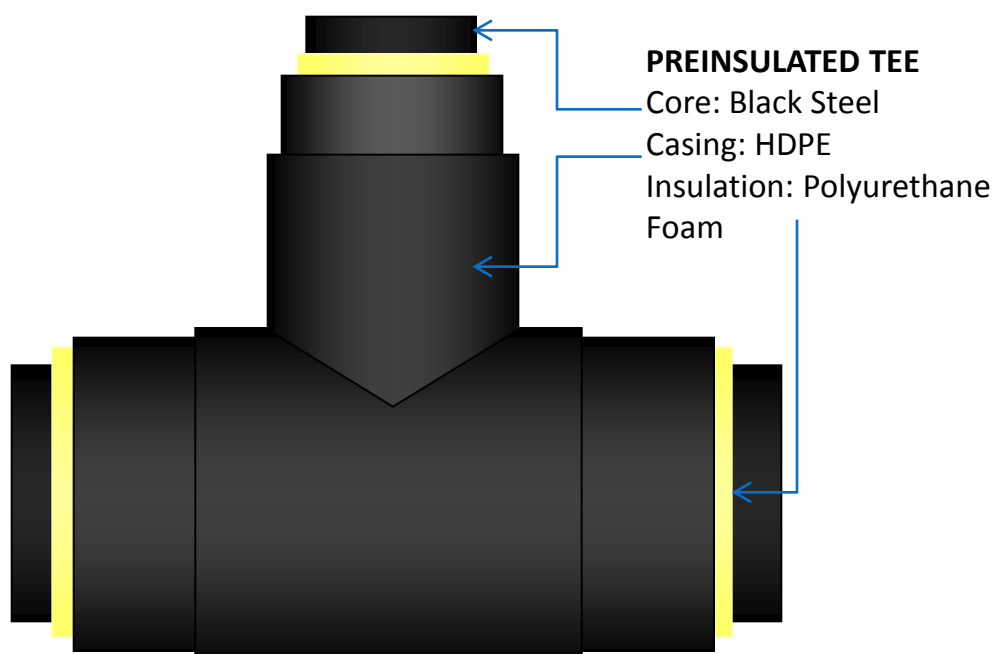
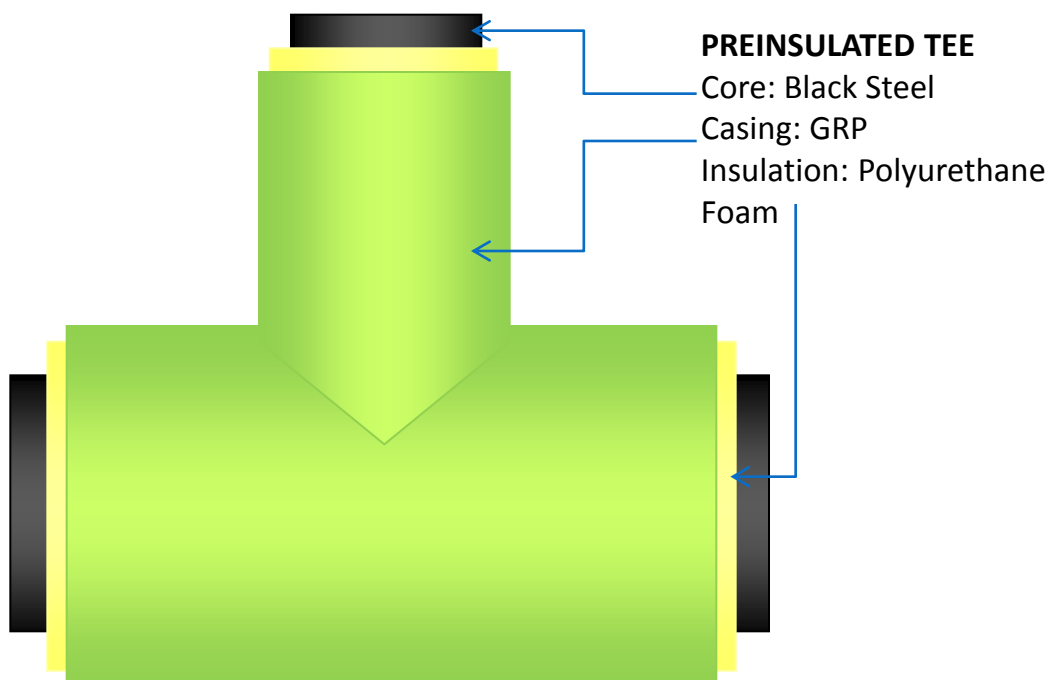
REDUCER DIMENSIONS

NPS Ø	Core Pipe OD	Length	Casing/Jacket OD		Insulation Thickness	
			GRP/FRP	HDPE	GRP/FRP	HDPE
inch	inch	H (mm)	mm	mm	mm	mm
38 x 36	38.00 x 36.00	1210	1100X1100	1100X1100	59X84	40X65
38 x 34	38.00 x 34.00	1210	1100X1100	1100X1100	59X61	40X91
38 x 32	38.00 x 32.00	1210	1100X1000	1100X1000	59X86	40X55
38 x 30	38.00 x 30.00	1210	1100X900	1100X1000	59X58	40X81
38 x 28	38.00 x 28.00	1210	1100X900	1100X900	59X83	40X60
38 x 26	38.00 x 26.00	1210	1100X800	1100X900	59X64	40X85
40 x 38	40.00 x 38.00	1210	1200X1100	1200X1100	62X59	62X40
40 x 36	40.00 x 36.00	1210	1200X1100	1200X1100	62X84	62X65
40 x 34	40.00 x 34.00	1210	1200X1000	1200X1100	62X61	62X91
40 x 32	40.00 x 32.00	1210	1200X1000	1200X1000	62X86	62X55
40 x 30	40.00 x 30.00	1210	1200X900	1200X1000	62X58	62X81



SAUDI PIPE SYSTEMS CO.

Preinsulated Piping Division





SAUDI PIPE SYSTEMS CO.

Preinsulated Piping Division

EQUAL AND REDUCING TEE DIMENSIONS

NPS Ø	Core Pipe OD	Center To End		Casing/Jacket OD		Insulation Thickness	
		Run	Branch	GRP/FRP	HDPE	GRP/FRP	HDPE
inch	inch	C (mm)	M (mm)	mm	mm	mm	mm
½ x ½	0.84 x 0.84	325	325	100X100	140X140	54X54	53X53
¾ x ¾	1.05 x 1.05	328	328	100X100	140X140	52X52	51X51
¾ x ½	1.05 x 0.84	328	328	100X100	140X140	52X54	51X53
1 x 1	1.31 x 1.31	338	338	150X150	160X160	58X58	57X57
1 x ¾	1.31 x 1.05	338	338	150X100	160X140	58X54	57X53
1 x ½	1.31 x 0.84	338	338	150X100	160X140	58X54	57X53
1¼ x 1¼	1.66 x 1.66	348	348	150X150	160X160	52X52	52X52
1¼ x 1	1.66 x 1.31	348	348	150X150	160X160	52X58	52X57
1¼ x ¾	1.66 x 1.05	348	348	150X100	160X140	52X52	52X53
1¼ x ½	1.66 x 0.84	348	348	150X100	160X140	52X54	52X53
1½ x 1½	1.90 x 1.90	357	357	150X150	160X160	50X50	50X50
1½ x 1¼	1.90 x 1.66	357	357	150X150	160X160	50X52	50X52



SAUDI PIPE SYSTEMS CO.

Preinsulated Piping Division

EQUAL AND REDUCING TEE DIMENSIONS

NPS Ø	Core Pipe OD	Center To End		Casing/Jacket OD		Insulation Thickness	
		Run	Branch	GRP/FRP	HDPE	GRP/FRP	HDPE
inch	inch	C (mm)	M (mm)	mm	mm	mm	mm
1½ X 1	1.90 X 1.31	357	357	150X150	160X160	50X58	50X57
1½ X ¾	1.90 X 1.05	357	357	150X100	160X140	50X52	50X51
1½ X ½	1.90 X 0.84	357	357	150X100	160X140	50X54	50X53
2 X 2	2.37 X 2.37	364	364	200X200	180X180	70X70	55X55
2 X 1½	2.37 X 1.90	364	361	200X150	180X160	70X50	55X50
2 X 1¼	2.37 X 1.66	364	357	200X150	180X160	70X52	55X52
2 X 1	2.37 X 1.31	364	351	200X150	180X160	70X58	55X57
2 X ¾	2.37 X 1.05	364	344	200X100	180X140	70X54	55X51
2½ X 2½	2.87 X 2.87	376	376	200X200	200X200	63X63	56X56
2½ X 2	2.87 X 2.37	376	370	200X200	200X180	63X70	56X55
2½ X 1½	2.87 X 1.90	376	367	200X150	200X160	63X50	56X50
2½ X 1¼	2.87 X 1.66	376	364	200X150	200X160	63X52	56X52



SAUDI PIPE SYSTEMS CO.

