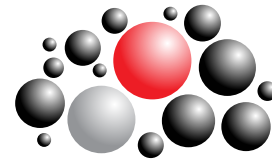


## Polyethylene Pipes System Water, Gas, Sewage & Irrigation Distribution

PE- HD

ISO 4427: 1996, DIN 8074 EN 12201 HDPE  
(or En1555 for gas)



**NEWPR** نَيْبِرُو

مصنع المنتجات الجديدة للبلاستيك - نبرو  
New Products Plastic Factory - NEPRO



**PIPESTECH**

High Quality ThermoPlastics Pipeline  
System From The Point Of Source To  
The Point Of Use.



## INTRODUCTION

The advances made in the plastic industry during the past decades are reflected by the present existence of advanced products and sophisticated processes. Plastic products continued to grow with increasing importance in the wide spectrum of today's industries. As a potent approach, a competent team of business developers and researchers of New Products Plastic Factory -Nepro (NEWPRO), explore the potential of plastic pipe manufacturing industry in Qatar.

New Products Plastic Factory-Nepro (NEWPRO) in Qatar was formed with the strategy of being not only the profitable leader in the industry, but also reliable partner of Qatar Government in fulfilling its social obligations and achieving Qatar vision 2030. It is mandate of the company to continuously generate employment for the Qatari workforce. The Factory aims to be responsive and reliable producers of plastic pipe products, perfect to specific needs and provide specialized systems.

Just like any other plastic pipe manufacturing factories, our equipment and raw material are produced from internationally recognized manufacturers and suppliers. Similarly, our wide range of plastic pipes products is manufactured and quality tested in accordance with the international Standards such as BS, BS-EN, DIN, NEMA, ASTM and ISO. We treat our customers and suppliers as partners, we recognized our clients long term value and we are driving that value to its limit by providing excellent products services and advices our customer deserve.

Our research and development programs are geared not only highly technical advancement but also towards team building and career development for our employees and staff. We believe that there is no any substitute for accuracy and efficiency .

Excellence and quality products is our business .

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## Properties of Polyethylene Pipe

**HIGH & MEDIUM DENSITY POLYETHYLENE** are non-toxic, flexible, highly resistant to UV radiation, lightweight, impact resistant and has a design life of 50 years at a specified design temperature and pressure rating of the medium. Abrasion resistance is better than any other rigid thermoplastics and considerably better than steel and other metal pipes, concrete and asbestos cement. Corrosion resistance of PE pipes is excellent and extremely resistant to chemicals, solvents and radioactive waste water.

Table 1

Property	Test Method	Units	PE 80	PE 100
Density (Compound) 23°C	ISO 1183	Kg/m <sup>3</sup>	956	959
Melt Flow Rate(190°C/5kg)	ISO 1133	g/10 min	0.3	0.25
Tensile Stress at Yield(50mm/min)	ISO 527-2	MPa	22	25
Elongation at Break	ISO 527-2	%	> 600	> 600
Charpy Impac Strength, notched	ISO 179/1eA	kJ/m <sup>2</sup>	14	16
Carbon Black Content	ASTM D 1603	%	2	2
Vicat Softening Point	ASTM D 1525	°C	118	122
Brittleness Temperature	ASTM D 746	°C	< -70	< -70
ESCR (10% Igepal), F <sub>50</sub>	ASTM D 1693A	Hrs.	>10,000	>10,000
Thermal Conductivity	DIN 52612	W/m <sup>o</sup> K	0.4	0.4
Linear Therma Expansion	ASTM D 696	K <sup>-1</sup>	1.5x10 <sup>-4</sup>	1.5x10 <sup>-4</sup>

### Thermal Properties

PE has a coefficient of linear expansion of approximately  $1.5 \times 10^{-4}$  per degree Centigrade, which is in the order of ten times greater than that for iron or steel. The thermal conductivity of PE is approximately  $0.4 \text{ W/m}^{\circ} \text{ K}$ , so PE is a poor conductor of heat. Therefore, the water or any medium contained in PE pipe changes temperature more slowly than any other conventional pipe.

