HDPE PIPE

UNILON®

SYMBOL OF HIGH QUALITY PIPE

General Properties & Appearance

- Material specification: PE 100 (HDPE) and PE 80 (MDPE)
- Characteristics: elastics, rigid pipe walls, smooth surface
- Color: Black, Yellow (Gas application), Blue, Orange
- Length: 6 Meter/Length, 200-400 Meter/Length (OD 20-63 mm pipes are able to be rolled)
- Connection method: Compression Fittings, Butt-Weld method, and Electrofusion method.

Application

Drinking Water Transport, Liquid Gas Transport, Hot Water distribution,Underground Cable Protection

Characteristics

- High Flexibility, Heat Resist Capability
- Homogenous Joining, improves joining strength
- Reduces Fittings application

Standards

- Drinking Water Application: **: SNI - 06 - 4829 - 2005 : PE 80 & PE 100**
- Gas Application **: ISO 4437**
- Underground Cable Protection **: STEL - QA - L - 039 - 2001/Ver.2**

1 BUTT-WELD METHOD

Set Heater Plate's temperature at:
230°C ± 5°C for pipes thicker than 20 mm.
215°C ± 5°C for pipes with wall-thickness less than 20 mm.

Clean Pipe ends from dust, soil and other substance for they could reduce the strength on the welded joins. Place both pipe ends on the clamping unit.

Use the Plenary Cutter to flattening both pipes' end. Apply some pressure from the pipes toward the cutter during cutting process.

Press both pipe's end toward the Heater Plate when the plate temperature is appropriate. Apply pressure as calculated to produce beads with the right size.

Lift the Heater Plate as soon as possible. Press both molten pipe ends toward each other. Leave the pipes to cool down for a period as calculated. Maintain pipe ends pressure level during cooling period.

Precautions:

- Pipe's end cleanness,
- Heater Plate's Temperature,
- Maintain both pipes on single axis,
- Wall Thickness must be consistent,
- All parameters must be calculated prior the welding process,
- Only trained personnel allowed to perform the welding process.
- *Training & welding services are available upon costumer's inquiry.*

WELDING PROCEDURES

2 ELECTROFUSION WELDING METHOD

Clean the pipe's end and Fittings. Push the pipe into the fitting. Mark the length of the pipe to be welded.

Peel the Pipe's end surface with a scrapper. Do not peel too deep or exceed the marked line.

Clamp both pipe with the fittings on the supporting frame. Maintain both pipes and fitting are inline.

Prepare Power Source for the Welding Machine. Connect the cathode wires from the machine to the fittings.

Enter the welding parameters into the machines. Maintain close supervision during welding process.

Only trained personnel are allowed to perform the welding process.

3 COMPRESSION JOINING METHOD

Clean the pipe's end from dirt or chips.

Insert the locking nut and the compression ring.

Insert the rubber ring at the pipe's end.

Connect the pipe and the rings into the fitting's body.

Use chain wrench to fastened the locking nut.

The locking nut must fully cover threads on the fitting's body

HDPE PIPES DIMENSIONS

UNILON SNI - 06 - 4829 - 2005 : PE 80 & PE 100

Series	S - 4	S - 5	S - 6,3	S - 8	S - 10	S - 12,5	S - 16	S - 20
SDR	SDR - 9	SDR - 11	SDR - 13,6	SDR - 17	SDR - 21	SDR - 26	SDR - 33	SDR - 41
PE 80	PN -16	PN -12,5	PN - 10	PN - 8	PN - 6,3	PN - 5	PN - 4	PN - 3,2
PE 100	PN - 20	PN - 16	PN - 12,5	PN - 10	PN - 8	PN - 6,3	PN - 5	PN - 4
OD	Wall Thickness							
(mm)	(mm)							
16	1,8	1,6						
20	2,3	1,9	1,6					
25	2,8	2,3	1,9	1,6				
32	3,6	2,9	2,4	1,9	1,6			
40	4,5	3,7	3,0	2,4	1,9	1,6		
50	5,6	4,6	3,7	3,0	2,4	2,0	1,6	
63	7,1	5,8	4,7	3,8	3,0	2,4	2,0	1,6
75	8,4	6,8	5,5	4,5	3,6	2,9	2,3	1,9
90	10,1	8,2	6,6	5,4	4,3	3,5	2,8	2,2
110	12,3	10,0	8,1	6,6	5,3	4,3	3,4	2,7
125	14,0	11,4	9,2	7,4	6,0	4,8	3,9	3,1
140	15,7	12,7	10,3	8,3	6,7	5,4	4,3	3,5
160	17,9	14,6	11,8	9,5	7,7	6,2	4,9	4,0
180	20,1	16,4	13,3	10,7	8,6	6,9	5,5	4,4
200	22,4	18,2	14,7	11,9	9,6	7,7	6,2	4,9
225	25,1	20,5	16,6	13,4	10,8	8,6	6,9	5,5
250	27,5	22,7	18,4	14,8	11,9	9,6	7,7	6,2
280	31,3	25,4	20,6	16,6	13,4	10,7	8,5	6,9
315	35,2	28,6	23,2	18,7	15,0	12,1	9,7	7,7
355	39,6	32,2	26,1	21,1	16,9	13,6	10,9	8,7
400	44,7	36,3	29,4	23,7	19,1	15,3	12,3	9,8
450	50,2	40,9	33,1	26,7	21,5	17,2	13,8	11,0
500	55,8	45,4	36,8	29,6	23,9	19,1	15,3	12,3
560		50,8	41,2	33,2	26,7	21,4	17,2	13,7
630		57,2	46,3	37,2	30,0	24,1	19,3	15,4
710			52,2	42,1	33,9	27,2	21,8	17,4
800				47,4	38,1	30,6	24,5	19,6
900				53,5	42,9	34,4	27,6	22,0
1000				59,3	47,7	38,2	30,6	24,5
1200					57,2	45,9	36,7	29,4
1400					66,7	53,2	42,9	34,4
1600					76,2	61,3	49,0	39,3