Preinsulated Piping Division

EQUAL AND REDUCING TEE DIMENSIONS

NPS Ø	Core Pipe OD	Center To End		Casing/Jacket OD		Insulation Thickness	
		Run	Branch	GRP/FRP	HDPE	GRP/FRP	HDPE
inch	inch	C (mm)	M (mm)	mm	mm	mm	mm
2½ X 1	2.87 X 1.31	376	357	200X150	200X140	63X58	56X57
3 X 3	3.50 X 3.50	386	386	200X200	225X225	55X55	59X59
3 X 2½	3.50 X 2.87	386	383	200X200	225X200	55X55	59X56
3 X 2	3.50 X 2.37	386	376	200X200	225X180	55X70	59X5
3 X 1½	3.50 X 1.90	386	373	200X150	225X160	55X50	59X50
3 X 1¼	3.50 X 1.66	386	370	200X150	225X160	55X52	59X52
4 X 4	4.05 X 4.50	405	405	250X250	250X250	67X67	58X58
4 X 3	4.50 X 3.50	405	399	250X200	250X225	67X55	58X59
4 X 2½	4.50 X 2.87	405	395	250X200	250X200	67X55	58X59
4 X 2	4.50 X 2.37	405	389	250X200	250X180	67X70	58X50
4 X 1½	4.50 X 1.90	405	386	250X150	250X160	67X50	58X52
5 X 5	5.56 X 5.56	424	424	250X250	280X280	54X54	59X59



SAUDI PIPE SYSTEMS CO.

Preinsulated Piping Division

EQUAL AND REDUCING TEE DIMENSIONS

NPS Ø	Core Pipe OD	Center To End		Casing/Jacket OD		Insulation Thickness	
		Run	Branch	GRP/FRP	HDPE	GRP/FRP	HDPE
inch	inch	C (mm)	M (mm)	mm	mm	mm	mm
5 X 4	5.56 X 4.50	424	417	250X250	280X250	54X67	59X58
5 X 3	5.56 X 3.50	424	411	250X200	280X225	54X55	59X59
5 X 2½	5.56 X 2.87	424	408	250X200	280X200	54X63	59X56
5 X 2	5.56 X 2.37	424	405	250X200	280X180	54X70	59X55
6 X 6	6.63 X 6.63	443	443	300X300	315X315	67X67	61X61
6 X 5	6.63 X 5.56	443	437	300X250	315X280	67X54	61X59
6 X 4	6.63 X 4.50	443	430	300X250	315X250	67X67	61X58
6 X 3	6.63 X 3.50	443	424	300X200	315X225	67X55	61X59
6 X 2½	6.63 X 2.87	443	421	300X200	315X200	67X63	61X56
8 X 8	8.63 X 8.63	478	478	350X350	355X355	67X67	54X54
8 X 6	8.63 X 6.63	478	468	350X300	355X315	67X67	54X61
8 X 5	8.63 X 5.56	478	462	350X250	355X280	67X54	54X59



SAUDI PIPE SYSTEMS CO.

Preinsulated Piping Division

EQUAL AND REDUCING TEE DIMENSIONS

NPS Ø	Core Pipe OD	Center To End		Casing/Jacket OD		Insulation Thickness	
		Run	Branch	GRP/FRP	HDPE	GRP/FRP	HDPE
inch	inch	C (mm)	M (mm)	mm	mm	mm	mm
8 X 4	8.63 X 4.50	478	455	350X250	355X250	67X67	54X58
10 X 10	10.75 X 10.75	516	516	400X400	400X400	65X65	48X48
10 X 8	10.75 X 8.63	516	503	400X350	400X355	65X67	48X54
10 X 6	10.75 X 6.63	516	494	400X300	400X315	65X67	48X61
10 X 5	10.75 X 5.56	516	491	400X250	400X280	65X54	48X59
10 X 4	10.75 X 4.50	516	484	400X250	400X250	65X67	48X58
12 X 12	12.75 X 12.75	554	554	450X150	450X450	62X62	46X46
12 x 10	12.75 x 10.75	554	541	450X400	450X400	62X65	46X48
12 x 8	12.75 x 8.63	554	529	450X300	450X355	62X67	46X54
12 x 6	12.75 x 6.63	554	519	450X300	450X315	63X67	46X61
12 x 5	12.75 x 5.56	554	516	450X250	450X280	62X54	46X59
14 x 14	14.00 x 14.00	580	579	500X500	500X500	69X69	53X53



SAUDI PIPE SYSTEMS CO.

Preinsulated Piping Division

EQUAL AND REDUCING TEE DIMENSIONS

NPS Ø	Core Pipe OD	Center To End		Casing/Jacket OD		Insulation Thickness	
		Run	Branch	GRP/FRP	HDPE	GRP/FRP	HDPE
inch	inch	C (mm)	M (mm)	mm	mm	mm	mm
14 x 12	14.00 x 12.75	580	570	500X450	500X450	69X62	53X46
14 x 10	14.00 x 10.75	580	557	500X400	500X400	69X65	53X48
14 x 8	14.00 x 8.63	580	548	500X350	500X355	69X67	53X54
14 x 6	14.00 x 6.63	580	538	500X300	500X315	54X61	53X61
16 x 16	16.00 x 16.00	605	605	500X500	560X560	44X44	55X55
16 x 14	16.00 x 14.00	605	605	500X500	560X500	44X69	55X53
16 x 12	16.00 x 12.75	605	595	500X450	560X450	44X62	55X46
16 x 10	16.00 x 10.75	605	582	500X400	560X400	44X65	55X48
16 x 8	16.00 x 8.63	605	573	500X350	560X355	44X67	55X54
16 x 6	16.00 x 6.63	605	564	500X300	560X315	44X67	55X61
18 x 18	18.00 x 18.00	643	643	600X600	630X630	67X67	62X62
18 x 16	18.00 x 16.00	643	630	600X600	630X630	67X67	62X62



SAUDI PIPE SYSTEMS CO.

Preinsulated Piping Division

EQUAL AND REDUCING TEE DIMENSIONS

NPS Ø	Core Pipe OD	Center To End		Casing/Jacket OD		Insulation Thickness	
		Run	Branch	GRP/FRP	HDPE	GRP/FRP	HDPE
inch	inch	C (mm)	M (mm)	mm	mm	mm	mm
18 x 14	18.00 x 14.00	643	630	600X500	630X500	67X69	62X53
18 x 12	18.00 x 12.75	643	621	600X450	630X450	67X62	62X46
18 x 10	18.00 x 10.75	643	608	600X400	630X400	67X65	62X48
18 x 8	18.00 x 8.63	643	598	600X350	630X355	67X67	62X54
20 x 20	20.00 x 20.00	681	681	600X600	710X710	42X42	74X74
20 x 18	20.00 x 18.00	681	669	600X600	710X630	42X67	74X62
20 x 16	20.00 x 16.00	681	656	600X500	710X560	42X44	74X55
20 x 14	20.00 x 14.00	681	656	600X500	710X500	42X69	74X53
20 x 12	20.00 x 12.75	681	646	600X450	710X450	42X62	74X46
20 x 10	20.00 x 10.75	681	633	600X400	710X400	42X65	74X48
20 x 8	20.00 x 8.63	681	624	600X350	710X355	42X67	74X54
22 x 22	22.00 x 22.00	719	719	700X700	710X710	66X66	48X48



SAUDI PIPE SYSTEMS CO.

Preinsulated Piping Division

EQUAL AND REDUCING TEE DIMENSIONS

NPS Ø	Core Pipe OD	Center To End		Casing/Jacket OD		Insulation Thickness	
		Run	Branch	GRP/FRP	HDPE	GRP/FRP	HDPE
inch	inch	C (mm)	M (mm)	mm	mm	mm	mm
22 x 18	22.00 x 18.00	719	694	700X600	710X630	66X67	48X62
22 x 16	22.00 x 16.00	719	681	700X500	710X560	66X44	48X55
22 x 14	22.00 x 14.00	719	681	700X500	710X500	66X69	48X53
22 x 12	22.00 x 12.75	719	671	700X400	710X450	66X62	48X46
22 x 10	22.00 x 10.75	719	659	700X400	710X400	66X65	48X48
24 x 24	24.00 x 24.00	732	732	800X800	710X710	40X40	65X65
24 x 22	24.00 x 22.00	732	732	800X700	710X710	40X66	65X48
24 x 20	24.00 x 20.00	732	732	800X600	710X710	40X42	65X74
24 x 18	24.00 x 18.00	732	719	800X600	710X630	40X67	65X62
24 x 16	24.00 x 16.00	732	706	800X500	710X560	40X44	65X55
24 x 14	24.00 x 14.00	732	706	800X500	710X500	40X69	65X53
24 x 12	24.00 x 12.75	732	697	800X450	710X450	40X62	65X53



SAUDI PIPE SYSTEMS CO.