## Color of Pipes

Due to the extreme weathering conditions in the Middle East and to counterattack Ultraviolet radiation, NEWPRO Pipes are normally supplied in black color. A Co-extrusion system is responsible for producing pipe with color stripes depending on pipe application. International norms recommends Blue stripe for potable water, Orange for conduit, and Yellow for gas application. For electrical conduit and fiber optic applications, a two-color double layer pipe is available where the main layer is black and the thin outer layer can be blue, orange, or green depending of customers color specifications. Conduit pipes also has a pulling rope inside pre-installed during production to ensure easy insertion and pulling of fiber optics and electrical cable during installation. Other colors also can be produced depending on customer requirement.

## Chemical Resistance

Polyethylene (PE) has a good resistance to a wide range of chemicals. For all practical purposes, PE is chemically inert within its normal temperature range of use. It does not rot, rust, pit, corrosion or loose wall thickness through chemical or electrical reaction with the surrounding soil. It does not normally support the growth of algae, bacteria or fungi.

## Fracture Resistance of Polyethylene Pipe

POLYETHYLENE pipe is tough and 'brittle type' fracture is difficult to achieve even in laboratory tests at low temperatures. The failure mode in stress rupture testing is ductile unless testing is carried out at low stresses at elevated temperatures for considerably extended periods of time to reproduce slow crack growth. PE pipe have excellent resistance to this mode of failure (demonstrated by tests such as the notched pipe test).

For PE100 pipes, catastrophic failure due to rapid crack propagation (RCP) will not occur under normal service conditions. PE pipes that meet the Rapid Crack Propagation (RCP) test requirements for full resistance are suitable for operation at the nominal pressure rating. The many years of successful installation of polyethylene pipe has shown that PE is a tough and resilient material capable of withstanding the normal rigors of pipe laying and pipeline operation.

## Abrasion Resistance of Polyethylene

Pipe rupture caused by the gradual decomposition of the pipe material as a result of corrosion and or abrasion is a problem that deserves prime consideration in the planning of pipe systems and the choice of pipe material. A number of investigations proved that PE pipe has a very strong resistance to abrasive media compared to other pipe materials.

## Weathering Resistance of Polyethylene Pipe

Weathering due to prolonged outdoor exposure will cause degradation of most natural and plastic materials, particularly by the combined effects of short-wave ultra-violet(UV) rays from sunlight and atmospheric oxygen. PE pipes are protected from these effects by the addition of carbon black. Because carbon black is the most effective protection against UV, PE pipes are normally supplied in black. This ensures that black pipes made from this material can be stored or used outdoors over the period of time without any fear of a change in properties, which is not available from other thermoplastics.

## Resistance of Polyethylene Pipe to Microorganism & Rodents

Research carried out by behavioral scientists shows that rodents ( and also gnawing insects such as termites) are compelled to maintain their teeth in good condition by gnawing objects that stand in their way. In the case of PE Pipe, there is the additional point that the smooth round surface does not give the teeth sufficient hold to bite properly. Large number of termites inhabited in countries like Australia & Africa have not reported so far any damage in PE pipelines. PE is not a nutrient medium for bacteria, fungi, spores, parasites, etc. So PE pipes are resistant to all forms of microbial attack. Further, it should be noted that sulphate reducing bacteria in the soil have no effect on PE pipes since the product is resistant to both sulphurous acid and sulphates.

## Resistance of Polyethylene Pipe to High Energy Radiation

PE pipes are suitable for applications involving exposure to high energy radiation. This material has been used successfully for many years to remove radioactive effluent from hot laboratories and as cooling water lines in nuclear energy technology.

## Effect of Elevated Temperatures

As per DIN 8074, the nominal working pressure has been calculated for operational conditions at 20°C. Since Polyethylene is a thermoplastic material, a loss in mechanical properties is to be expected as the temperature rises. PE pipe can be used under pressure at temperatures in excess of 20°C with an appropriate reduction in its design pressure rating and Service life. A sample illustration for PE100 material taken from DIN8074 is shown below.

Table 2

Temp C	Years of Service	Working pressure in Bar	Working pressure in Bar	Working pressure in Bar	Working pressure in Bar
20	50	4	6.3	10	16
40	50	2.9	4.5	7.2	11.6
60	5	1.9	3.0	4.8	7.7

## STANDARD DIMENSION RATIOS (SDR) of PE Pipes

Compound	PN 3.2	PN 4	PN 6.3	PN 8	PN 10	PN 12.5	PN 16	PN 20	PN 25
PE 80	41	33	21	17	13.6	11	9	7.4	-
PE 100	-	41	33	21	17	13.6	11	9	7.4

## Polyethylene Pipes System For Water Distribution

### The Polyethylene Difference

New Products Plastic Factory-Nepro (NEWPRO) - PE pipes are made from 100% virgin Polyethylene and only contain UV stabilizers and pigments Necessary for the pipes to conform to the specifications. Pipes contain minimum of 2.5% carbon black. All pipes are black in color for maximum UV resistance and suitable for drinking water and potable water supplies.