MDPE PIPE UNILON FOR GAS - ISO 4437

OD (mm)	Wall Thickness (mm)		
	SDR11-S5	SDR17-S8	SDR17.6-S8.3
20	2,0		
25	2,3		
32	2,9	2,0	2,0
40	3,7	2,4	2,3
50	4,6	3,0	2,9
63	5,8	3,8	3,6
75	6,8	4,5	4,3
90	8,2	5,4	5,2
110	10,0	6,6	6,3
125	11,4	7,4	7,1

OD (mm)	Wall Thickness (mm)		
	SDR11-S5	SDR17-S8	SDR17.6-S8.3
140	12,7	8,3	8,0
160	14,6	9,5	9,1
180	16,4	10,7	10,3
200	18,2	11,9	11,4
225	20,5	13,4	12,8
250	22,7	14,8	14,2
280	25,4	16,6	16,0
315	28,6	18,7	17,9
355	31,4	21,1	19,6

FITTINGS

1 BUTT-WELD FITTINGS AVAILABLE STOCK

2 ELECTROFUSION FITTINGS AVAILABLE STOCK

3 COMPRESSION FITTINGS AVAILABLE STOCK

PRODUCT RANGE

1. Elbow 90°
2. Stub End
3. Reducer
4. Reducing Tee
5. Tee
6. T-Segmented
7. Elbow-Segmented

8. Elbow 90°
9. Tee with Butt-Welded Connection
10. Reducer
11. Connection Socket

12. Male Threaded-Compression
13. Elbow 90° All Compression
14. Reducing Compression
15. Straight Coupler Compression
16. Elbow 90° Male Threaded Compression
17. Female Threaded-Compression

UNILON HDPE PIPE RAW MATERIAL PROPERTIES

Materials	Properties	Testing Method	Unit	Unilon PE80	Unilon PE100
Mechanical	Density	ISO 1183	g/cm3	0.955	0.95
	Melt index MFi 190°	ISO 1133	g/10min	0.52	0.35
	Tensile Strength at yield point	ISO 527	Mpa	24	28
	Elongation at yield point	ISO 527	%	9	9
	Direct tensile strength strain rate	ISO 527	MPa	34	35
	Elongation at break	ISO 527	%	>700	>700
	Flexural stress at 3.5% deflection (2mm/min)	ISO 178	MPa	17	23
	Shore hardness D	ISO 868		65	65
Thermal	Crystalline melting range	(DSC)	°C	128-131	130-132
	Thermal conductivity at 20°C	DIN 52612	W/m°C	0.4	0.4
	Coefficient of linear thermal expansion up to 80°C		1/°C	1.6 x 10-4	1.6 x 10-4
Electrical	Dielectric strength	IEC 243	KV/cm	180	180
	Dielectric constant (2 x 10^ cycles)	IEC 250		2.4	2.4
	Surface resistance	IEC 93	OHMS	>10-16	>10-16

PREVIOUS PROJECTS

Banjarmasin Water Pipe Lines, OD 500 & 800 mm

Pontianak Water Pipe Lines, OD 800 mm

Pam Lyonaise Jaya (PALYJA) - Jakarta

PDAM, OD 500 & 800 mm - Banjarmasin

Aceh Water Pipe Lines

Lampung Water Pipe Lines

Balik Papan Water Pipe Lines

Bandung Water Pipe Lines

Bontang Water Pipe Lines

Gresik Water Pipe Lines

Banyumas Water Pipe Lines - Central Java

Bogor Water Pipe Lines, OD 1000 mm

Purwodadi Water Pipe Lines, OD 630 mm

South Sulawesi Water Pipe Lines

Binaan Bintan Water Pipe Lines - Banjarmasin

Purwoketo Water Pipe Lines

Lebong Water Pipe Lines - Bengkulu

PGN SIDOARJO Transmission Gas Pipe Facility - East Java

Jotun Paint Factory, 2100 mm

Astra Agro Lestari (Palm Oil Plantation & Factory)

Sawit Asahan (Palm Oil Plantation & Factory) - Riau

Futami Beverages Factory

Indo Bharat Rayon (Textile Factory)

Gresik Petrokimia Project

Summarecon Real Estate - Serpong

ITS University - Surabaya

Palaran Main Stadium - Samarinda

Dinas PU Tingkat 1 Office, South Kalimantan

Paris Van Java Project - Bandung

Toba Fish Farm Project