Preinsulated Piping Division

EQUAL AND REDUCING TEE DIMENSIONS

NPS Ø	Core Pipe OD	Center To End		Casing/Jacket OD		Insulation Thickness	
		Run	Branch	GRP/FRP	HDPE	GRP/FRP	HDPE
inch	inch	C (mm)	M (mm)	mm	mm	mm	mm
24 x 10	24.00 x 10.75	732	684	800X400	710X400	40X65	65X48
26 x 26	26.00 x 26.00	796	795	800X800	900X900	64X64	85X85
26 x 24	26.00 x 24.00	796	783	800X800	900X710	64X40	85X65
26 x 22	26.00 x 22.00	796	770	800X700	900X710	64X66	85X48
26 x 20	26.00 x 20.00	796	757	800X600	900X710	64X42	85X74
26 x 18	26.00 x 18.00	796	745	800X600	900X630	64X67	85X62
26 x 16	26.00 x 16.00	796	732	800X500	900X560	64X44	85X55
26 x 14	26.00 x 14.00	796	732	800X500	900X500	64X69	85X53
26 x 12	26.00 x 12.75	796	722	800X450	900X450	64X62	85X46
28 x 28	28.00 x 28.00	821	821	900X900	900X900	83X83	60X60
28 x 26	28.00 x 26.00	821	821	900X800	900X900	83X64	60X85
28 x 24	28.00 x 24.00	821	808	900X800	900X710	83X40	60X65



SAUDI PIPE SYSTEMS CO.

Preinsulated Piping Division

EQUAL AND REDUCING TEE DIMENSIONS

NPS Ø	Core Pipe OD	Center To End		Casing/Jacket OD		Insulation Thickness	
		Run	Branch	GRP/FRP	HDPE	GRP/FRP	HDPE
inch	inch	C (mm)	M (mm)	mm	mm	mm	mm
28 x 22	28.00 x 22.00	821	795	900X700	900X710	58X66	60X48
28 x 20	28.00 x 20.00	821	783	900X600	900X710	58X42	60X42
28 x 18	28.00 x 18.00	821	770	900X600	900X630	58X67	60X62
28 x 16	28.00 x 16.00	821	757	900X500	900X560	58X44	60X55
28 x 14	28.00 x 14.00	821	757	900X500	900X500	58X69	60X53
28 x 12	28.00 x 12.75	821	748	900X450	900X450	58X62	60X46
30 x 30	30.00 x 30.00	859	859	900X900	1000X1000	58X58	81X81
30 x 28	30.00 x 28.00	859	846	900X900	1000X900	58X83	81X60
30 x 26	30.00 x 26.00	859	846	900X800	1000X900	58X64	81X85
30 x 24	30.00 x 24.00	859	833	900X800	1000X710	58X40	81X65
30 x 22	30.00 x 22.00	859	821	900X700	1000X710	58X66	81X48
30 x 20	30.00 x 20.00	859	808	900X600	1000X710	58X42	81X74



SAUDI PIPE SYSTEMS CO.

Preinsulated Piping Division

EQUAL AND REDUCING TEE DIMENSIONS

NPS Ø	Core Pipe OD	Center To End		Casing/Jacket OD		Insulation Thickness	
		Run	Branch	GRP/FRP	HDPE	GRP/FRP	HDPE
inch	inch	C (mm)	M (mm)	mm	mm	mm	mm
30 x 16	30.00 x 16.00	859	783	900X500	1000X560	58X44	81X55
30 x 14	30.00 x 14.00	859	783	900X500	1000X500	58X69	81X53
30 x 12	30.00 x 12.75	859	773	900X450	1000X450	58X62	81X46
30 x 10	30.00 x 10.75	859	760	900X400	1000X400	58X65	81X48
32 x 32	32.00 x 32.00	897	897	1000X1000	1000X1000	86X86	55X55
32 x 30	32.00 x 30.00	897	884	1000X900	1000X1000	86X58	55X81
32 x 28	32.00 x 28.00	897	872	1000X900	1000X900	86X83	55X60
32 x 26	32.00 x 26.00	897	872	1000X800	1000X9000	86X64	55X85
32 x 24	32.00 x 24.00	897	859	100X800	1000X710	86X40	55X65
32 x 22	32.00 x 22.00	897	846	1000X700	1000X710	86X66	55X48
32 x 20	32.00 x 20.00	897	833	1000X600	1000X710	86X42	55X74
32 x 18	32.00 x 18.00	897	821	1000X600	1000X630	86X67	55X62



SAUDI PIPE SYSTEMS CO.

Preinsulated Piping Division

EQUAL AND REDUCING TEE DIMENSIONS

NPS Ø	Core Pipe OD	Center To End		Casing/Jacket OD		Insulation Thickness	
		Run	Branch	GRP/FRP	HDPE	GRP/FRP	HDPE
inch	inch	C (mm)	M (mm)	mm	mm	mm	mm
32 x 16	32.00 x 16.00	897	808	1000X500	1000X560	86X44	55X55
32 x 14	32.00 x 14.00	897	808	1000X500	1000X500	86X69	55X53
34 x 34	34.00 x 34.00	935	935	1000X1000	1100X1100	61X61	91X91
34 x 32	34.00 x 32.00	935	322	1000X1000	1100X1000	61X86	91X55
34 x 30	34.00 x 30.00	935	910	1000X900	1100X1000	61X58	91X81
34 x 28	34.00 x 28.00	935	897	1000X900	1100X900	61X83	91X60
34 x 26	34.00 x 26.00	935	897	1000X800	1100X900	61X64	91X85
34 x 24	34.00 x 24.00	935	884	1000X800	1100X710	61X40	91X65
34 x 22	34.00 x 22.00	935	872	1000X700	1100X710	61X66	91X48
34 x 20	34.00 x 20.00	935	859	1000X600	1100X710	61X42	91X74
34 x 18	34.00 x 18.00	935	846	1000X600	1100X630	61X67	91X62
34 x 16	34.00 x 16.00	935	833	1000X500	1100X560	61X44	91X55



SAUDI PIPE SYSTEMS CO.

Preinsulated Piping Division

EQUAL AND REDUCING TEE DIMENSIONS

NPS Ø	Core Pipe OD	Center To End		Casing/Jacket OD		Insulation Thickness	
		Run	Branch	GRP/FRP	HDPE	GRP/FRP	HDPE
inch	inch	C (mm)	M (mm)	mm	mm	mm	mm
36 x 34	36.00 x 34.00	973	960	1100X1000	1100X1100	84X61	65X91
36 x 32	36.00 x 32.00	973	948	1100X1000	1100X1100	84X86	65X55
36 x 30	36.00 x 30.00	973	935	1100X900	1100X1000	84X58	65X81
36 x 28	36.00 x 28.00	973	922	1100X900	1100X900	84X83	65X60
36 x 26	36.00 x 26.00	973	922	1100X800	1100X900	84X64	65X85
36 x 24	36.00 x 24.00	973	910	1100X800	1100X710	84X40	65X65
36 x 22	36.00 x 22.00	973	897	1100X700	1100X710	84X66	65X48
36 x 20	36.00 x 20.00	973	884	1100X600	1100X710	84X42	64X74
36 x 18	36.00 x 18.00	973	872	1100X600	1100X630	84X67	64X62
36 x 16	36.00 x 16.00	973	859	1100X500	1100X560	84X44	64X55
38 x 38	38.00 x 38.00	1011	1011	1100X1100	1100X1100	59X59	40X40
38 x 36	38.00 x 36.00	1011	1011	1100X1100	1100X1100	59X84	40X65



SAUDI PIPE SYSTEMS CO.