New Products Plastic Factory-Nepro (NEWPRO) - pipes are produced in HDPE, LLDPE and LDPE material. HDPE pipes are produced in a number of Design stresses against the standards ISO, DIN, EN and have a design coefficient "C" of not less than 1.25 to the MRS of the material as set out in Table 1 and Table 2.

HDPE pipes can be produced in PE63, PE80 or PE100 material.

**Table 1 : Designation of Material**

Designation of Material	MRS at 50 Years and 20 °C MPa	Maximum allowable hydrostatic design stress, $\sigma_s$ MPa
PE 100	10	8
PE 80	8	6.3
PE 63	6.3	5
PE 40	4	3.2
PE 32	3.2	2.5

The relationship between MRS and  $\sigma_s$  for various design coefficients is given in Table 2.

**Table 2 : Relationship between MRS ,  $\sigma_s$  and design coefficient C at 20°C**

Hydrostatic design stress of pipe, MPa	Minimum required strength of material MPa				
	10	8	6.3	4	3.2
	Design coefficient, C				
8	1.25	-	-	-	-
6.3	1.6	1.25	-	-	-
5	2	1.6	1.25	-	-
4	2.5	2	1.6	-	-
3.2	3.2	2.5	2	1.25	-
2.5	-	3.2	2.5	1.6	1.25

### HDPE PE 80 Pipes dimensions for Gas System

SDR 41; PN 3.2			SDR 33; PN 4		SDR 26; PN 5		SDR 22; PN 6		SDR 17; PN 8	
DN	WT	Unit (Weight)	WT	Unit (Weight)	WT	Unit (Weight)	WT	Unit (Weight)	WT	Unit (Weight)
mm	mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m
16	-	-	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-	-	-	-
32	-	-	-	-	-	-	-	-	-	-
40	-	-	-	-	-	-	-	-	-	-
50	-	-	-	-	-	-	2.30	0.39	3.00	0.44
63	-	-	-	-	2.50	0.52	2.90	0.56	3.80	0.75
75	-	-	2.30	0.58	2.90	0.70	3.40	0.79	4.50	1.05
90	2.30	0.67	2.80	0.82	3.50	1.02	4.10	1.14	5.40	1.51
110	2.70	0.98	3.40	1.22	4.20	1.49	5.00	1.71	6.60	2.24
125	3.10	1.29	3.90	1.57	4.80	1.91	5.70	2.20	7.40	2.86
140	3.50	1.61	4.30	1.96	5.40	2.41	6.40	2.77	8.30	3.59
160	4.00	2.07	4.90	2.51	6.20	3.17	7.30	3.61	9.50	4.68
180	4.40	2.59	5.50	3.19	6.90	3.92	8.20	4.57	10.70	5.91
200	4.90	3.16	6.20	3.99	7.70	4.87	9.10	5.64	11.90	7.29
225	5.50	4.01	6.90	4.95	8.60	6.11	10.20	7.14	13.40	9.25
250	6.20	5.03	7.70	6.14	9.60	7.57	11.40	8.82	14.80	11.33
280	6.90	6.20	8.60	7.67	10.70	9.43	12.70	11.06	16.60	14.23
315	7.70	7.79	9.70	9.71	12.10	12.03	14.30	14.00	18.70	18.02
355	8.70	9.90	10.90	12.27	13.60	15.17	16.10	17.78	20.10	22.94
400	9.80	12.54	12.30	15.65	15.30	19.25	18.20	22.57	23.70	29.00
450	11.00	15.79	13.80	19.66	17.20	24.33	20.50	28.57	26.70	36.75
500	12.30	19.70	15.30	24.27	19.10	30.01	22.70	35.27	29.70	45.42
560	13.70	24.48	17.20	30.54	21.40	37.57	25.50	44.25	33.20	56.87
630	15.40	30.98	19.30	38.50	24.10	47.62	28.60	56.00	37.40	72.07
710	17.40	39.41	21.80	48.87	27.20	60.50	32.30	71.13	42.10	91.44
800	19.60	49.93	24.50	61.92	30.60	76.56	36.40	90.30	47.40	116.00
900	22.00	62.91	27.60	78.40	34.40	97.57	40.90	114.29	53.30	146.75
1000	24.50	77.39	30.60	96.54	38.20	119.49	45.50	141.09	59.30	181.40
1200	29.40	112.17	36.70	138.83	45.90	172.26	54.50	203.17	70.60	259.25