Preinsulated Piping Division

EQUAL AND REDUCING TEE DIMENSIONS

NPS Ø	Core Pipe OD	Center To End		Casing/Jacket OD		Insulation Thickness	
		Run	Branch	GRP/FRP	HDPE	GRP/FRP	HDPE
inch	inch	C (mm)	M (mm)	mm	mm	mm	mm
38 x 34	38.00 x 34.00	1011	999	1100X1000	1100X1100	59X61	40X91
38 x 32	38.00 x 32.00	1011	986	1100X1000	1100X1000	59X86	40X55
38 x 30	38.00 x 30.00	1011	973	1100X900	1100X1000	59X58	40X81
38 x 28	38.00 x 28.00	1011	948	1100X900	1100X900	59X83	40X60
38 x 26	38.00 x 26.00	1011	948	1100X800	1100X900	59X64	40X85
38 x 24	38.00 x 24.00	1011	935	1100X800	1100X710	59X40	40X65
38 x 22	38.00 x 22.00	1011	922	1100X700	1100X710	59X66	40X48
38 x 20	38.00 x 20.00	1011	910	1100X600	1100X710	59X42	40X74
38 x 18	38.00 x 18.00	1011	897	1100X600	1100X630	59X67	40X62
40 x 40	40.00 x 40.00	1050	1049	1200X1200	1200X1200	82X82	62X62
40 x 38	40.00 x 38.00	1050	1049	1200X1100	1200X110	82X59	62X40
40 x 34	40.00 x 34.00	1050	1024	1200X1000	1200X1100	82X61	62X91



SAUDI PIPE SYSTEMS CO.

Preinsulated Piping Division

EQUAL AND REDUCING TEE DIMENSIONS

NPS Ø	Core Pipe OD	Center To End		Casing/Jacket OD		Insulation Thickness	
		Run	Branch	GRP/FRP	HDPE	GRP/FRP	HDPE
inch	inch	C (mm)	M (mm)	mm	mm	mm	mm
40 x 32	40.00 x 32.00	1050	1011	1200X1000	1200X1000	82X86	62X55
40 x 30	40.00 x 30.00	1050	999	1200X900	1200X1000	82X58	62X81
40 x 28	40.00 x 28.00	1050	973	1200X900	1200X900	82X83	62X60
40 x 26	40.00 x 26.00	1050	973	1200X800	1200X900	82X64	62X85
40 x 24	40.00 x 24.00	1050	960	1200X800	1200X710	82X40	62X65
40 x 22	40.00 x 22.00	1050	948	1200X700	1200X710	82X66	62X48
40 x 20	40.00 x 20.00	1050	935	1200X600	1200X710	82X62	62X74
40 x 18	40.00 x 18.00	1050	922	1200X600	1200X630	82X67	62X62
42 x 42	42.00 x 42.00	1062	1011	1200X1200	1200X1200	57X57	37X37
42 x 40	42.00 x 40.00	1062	1011	1200X1200	1200X1200	57X82	37X62
42 x 38	42.00 x 38.00	1062	1011	1200X1100	1200X1100	57X59	37X40
42 x 36	42.00 x 36.00	1062	1011	1200X1100	1200X1100	57X84	37X65



SAUDI PIPE SYSTEMS CO.

Preinsulated Piping Division

EQUAL AND REDUCING TEE DIMENSIONS

NPS Ø	Core Pipe OD	Center To End		Casing/Jacket OD		Insulation Thickness	
		Run	Branch	GRP/FRP	HDPE	GRP/FRP	HDPE
inch	inch	C (mm)	M (mm)	mm	mm	mm	mm
42 x 34	42.00 x 34.00	1062	1011	1200X1000	1200X1100	57X61	37X91
42 x 32	42.00 x 32.00	1062	1011	1200X1000	1200X1000	57X86	37X55
42 x 30	42.00 x 30.00	1062	1011	1200X900	1200X1000	57X88	37X81
42 x 28	42.00 x 28.00	1062	999	1200X900	1200X900	57X83	37X60
42 x 26	42.00 x 26.00	1062	999	1200X800	1200X710	57X64	37X65
42 x 24	42.00 x 24.00	1062	960	1200X800	1200X710	57X40	37X65
42 x 22	42.00 x 22.00	1062	960	1200X700	1200X710	57X66	37X48
42 x 20	42.00 x 20.00	1062	960	1200X600	1200X710	57X42	37X74
42 x 18	42.00 x 18.00	1062	948	1200X600	1200X630	57X67	37X62
42 x 16	42.00 x 16.00	1062	935	1200X500	1200X560	57X44	37X55



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Preinsulated Piping Division

PROJECT LIST

S/L	PROJECT NAME	CONSULTANT	CONTRACTOR	PRODUCT
1	Main Chiller Plant Development of King Abdul Aziz Endowment-Makkah (DOKAAE)	Dar-Al Handasa	Saudi Binladin Group PB&A	STLxPUFxFRP
2	King Saud University for Women Riyadh, K.S.A.	Dar-Al Handasa	Saudi Binladin Group PB&A	STLxPUFxFRP
3	King Saud University for Health Science. Riyadh, K.S.A.	Dar-Al Handasa	Advance Vision E/M Co.	STLxPUFxFRP
4	King Saud University for Health Science. Jeddah, K.S.A.	Dar-Al Handasa	Advance Vision E/M Co.	STLxPUFxFRP
5	King Saud University for Health Science. Al-Hasa, K.S.A.	Dar-Al Handasa	Advance Vision E/M Co.	STLxPUFxFRP
6	King Saud University for Health Science. Madinah, K.S.A.	Dar-Al Handasa	Advance Vision E/M Co.	STLxPUFxFRP
7	Hajj Terminal - Load Center Cooling Tower	Dar-Al Handasa	Advance Vision E/M Co.	STLxPUFxFRP
8	KAUST - Thuwal	Saudi Aramco	Advance Vision E/M Co	STLxPUFxHDPE
9	KAIA - General Aviation	Dar-Al Handasa	Advance Vision E/M Co.	STLxPUFxHDPE
10	MASA'A - Makkah.	Dar-Al Handasa	Advance Vision E/M Co.	STLxPUFxFRP
11	King Abdul Aziz University Jeddah, K.S.A.	Flour Arabia	Haif Contracting Co.	STLxPUFxFRP
12	Al-Rashed Mall Al-Khobar, K.S.A.		Al-Rusheed Trading Co.	STLxPUFxFRP
13	King Saud University - Al-Kharj		Al-Oraini Co.	STLxPUFxFRP
14	Main Chiller Line - Aqaba Jordan		Saudi Oger Ltd.	STLxPUFxFRP
15	City Cool - Abu Dhabi		STS Taafuf Co.	STLxPUFxFRP
16	King Saud Bin Abdulaziz University	Riyadh	ADVANCED VISION	STLxPUFxFRP
17	Senegal Airport	Dakkar	ADVANCED VISION	STLxPUFxHDPE
18	Masa'a Temporary Cooling	Makkah	ADVANCED VISION	STLxPUFxFRP
19	King Saud Bin Abdulaziz University	Riyadh	ADVANCED VISION	STLxPUFxFRP



إشتراك

تتحدثات

الغرفة التجارية العامة بجدة
JEDDAH CHAMBER OF COMMERCE & INDUSTRY

إدارة الاشتراكات والتصاديق
إدارة الاشتراكات

رقم الاشتراك : ٤٧٣١٤
تاريخ الإصدار : ١٤٣١/٠١/٠٢ هـ
الدرجة : الأولى

تشهد الغرفة التجارية الصناعية بجدة بأن شركة مصنع أنظمة الالباب السعودي المحدودة
شركة محدوده براس مال مختلط

رقم السجل التجاري / الترخيص

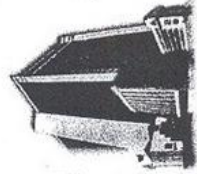
٤٠٣٠١٠٢٦٠٨

تاريخه ١٤١٤/١٠/١٧ هـ

مسجل لديها لعام ١٤٣١ هـ

المدير التنفيذي لإدارة الاشتراكات والتصاديق
محمد إبراهيم عبد السلام

ينتهي سريان هذه الشهادة بنهاية العام الهجري بعاليه (انظر الكخلف) وأي كشمط أو تعديل بهذه الشهادة تعتبر لاذنيه
«يشطب الإنساب في حالة شطب السجل التجاري المذكور في هذه الشهادة»



التاريخ: ٨١/٠١/١٤١٣
الرقم: ٤٠٣٠١٠٣٦٠٨

شادہ سجیل

الملك عبدالعزيز آل سعود
وزارة التجارة والصناعة

الإسم التجاري للشركة: شركة مصنع أنظمة الانابيب السعودي المحدودة
نوعها: ذات مسؤولية محدودة مختلطة
سجلها: سعودي

مدة الشركة: ١٠ سنوات تبدأ من: ١٤١٤/١٠/١٧ وتنتهي في: ١٤٣٤/١٠/١٦

مركزها الرئيسي: محمد المرحله الرابعه جزء من قطعه ١٠+١٢ جوار شركة الكتروني للصناعات

ص.ب: ٣٤٥٧٣ الرمز البريدي: ٢١٤٧٨ هاتف: ٦٠٨١١٠٠ فاكس: ٦٣٦٥٩٢٥

وَمَوَاسِمُهَا لَا يَلْبِثُ أَنْ تَزْجَرَ جَائِعَةً وَمَلْعَفَاتُهَا وَفُلَانُ جَائِعٌ تَصْلُبُ وَمَسْبُوكٌ تَحْدِيدُ
الْبَوْلَى أَشْلَيْنِ وَمَوَاسِمُهَا سَادَسِيكِيَّةٌ وَمَسْبُوكٌ تَحْدِيدُ مَرْوَنَ وَمَسْمَا تَحْدِيدُ مَخْلُفَةَ

بموجب ترخيص الهيئة العامة للاستثمار رقم ٤٣٠٦ في ١٩/٦/١٤٣٠
 تعديل في الشراكة والنفذ في ١٥/٧/١٤٣٦ تجديد السجل في ٣/٩/١٤٣٩

رأس المال: ريال سعودي ٥٩٠٠٠٠٠٠٠٠

المديرون:

١ - عبد الحفي يوسف قاسم الجمهوري

٢ -

1. The first part of the document is a list of names and addresses, which are arranged in two columns. The names are written in a cursive script, and the addresses are written in a more formal, printed style. The list includes names such as "John Doe", "Jane Smith", and "Robert Brown", along with their respective addresses.

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حسب ما نص عليه عقد الشركة

[illegible][illegible]

جسٹس ہائے سپریم کی سربراہی میں

الشهادة في ١٦/١٠/٤٤ بموجب الإيصال رقم: ٤٤/٢٥١/٤٤ ولتاريخ: ١٢/٩/٤٤

مدیر السجل التجاري، الاسم : محمد عبد الله

8

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
WASHINGTON, D.C. 20246



المملكة العربية السعودية

وزارة المالية

مصلحة الزكاة والدخل



نموذج (ش/٣)

رقم الشهادة : ٢٢٩٧

التاريخ : ١٤/ ٠٣/ ١٤٣٠

رقم الملف : ١٥٧٩٨٠١٠٣

الرقم المالي : ١٠٠٩٢٢٢٣٥

شهادة

تشهد مصلحة الزكاة والدخل بأن المكلف / شركة مصنع انظمة الانابيب السعودي المحدودة.

سجل مدني رقم (لايوجد) و سجل تجاري رقم ٤٠٣٠١٠٢٦٠٨

قدم إقراره عن الفترة المنتهية في ٢٠٠٨/١٢/٣١ م .

وقد منح هذه الشهادة لتمكينه من إنهاء جميع معاملاته بما في ذلك صرف مستحقاته النهائية عن العقود .

يسري مفعول هذه الشهادة حتى تاريخ ١٤٣١/٠٥/١٦ هـ الموافق ٢٠١٠/٠٤/٣٠ م.

(اليوم السادس عشر من شهر جمادى الأولى سنة الف و اربعمئة و واحد وثلاثون هجري)

[Handwritten signature]

الوظيفة : /مدير عام فرع المصلحة بجده

الإسم : عبدالله بن مسفر الحربي

التوقيع : *[Handwritten signature]*

[Handwritten signature]

الختم الرسمي



الرقم: ٤٤/١٣٩٦/٤

التاريخ: ١٦/١١/١٤٣٠

المرفقات:

الموضوع:

ص . ب : ٣٤٥٧٢ جلة ٢١٤٧٨

المحترم

المكرم مدير شركة مصنع أنظمة الأنابيب السعودي المحدودة

السلام عليكم ورحمة الله وبركاته وبعد :

بالإشارة إلى خطابكم الوارد إلينا بالقييد رقم ١٩٠٩ وتاريخ ١٤٣٠/٨/٤هـ والمتضمن الرد على خطاب المصلحة رقم ٢/٧١٠٣/٤٢ وتاريخ ١٤٣٠/٧/٤هـ بشأن مناقشة اعتراضكم على الربط الزكوي الضريبي عن العام ٢٠٠٨م عن بند أوراق دفع وحيث إنكم قدمتم في ردكم المستندات المؤيدة لسداد قيمة أوراق الدفع أول المدة البالغة (١.٦٥٢.٢٧٠/٢٩) ريال خلال العام ٢٠٠٨م على ذلك فإن اعتراضكم مقبول عن هذا البند وبذلك فإن وضعكم الزكوي الضريبي منتهي لدى المصلحة عن العام ٢٠٠٨م.

ولكم تحياتنا

مدير عام فرع مصلحة الزكاة والدخل بجدة

عبدالله بن مسفر الحربي



برنامج الإنشاءات الإنشائية
SAUDI CONSTRUCTION PROGRAM



البنادر والبنات
SAUDI BINLADIN GROUP
PUBLIC BUILDINGS & APPROVALS



King Saud University - Girls Campus Project - Riyadh

Material Submittal Mechanical

Date : 05/04/2009			Submittal No.: 1000-M402-230719.C														
* Code & Type to be entered by SBG-PBAD SD: Shop Drawings TT: Tests MD: Manufacturer's Data CT: Certificates AB: As Built Drawings PQ: Prequalification MS: Method Statement OT: Others SM: Samples GT: Guarantees			** Code to be entered by Saud Consult <table style="width: 100%;"> <tr> <th>Action</th> <th>CODE **</th> </tr> <tr> <td>Approved</td> <td style="text-align: center;">A</td> </tr> <tr> <td>Approved As Noted</td> <td style="text-align: center;">B</td> </tr> <tr> <td>Revise And Resubmit</td> <td style="text-align: center;">C</td> </tr> <tr> <td>Not Approved</td> <td style="text-align: center;">D</td> </tr> <tr> <td>Retained For Info.</td> <td style="text-align: center;">I</td> </tr> </table>			Action	CODE **	Approved	A	Approved As Noted	B	Revise And Resubmit	C	Not Approved	D	Retained For Info.	I
Action	CODE **																
Approved	A																
Approved As Noted	B																
Revise And Resubmit	C																
Not Approved	D																
Retained For Info.	I																
S/No.	Specification Ref. #	Description	Manufacturer / Supplier	Code & Type	Action Code Saud Consult												
01	No.Ref	Preinsulated pipe insulation for chilled water system & re-routing of chilled water pipes in trenches for existing building.	SPS	MD	A												
RECEIVED 20 APR 2009																	
SBG-PBAD OUT GOING Signature: <u>[Signature]</u> Date: _____			SBG-PBAD INCOMING Signature: _____ Date: _____														
Saud Consult to enter Action Codes and Remarks, and return to Contractor																	
Remarks by Saud Consult <i>See attached comments sheet.</i>																	
<i>* Approved for Preinsulated Pipe for chilled water, MTWS as per Attached Compliance statement from SPS.</i>																	
RECEIVED 20 April 2009																	
For Saud Consult Signature: <u>[Signature]</u> Date: <u>20/4/2009</u> ENGR. CHEN KAM CHOOI		Received By <u>6 APR 2009</u> Signature: _____ Date: _____		Send By: <u>M.A. QAIYUM</u> Signature: <u>[Signature]</u> Date: <u>20/4/09</u>													
For Client Signature: _____ Date: _____																	
This check is only for review of general conformance with the design concept of the Project and general compliance with the information given in the Contract. 1) Installation shall only proceed when action code is A or B. 2) Action code C shall be resubmitted within time limit set in the contract. 3) Acceptance or approval of this document does not imply a variation cost. 4) Approval of this document doesn't relieve the Contractor of his obligations.																	



SPS MARKETING
Riyadh 11170
Tel: (91) 464 2280 Fax: (91) 464 2289
Riyadh - Saudi Arabia



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Riyadh 11170
Tel: (91) 464 2280 Fax: (91) 464 2289
Riyadh - Saudi Arabia



SPS MARKETING
Riyadh 11170
Tel: (91) 464 2280 Fax: (91) 464 2289
Riyadh - Saudi Arabia

PROJECT NO. : CSP 1129 LOCATION : RIYADH
PROJECT NAME : NATIONAL HEALTH LABORATORY IN RIYADH SAUDI ARABIA
PAGE 01 OF 01

DOCUMENT TRANSMITTAL / SUBMITTAL

Ref. No. : Subject : RTRP PRE-INSULATED PIPES & FITTINGS
Date : Nov. 22, 2008 Trans. : M-040 Rev. "4"

DISCIPLINE: ☐ CIVIL ☐ ARCHITECTURAL ☐ STRUCTURAL ☐ HVAC ☒ PLUMBING ☐ ELECTRICAL ☐ MEDICAL EQUIP.