### HDPE PE 80 Pipes dimensions for Gas System

SDR 13; PN 10			SDR 11; PN 12.5		SDR 9; PN 16		SDR 7.4; PN 20		SDR 6; PN 25	
DN	WT	Unit (Weight)	WT	Unit (Weight)	WT	Unit (Weight)	WT	Unit (Weight)	WT	Unit (Weight)
mm	mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m
16	-	-	-	-	-	-	-	-	3.00	0.13
20	-	-	-	-	-	-	3.00	0.17	3.40	0.19
25	-	-	-	-	3.00	0.22	3.50	0.25	4.20	0.29
32	-	-	3.00	0.29	3.60	0.34	4.40	0.40	5.40	0.47
40	3.00	0.38	3.70	0.44	4.50	0.53	5.50	0.62	6.70	0.72
50	3.70	0.57	4.60	0.69	5.60	0.81	6.90	0.97	8.30	1.13
63	4.70	0.90	5.80	1.09	7.10	1.30	8.60	1.52	10.50	1.79
75	5.60	1.28	6.80	1.51	8.40	1.82	10.30	2.17	12.50	2.54
90	6.70	1.83	8.20	2.20	10.10	2.63	12.30	3.11	15.00	3.66
110	8.10	2.71	10.00	3.25	12.30	3.91	15.10	4.66	18.30	5.46
125	9.20	3.49	11.40	4.22	14.00	5.05	17.10	6.00	20.80	7.06
140	10.30	4.37	12.70	5.27	15.70	6.35	19.20	7.54	23.30	8.85
160	11.80	5.69	14.60	6.90	17.90	8.27	21.90	9.83	26.60	11.54
180	13.30	7.23	16.40	8.71	20.10	10.45	24.60	12.43	29.90	14.59
200	14.70	8.86	18.20	10.75	22.40	12.94	27.40	15.38	33.20	18.01
225	16.60	11.25	20.50	13.61	25.20	16.37	30.80	19.45	37.40	22.82
250	18.40	13.85	22.70	16.80	27.90	20.15	34.20	24.00	41.50	28.14
280	20.60	17.37	25.40	21.03	31.30	25.31	38.30	30.10	46.50	35.31
315	23.20	21.98	28.60	26.67	35.20	32.03	43.10	38.11	52.30	44.68
355	26.10	27.92	32.20	33.80	39.70	40.70	48.50	48.34	59.00	56.79
400	29.40	35.44	36.30	42.93	44.70	51.65	54.70	61.42	66.70	72.26
450	33.10	44.86	40.90	54.42	50.30	65.38	61.50	77.70	-	-
500	36.80	55.38	45.40	67.11	55.80	80.60	-	-	-	-
560	41.20	69.47	50.80	84.12	62.20	100.72	-	-	-	-
630	46.30	87.92	57.20	106.54	-	-	-	-	-	-
710	52.20	116.67	64.50	135.48	-	-	-	-	-	-
800	58.80	141.78	-	-	-	-	-	-	-	-
900	66.20	179.44	-	-	-	-	-	-	-	-
1000	73.50	221.53	-	-	-	-	-	-	-	-

SDR : STANDARD DIMENSION RATIO (=OUTER DIA / WALL THICKNESS)  
DN : NOMINAL DIAMETER (OUTER DIAMETER)  
WT : WALL THICKNESS  
PN : NOMINAL PRESSURE RATING