ENCLOSURES (مرفقات)

DRAWINGS	مخططات	☐	SAMPLE	عينة	☐	TEST DATA	☐	بيان اختبار
MATERIAL SUBMITTAL	مواد	☒	SKETCH	سكتش	☐	SCHEDULES	☐	جداول
CATALOGS	كتالوج	☒				REPORT	☐	تقارير
MFG. CERT.	شهادات	☐				CLARIFICATIONS	☐	توضيحات
SPECIFICATIONS	مواصفات	☐				OTHERS	☐	اخرى

ITEM #	DRAWING NO. / SPEC. NO.	REV.	DESCRIPTION	NO. OF COPIES	CODE	ACT. CODE
1	RTRP Pre-Insulated Pipes & Fittings (For Chilled Water Below Ground)	0	RTRP PRE-INSULATED PIPES & FITTINGS 1. Manufacturer's Data Sheet Saudi Pipe Corporation NATIONAL HEALTH LABORATORY - RIYADH - SUBMITTAL REVIEW NOTE: Re-submitted after the first one existing project have been done by Engr. M. Allam with APPROVED AS NOTED Sanitation & Health Department Submitted No. _____ Date: _____ By: _____	3	B	B

THESE SUBMITTED DOCUMENTS ARE IN STRICT CONFORMITY WITH THE DESIGN DRAWINGS & THE SPECIFICATIONS. MINOR DEVIATIONS ARE INDICATED IN THE SUBMITTED DOCUMENTS. ALL ASPECTS OF ASSOCIATED WORKS HAVE BEEN CONSIDERED AND COORDINATED.

هذه الوثائق المقدمة مطابقة للمخططات والمواصفات والمواصفات المشار إليها بالاسماء مع الأخذ في الاعتبار التنسيق بين جميع التخصصات المشاركة بالاسماء.

SENDER Name: Engr. Waleed M. Alkhalaf Signature & Date: 22.10.2008 Approved by Consultant:		RECEIVED Name: M. Allam Signature & Date: 22/11/2008 Comments by Consultant: We recommended this (SPS) pipes and fittings as per approved data and because this anti-corrosion, capable of design pressure and frictionless without any extra cost or additional payments over the budget & chilled water system. The final approval is given by the authority.		REVIEWED BY Name: M. Allam Signature & Date: 22/11/2008 Comments by MOH: Approved as per company standard and standard given by the authority.	
APPROVED BY (MOH) Authorized Representative:		APPROVED BY (MOH) Authorized Representative:		APPROVED BY (MOH) Authorized Representative:	
PURPOSE CODE: 1) For Approval (برقة) 2) For Comments (ملاحظات) 3) For Info. (معلومات)		ACTION CODES: A) Approved (موافق) B) Approved as noted (موافق مع ملاحظات) C) Approved as noted submit again (موافق مع ملاحظات وارجع لاحقاً) D) Rejected (مرفوض)		ACTION CODES: A) Approved (موافق) B) Approved as noted (موافق مع ملاحظات) C) Approved as noted submit again (موافق مع ملاحظات وارجع لاحقاً) D) Rejected (مرفوض)	

Original : To Consultant (Head Office)
Copy : To Client

Copy : To Contractor (Head Office)
Copy : To Contractor (Site Office)

GM-HKA-LU - preinsulated RTR approval

APPROVAL NOTIFICATION

Project Name: FACULTY OF SCIENCE

Project No.: 5003 (Package 6.2)

Material/Eqpt.: FACTORY APPLIED POLYURETHANE INSULATION

Date: 5-Jun-07

شركة
Haif Company

Please note that the above MATERIAL/EQPT has been approved with status (B) and it is clear for ordering subject to:

1. BE ORDERED AS PER THE ATTACHED REVISED MATERIAL LIST - M020.
2. SUPPLIER (SAUDI PIPE SYSTEMS CO.) TO INCLUDE FIELD APPLIED INSULATION, AS MENTIONED IN THE ATTACHED MATERIAL LIST, AND TRANSPORTATION FROM AND TO KAAU SITE.
3. DELIVERIES TO BE COORDINATED WITH PROJECT MANAGER BUT NOT AFTER 30 JUNE 2007.
4. MATERIAL TO BE AS PER ATTACHED CERTIFICATE COMPLIANCE.
5. SUPPLIER TO DELIVER PIPE AND FITTINGS WITH BOTH ENDS CAPPED OR COVERED.
6. SUPPLIER TO TRAIN SITE PEOPLE THE PROPER APPLICATION OF FIELD APPLIED INSULATION.

REMARKS:

1. ATTACHED IS A COPY OF THE MATERIAL SUBMITTAL APPROVAL AS YOUR REFERENCE.

Engineer: [Signature]

EM: [Signature]

PM: [Signature]



مجموعة بى لابى السعودية
SAUDI BINLADIN GROUP

المقر



دار الهندسة
شاعر وشركوه
SUPERVISING CONSULTANT

دار الهندسة
شاعر وشركوه
daral-handassah
chair and partners

SUBMITTAL

Transmittal No. P-119

Prev. Transmittal No. 26/7/2005

Date Sent:

Date Returned:

☐ New Submittal

☒ Resubmittal

TO DAR AL-HANDASSAH

FROM

Structural ☐

Architectural ☐

purpose

☒ For Approval

☐ For Further Action

Mechanical ☒

Electrical ☐

Design ☐

Material ☒

Samples ☐

Shop DWG ☐

For Review & Comments

For Your File

CONTRACT REFERENCE DOCUMENT

SPECS. SECT. & PARA. NO.

DWG. SHEET No.

DESCRIPTION OF ITEM SUBMITTED

ITEM No.

No. of Copies

STATUS

VARIATION

SIGNATURE OF REVIEWER

ACTION CODE* (By Consultant)

TECHNICAL DEPARTMENT

DAR AL-HANDASSAH ACTION

NAME, TITLE & SIGNATURE OF APPROVING AUTHORITY

PROJECT MANAGER SIGNATURE

DATE

DATE

NOTE: Approval of items does not relieve the contractor from complying with all requirements of the contract terms, specifications and the project design

C- APPROVED AS NOTED, RESUBMISSION REQUIRED

D- REJECTED, RESUBMISSION REQUIRED

FM - JM - 195 REVO

UPVC class 5 - WITH insulation

D. 48 Kcm/M3 and HDPE

Approved

31/9

DAR AL HANDASSAH REMARKS

- UPVC Technical data catalogue and pipe sample with insulation require as we request on VR submittal No-P-117A

The sample Received.

APPROVAL CODE:

A- APPROVED AS SUBMITTED

B- APPROVED AS NOTED, RESUBMISSION NOT REQUIRED

C- Consistent

D- pre insulated Consultant

KINGDOM OF SAUDI ARABIA
JABAL OMAR DEVELOPMENT PROJECT

CONTRACTOR: مجموعة بن لادن السعودية
SAUDI BIN LADIN GROUP

المادة:



SUBMITTAL

Transmittal No. 48A
Electro Mechanical / 48A

Date Sent 01/11/2009
Date Returned:

ITEM No.

DESCRIPTION OF ITEM SUBMITTED

Pre-Insulated Pipes & Fittings

For Infrastructure

Attachment

Compliance Statement - System Components - Product Dimensions -

Leak Detection System - Sample

Manufacturer: Saudi Pipe System Co.

REMARKS

* Refer to the attached comments.

19/11/09

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SUPERVISING
CONSULTANT

From: Saudi Binladin Group

{ } Structural
{ } Architectural

{ } Civil Works
{ } Mechanical

{ } Others
{ } Electrical

{ } Material
{ } Samples

Purpose

For Approval

CONTRACTOR REFERENCE DOCUMENT

SPECS. SECT. & PARA NO.

15181

DWG. SHEET No.

VARIATION

SIGNATURE OF REVIEWER

ACTION CODE

15

2 Hard and 1 Soft Copies

Name &

Signature of the Contractor's representatives

Eng. Sherif Hassan.

19/11/09

19/11/09

19/11/09

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المملكة العربية السعودية
مشروع تطوير جبل عمر

المشرف

المشرف

DIWI - Consult International GmbH

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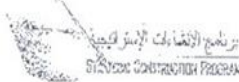
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King Saud University - Girls Campus Project - Riyadh

Material Submittal Mechanical

Date : 16/04/2009			Submittal No.: 1000-M402-230719.C REV-1		
* Code & Type to be entered by SBC-PBAD SD: Shop Drawings TT: Tests MD: Manufacturer's Data CT: Certificates AB: As Built Drawings PQ: Prequalification MS: Method Statement OT: Others SM: Samples GT: Guarantees			** Code to be entered by Saud Consult Action CODE Approved A Approved As Noted B Revise And Resubmit C Not Approved D Retained For Info. I		
S/No.	Specification Ref. #	Description	Manufacturer / Supplier	Code & Type	Action Code Saud Consult
01	No. Ref	Preinsulated pipe insulation for chilled water system & re-routing of chilled water pipes in trenches for existing buildings	SPS	MD	A
SBC					

SBC-PBAD OUT GOING Signature: _____ Date: _____	SBC-PBAD INCOMING Signature: _____ Date: _____
--	---

Saud Consult to enter Action Codes and Remarks, and return to Contractor

Remarks by Saud Consult See attached comments sheet.

① Approved for Pre-insulated pipe for chilled water as per Attached Compliance Statement from SPS.

For Saud Consult Signature: _____ Date: 20/4/2009 ENGR. CHEW NAM CHOI	Received By: _____ Signature: _____ Date: 18/4/2009	Send By: _____ Signature: _____ Date: 20/4/2009
---	--	--

For Client

Signature: _____ Date: _____

ATTACHMENT TO I.R No: Z.G/MECH/B60/019 (1907-09)

This check is only for review of general conformance with the design concept of the Project and general compliance with the information given in the Contract.

1) Installation shall only proceed when action code is A or B. 2) Action code C shall be resubmitted within time limit set in the contract. 3) Acceptance or approval of this document does not imply a variation cost.

4) Approval of this document doesn't relieve the Contractor of his obligations.

(SHEET 05/12)



مجموعة بن لادن السعودية
SAUDI BINLADIN GROUP
RUSH PROJECTS DIVISION

SUBMITTAL FOR REVIEW

PROJECT : STORM WATER DRAINAGE			
SUBMITTAL DATE : 09/6/2010		RECEIVING DATE : 10/5/2010	

Contractor's Request

The contractor requests inspection for drawings/materials and certifies that all items have in prepared accordance with the contract specification and approved drawings . All aspects of associated works

Project No:	Submittal No: ME - M - 027	Re Submittal :	0
--------------------	-----------------------------------	-----------------------	---

Material	Item	Description (size , type , model , no , etc.)	Material Manufacturer	Spec.Reference	Attachment	Code
	I	preinsulated pipe - 3 copies (bill no.2 division 2-sitework, chilled water system p.56-59)	SPS	15510	MANUFACTURES DATA	(B)

Contr . Engineer

Contr. Technical Engineer

Contr .Project Manager

Engineer: Mohmd Mahdawi

Engineer: Syed Shah

Engineer: Saeed Najjar

Cons Comments:

Code (B)
Final approval before submittal no. ME-M-015 in mention that
Submit the Sample, proper sample & specification
the insulated chilled water pipe with leak detection/delay
SPS Made in KSA conforming the following specification
a. CASER, PIPE 8.5 seamless sch.40. ASTM A-53
b. Insulation rigid polythene (HDPE) 48 kg/m³ in 6 mm and
c. OUTER CASING (HDPE) in 450 kg/m³ density

Code

A	Approved (No exception)
B	Verify corrections noted

C	Amend and Resubmit
D	Rejected, Resubmit

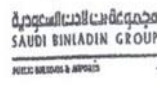
Cons . Engineer

Date

Consultant Project Manager

6/13/2010





King Saud University - Girls Campus Project - Riyadh
Material Submittal Mechanical

Date : 12/010/2009		Submittal No.: 1000-P106-221316.B REV 05	
* Code & Type to be entered by SBG-PBAD		** Code to be entered by Saud Consult	
SD: Shop Drawings	TT: Tests	Action	CODE **
MD: Manufacturer's Data	CT: Certificates	Approved	A
AB: As Built Drawings	PQ: Prequalification	Approved As Noted	B
MS: Method Statement	OT: Others	Revise And Resubmit	C
SM: Samples		Not Approved	D
GT: Guarantees		Retained For Info.	I

S/No.	Specification Ref. #	TUNNEL APPLICATION & INSIDE BLDG Description	Manufacturer / Supplier	Code & Type	Action Code Saud Consult
01	15250	CALCIUM SILICATE PIPE INSULATION FOR HOT WATER LINE	IIG THERMAL INSULATION	MD	D
		ROCKWOOL INSULATION	saudi rockwool	MD	D
		FIBERGLASS INSULATION	KIMMCO	MD	B
		POLYURETHANE SPRAY SYSTEM	S.P.S	MD	B
		refer to annexure			

④ Certificate from Supplier stating the surface temperature and operating temperature can with stand upto 180°C maximum.

⑤ All Mechanical Room shall be with Aluminium stock on the

SBG-PBAD OUT GOING

SBG-PBAD INCOMING

Signature: _____ Date: _____ Signature: _____ Date: _____

Saud Consult to enter Action Codes and Remarks, and return to Contractor

Remarks by Saud Consult

① All Mechanical Rooms shall be with Fiberglass insulation providing surface temperature of 44°C, therefore select density & thickness accordingly.

② All tunnel shall be with Polyurethane Foam insulation or fire retardant FRP (RTR TYPE), 60kg/m³ with 100mm thickness.

③ Attach the selection of the insulation from factory for data.

For Saud Consult

Received By: _____ Date: 02/09

Signature: _____ Date: _____

For Client

Signature: _____ Date: _____

ATTACHMENT TO MEMO NO. 01/100 (31.01.10)

APPROVED

This check is only for review of general conformance with the design concept of the Project and general compliance with the information given in the Contract

1) Installation shall only proceed when action code is A or B. 2) Action code C shall be resubmitted within the limit set in the contract. 3) Acceptance of this document does not imply a variation order.

4) Approval of this document doesn't relieve the Contractor of his obligations.

Material Submittal for CALCIUM SILICATE REV. 05

REQUEST FOR TECHNICAL APPROVAL

CONTRACTOR : SAUDI BINLADIN GROUP (ABCD)

P.O. BOX # 3104,

JEDDAH - 21471, K.S.A.

DATE : 24-Jan-2008

DAY MONTH YEAR

TO : Mr. Towfiq Al-Abdul Hadi

SENIOR PROJECT ENGINEER

SAPD/C&IPD/ & S/F Bldg/ Proj. Unit

Dhahran 31311, K.S.A.

SAUDI ARAMCO

ATTN:

PROJECT ENGINEER

CONTRACT NO.

66000019098, 66000019099, 66000019140,
66000019141, 66000019142

J.O. NO.

PROJECT TITLE :

KING ABDULLAH UNIVERSITY FOR
SCIENCE & TECHNOLOGY

LOCATION :

THUWAL

REFERENCE SUBMITTAL NO.

05 20 03-90

☒ NEW SUBMITTAL

☐ RESUBMITTAL

NO OF COPIES

03

SUBMITTAL CODE :

TO LINE ITEM NO.

A ☐ ARCHITECTURAL
C ☐ CIVIL

DIVISION NO.

15

M ☒ MECHANICAL
E ☐ ELECTRICAL

SPECS. SECTION

15260

O ☐ OTHERS

ITEM NO.

DESCRIPTION

MANUFACTURER/
VENDOR

CATALOG, SPECS.,
PARAGRAPH, OR DRWG
NUMBER

15

15260

SPS

PREINSULATED PIPES & FITTINGS
(TO USE IN CHILLED WATER SYSTEM)

SAUDI PIPE SYSTEM CO. LTD

VENDOR #10025856

FOR YOUR REVIEW AND APPROVAL

SUBMITTED BY:

Engr. Ashraf Shoura

Name & Signature of

Date: 24/01/2008

These documents have been reviewed for
general conformance with the Contract.
Such review does not relieve the Contractor
of his responsibilities under the terms of the
Contract nor authorize additional compensation.

☐ NO OBJECTION

☒ NO OBJECTION AS NOTED

☐ CORRECT & RESUBMIT

Name & Signature of SAUDI ARAMCO Representative

Mr. Towfiq Al-Abdul Hadi Date:

Phone: 862-5409; Fax: 862-5354

Approved Materials delivered to site:

SAUDI ARAMCO Site Supt.:

* SPS is approved ✓
* Project Specifications
shall be followed for
Pipe, Insulation and
Jacketing Specification.