### HDPE PE 100 Pipes dimensions for Gas System

DN	SDR 17.6 / PN 4Bar		SDR 17 / PN 6BAR		SDR 11 / PN 10Bar	
	WT	Unit (Weight)	WT	Unit (Weight)	WT	Unit (Weight)
mm	mm	kg/m	mm	kg/m	mm	kg/m
16	-	-	2.30	-	-	-
20	-	-	2.30	-	2.30	0.12
25	2.30	0.15	2.30	-	2.30	0.15
32	2.30	0.20	2.30	0.19	2.90	0.27
40	2.30	0.28	2.40	0.29	3.70	0.43
50	2.90	0.44	3.00	0.45	4.60	0.66
63	3.60	0.68	3.80	0.71	5.80	1.05
75	4.30	0.97	4.50	1.01	6.80	1.47
90	5.10	1.39	5.40	1.47	8.20	2.12
110	6.30	2.08	6.60	2.19	10.00	3.14
125	7.10	2.66	7.40	2.79	11.40	4.08
140	8.00	3.34	8.30	3.50	12.70	5.08
160	9.10	4.35	9.50	4.57	14.60	6.67
180	10.20	5.48	10.70	5.77	16.40	8.42
200	11.40	6.79	11.90	7.12	18.20	10.40
225	12.80	8.55	13.40	9.03	20.50	13.10
250	14.20	10.60	14.80	11.10	22.70	16.20
280	15.90	13.20	16.60	13.90	25.40	20.30
315	17.90	16.70	18.70	17.60	28.60	25.60
355	20.10	21.20	21.10	22.40	32.20	32.50
400	22.70	26.90	23.70	28.30	36.30	41.30
450	25.50	34.00	26.70	35.80	40.90	52.30
500	28.40	42.00	29.70	44.30	45.40	64.50
560	31.70	52.50	33.20	55.40	50.80	80.80
630	35.70	66.50	37.40	70.20	57.20	102.00

**PE80 Series 1, Pressure Pipe dimensions, Din 8074 Confirming to ISO 4427 & EN 12201 for Water**  
**PE80 Series 1 (Design Stress 8MPa) - Pressure pipe dimensions AS/NZS4130**

Pipe Series

SDR	SDR 33		SDR 21		SDR 13.6		SDR 9		SDR 7.4		SDR 6	
PN for PE 80	PN 4		PN 6		PN 10		PN 16		PN 20		PN 25	
DN	WT (mm)	Weight Ave kg/m	WT (mm)	Weight Ave kg/m	WT (mm)	Weight Ave kg/m	WT (mm)	Weight Ave kg/m	WT (mm)	Weight Ave kg/m	WT (mm)	Weight Ave kg/m
16	-	-	-	-	-	-	2.30	0.10	2.30	0.10	2.70	0.11
20	-	-	-	-	1.80	0.10	2.30	0.13	2.80	0.15	3.40	0.18
25	-	-	-	-	1.90	0.14	2.80	0.20	3.50	0.24	4.20	0.27
32	-	-	-	-	2.40	0.23	3.60	0.32	4.40	0.38	5.40	0.45
40	-	-	1.90	0.23	3.00	0.35	4.50	0.50	5.50	0.60	6.70	0.70
50	-	-	2.40	0.37	3.70	0.54	5.60	0.78	6.90	0.93	8.30	1.09
63	-	-	3.00	0.58	4.70	0.87	7.10	1.26	8.60	1.47	10.50	1.73
75	-	-	3.60	0.82	5.60	1.24	8.40	1.76	10.30	2.09	12.50	2.44
90	-	-	4.30	1.18	6.70	1.77	10.10	2.54	12.30	3.00	15.00	3.51
110	3.40	1.17	5.30	1.77	8.10	2.62	12.30	3.78	15.10	4.49	18.30	5.24
125	3.90	1.51	6.00	2.27	9.20	3.37	14.00	4.87	17.10	5.77	20.80	6.75
140	4.30	1.88	6.70	2.83	10.30	4.22	15.70	6.11	19.20	7.25	23.30	8.47
160	4.90	2.42	7.70	3.72	11.80	5.50	17.90	7.96	21.90	9.44	26.60	11.00
180	5.50	3.07	8.60	4.67	13.30	6.98	20.10	10.10	24.60	11.90	29.90	14.00
200	6.20	3.84	9.60	5.78	14.70	8.56	22.40	12.40	27.40	14.80	33.20	17.20
225	6.90	4.77	10.80	7.30	16.60	10.90	25.20	15.80	30.80	18.60	37.40	21.80
250	7.70	5.92	11.90	8.93	18.40	13.40	27.90	19.40	34.20	23.00	41.60	27.00
280	8.60	7.40	13.40	11.30	20.60	16.80	31.30	24.30	38.30	28.90	46.50	33.80
315	9.70	9.37	15.00	14.20	23.20	21.20	35.20	30.80	43.10	36.50	52.30	42.70
355	10.90	11.80	16.90	18.00	26.10	26.90	39.70	39.10	48.50	46.30	59.00	54.30
400	12.30	15.10	19.10	22.90	29.40	34.10	44.70	49.60	54.70	58.80	66.50	68.90
450	13.80	19.00	21.50	28.90	33.10	43.20	50.30	62.70	61.50	74.40	-	-
500	15.30	23.40	23.90	35.70	36.80	53.30	55.80	77.30	68.30	91.80	-	-
560	17.20	29.40	26.70	44.70	41.20	66.90	62.50	97.00	-	-	-	-
630	19.30	37.10	30.00	56.40	46.30	84.60	-	-	-	-	-	-
710	21.80	47.20	33.90	71.80	52.20	109.00	-	-	-	-	-	-
800	24.50	59.70	38.10	91.10	58.80	138.00	-	-	-	-	-	-