مكتب عمان للاستشارات الهندسية وتخطيط المدن
AMMAN CONSULTING ENGINEERING & PLANNING OFFICE

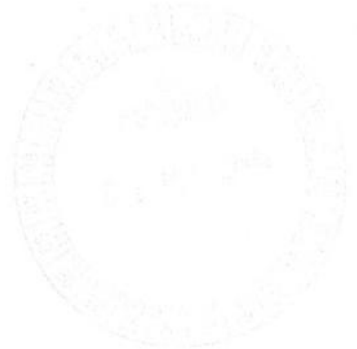
Date : 18/6/2008
Subject : Chilled & Condense Water Network .
Project : Saraya Aqaba Resort .

Dear Mahdi Masri

This is to certify that the product of (Saudi pipe system) used & installed in saraya Aqaba project for chilled & condenser water Network is approved as per tender requirements & specifications .

Best Regard


Thafer Jetaawi



(2/4)

DEVELOPMENT OF KING ABDUL AZIZ ENDOWMENT PROJECT FOR HOLY HARAM MAKKAH	مجموعة بن لادن السعودية SAUDI BINLADIN GROUP PLUMBING BUILDINGS & AIRPORTS
CONTRACTOR : SAUDI BINLADIN GROUP	Date : 15-Sep-04

☐ New Submittal ☒ Resubmittal	SUBMITTAL FOR APPROVAL OF MATERIALS	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">SUBM. NO.</td> <td style="width: 80%;">DEPARTMENT</td> </tr> <tr> <td style="text-align: center;">P-113A</td> <td> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;">AR</td> <td style="width: 25%;">CE/SE</td> <td style="width: 25%;">ME</td> <td style="width: 25%;">EE</td> </tr> <tr> <td></td> <td></td> <td style="text-align: center;">X</td> <td></td> </tr> </table> </td> </tr> </table>	SUBM. NO.	DEPARTMENT	P-113A	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;">AR</td> <td style="width: 25%;">CE/SE</td> <td style="width: 25%;">ME</td> <td style="width: 25%;">EE</td> </tr> <tr> <td></td> <td></td> <td style="text-align: center;">X</td> <td></td> </tr> </table>	AR	CE/SE	ME	EE			X	
SUBM. NO.	DEPARTMENT													
P-113A	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;">AR</td> <td style="width: 25%;">CE/SE</td> <td style="width: 25%;">ME</td> <td style="width: 25%;">EE</td> </tr> <tr> <td></td> <td></td> <td style="text-align: center;">X</td> <td></td> </tr> </table>	AR	CE/SE	ME	EE			X						
AR	CE/SE	ME	EE											
		X												

TO : ENGINEER : DAR AL- HANDASAH (SHAIR & PARTNERS)

1. MATERIAL DESCRIPTION (one item only on this form) : Pre Insulated Piping and Victaulic Coupler/Rings	No. Of Sets/ Copies						
	2						
<table style="width: 100%;"> <tr> <td style="width: 30%;">AREA OF APPLICATION</td> <td>Chilled Water Piping in Culvert</td> </tr> <tr> <td>DRAWING REF.</td> <td>P-TUN-CHW-DET-45101 Rev. 1, P-TUN-CHW-DET-45102 Rev. 1, and P-TUN-CHW-DET-45103 Rev. 1,</td> </tr> <tr> <td>SPECIFICATION REF.</td> <td>S 0443 - Section H305 to H384</td> </tr> </table>	AREA OF APPLICATION	Chilled Water Piping in Culvert	DRAWING REF.	P-TUN-CHW-DET-45101 Rev. 1, P-TUN-CHW-DET-45102 Rev. 1, and P-TUN-CHW-DET-45103 Rev. 1,	SPECIFICATION REF.	S 0443 - Section H305 to H384	
AREA OF APPLICATION	Chilled Water Piping in Culvert						
DRAWING REF.	P-TUN-CHW-DET-45101 Rev. 1, P-TUN-CHW-DET-45102 Rev. 1, and P-TUN-CHW-DET-45103 Rev. 1,						
SPECIFICATION REF.	S 0443 - Section H305 to H384						

2. MANUFACTURER/SUPPLIER:	
MANUFACTURER	: 1) Saudi Pipe System Co. Jeddah, 2) Victaulic, USA
ADDRESS	: 1) Tel : 608 1100, Fax : 638 5925, 2) Tel : 691 1036 Fax : 691 1036
SUPPLIER	: 1) Saudi Pipe System Co. Jeddah, 2) Victaulic, USA
ADDRESS	: 1) Tel : 608 1100, Fax : 638 5925, 2) Tel : 691 1036 Fax : 691 1036

We certify that the above submitted items have been reviewed in detail and are correct in conformity with the contract drawings and specifications except as otherwise stated also the Material sources indicated above have been reviewed in detail and they will supply the submitted items in conformity with the above and deliver the same timely.

SUBMITTED BY : [Signature] SIGNATURE : _____

This section will be used by Approving Authority only.

3. ENGINEER'S REPRESENTATIVE'S COMMENTS: <i>Refer to the Comments mentioned on the attached documents.</i>	<table style="width: 100%;"> <tr> <td>A) Approved</td> <td>☐</td> </tr> <tr> <td>B) Approved as Noted</td> <td>☒</td> </tr> <tr> <td>C) Revise & Resubmit</td> <td>☐</td> </tr> <tr> <td>D) Rejected</td> <td>☐</td> </tr> </table>	A) Approved	☐	B) Approved as Noted	☒	C) Revise & Resubmit	☐	D) Rejected	☐
A) Approved	☐								
B) Approved as Noted	☒								
C) Revise & Resubmit	☐								
D) Rejected	☐								

☒ Sample Required ☒ Tests Required	☒ Additional Information Required ☐ Manufacturer's Guarantee Required
---	---

Engr. Name: Abdul Rahman Al-Sayid Mech Engineer Signature: [Signature] Date: 26/9/2004

Approval shall not relieve Contractor of his liabilities under the contract or constitute authorization of any change to contract documents.

2:60

ADVANCE VISION

8

Proj. No.: S08087 Princess Noura Bint Abdulrahman University		EMPLOYER Ministry of Finance -KSA		Request No. MAT/P2/MH/0032 REV No: 00
ENGINEER:  dar al-handasah sheir and partners	CONTRACTOR: Saudi Binladin Group		Date 26/08/2009	

Submittal for Approval of Materials

1. Material description (one item only on this form) :
SPS Pre-insulated Pipes for Chilled Water System

Building Name : 0.0.0 General
Item Ref.No : IFC
Specification Ref. : 15411

27 AUG 2009
10:00

Zone : General
B.O.Q. Ref. No. :
Standards :

Attach all relevant technical literature marked to identify relevant description, current Test Certificates, samples as appropriate

2. Manufacturer / supplier

Company Name : Saudi Pipe System Co.
Address : K.S.A.
Local Agent : Saudi Pipe System Co.

 dar al-handasah
sheir and partners
27 AUG 2009
8:45 AM

3. Delivery :

Country of origin : K.S.A.

Availability

☒ Locally Manufactured

☐ Overseas

Delivery Ex-works/ total duration []
Estimated time of arrival on site []

Program Date material required on site []
Latest date for order []

S08087	PNU	dar al-handasah
Package 2 Buildings & Pipelines (General)		
RECEIVED 27/08/09	DATE	ACT
27 AUG 2009	8:45 AM	8:45 AM
FILE No.		

We certify that the above submitted items have been reviewed in detail and are correct and in strict conformity with the contract drawings and specifications except as otherwise stated; also that the material sources indicated above have been reviewed in detail and that they will supply the submitted items in conformity with the above and deliver same timely. (مجموعه (2) إدارة المشروع)

Submitted by : SBG SBG Signature

4. Engineer's Representative comments:

Approved As Noted:

Pipes up to 2" must be seamless.

SBG - PNU - P2

30 AUG 2009

D.C / RECEIVED

Signature

Date : 29/08/09

- ☐ Approved
- ☒ Approved as noted
- ☐ Revise and resubmit
- ☐ Rejected
- ☐ Sample required
- ☐ Tests required
- ☐ Additional information required
- ☐ Manufacturer's guarantee required

Approval shall not relieve Contractor of his liabilities under the Contract or constitute authorization of any change to Contract Documents.

Primavera

Term "Construction Manager" Shall be deemed to be synonymous with the term "Engineer"

SAUDI PIPE SYSTEMS CO.



Main Office : Jeddah – Industrial Zone Phase – 4

P. O. Box: 34572 Jeddah: 21478 – Saudi Arabia

Tel +966 – 2 – 6370999 / 6081100 Fax +966 – 2 – 6365925 / 6379439 Email:
spsvalve@sps.net.sa : www.saudivalve.com