**PE100 Series 1, Pressure Pipe dimensions, Din 8074 Confirming to ISO 4427 & EN 12201 for Water**  
**PE100 Series 1 (Design Stress 8MPa) - Pressure pipe dimensions AS/NZS4130**

Pipe Series

SDR	41				26				21				17			
PN for PE100	PN 4				PN 6.3				PN 8				PN 10			
DN	Min Wall	Mean ID	Ovality Max	Weight Ave kg/m	Min Wall	Mean ID	Ovality Max	Weight Ave kg/m	Min Wall	Mean ID	Ovality Max	Weight Ave kg/m	Min Wall	Mean ID	Ovality Max	Weight Ave kg/m
16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-	-	-	-	-	-	1.60	21.70	1.20	0.12
32	-	-	-	-	-	-	-	-	1.60	28.70	1.30	0.16	1.90	28.00	1.30	0.19
40	-	-	-	-	-	-	-	-	1.90	36.10	1.40	0.24	2.40	35.00	1.40	0.30
50	-	-	-	-	-	-	-	-	2.40	45.00	1.40	0.38	3.00	43.90	1.40	0.46
63	-	-	-	-	2.40	58.10	1.50	0.48	3.00	56.90	1.50	0.58	3.80	55.20	1.50	0.73
75	-	-	-	-	2.90	69.20	1.60	0.68	3.60	67.70	1.60	0.83	4.50	65.80	1.60	1.03
90	-	-	-	-	3.50	83.00	1.80	0.99	4.30	81.30	1.80	1.20	5.40	79.00	1.80	1.48
110	2.70	104.70	2.20	0.95	4.30	101.30	2.20	1.48	5.30	99.20	2.20	1.80	6.60	96.50	2.20	2.20
125	3.10	118.90	2.50	1.24	4.80	115.40	2.50	1.86	6.00	112.90	2.50	2.30	7.40	109.90	2.50	2.80
140	3.50	133.20	2.80	1.56	5.40	129.20	2.80	2.35	6.70	126.50	2.80	2.87	8.30	123.00	2.80	3.52
160	4.00	152.30	3.20	2.02	6.20	147.60	3.20	3.08	7.70	144.50	3.20	3.77	9.50	140.70	3.20	4.59
180	4.40	171.50	3.60	2.51	6.90	166.30	3.60	3.84	8.60	163.10	3.60	4.74	10.70	158.30	3.60	5.81
200	4.90	190.50	4.00	3.08	7.70	184.60	4.00	4.76	9.60	180.60	4.00	5.87	11.90	175.80	4.00	7.16
225	5.50	214.40	4.50	3.90	8.60	207.90	4.50	5.98	10.80	203.30	4.50	7.42	13.40	197.80	4.50	9.09
250	6.20	238.00	5.00	4.89	9.60	230.90	5.00	7.41	11.90	226.00	5.00	9.08	14.80	220.00	5.00	11.14
280	6.90	266.70	5.80	6.06	10.70	258.70	5.80	9.25	13.40	253.00	5.80	11.46	16.60	246.30	5.80	13.99
315	7.70	300.20	6.60	7.62	12.10	290.90	6.60	11.78	15.00	284.90	6.60	14.40	18.70	276.60	6.60	17.72
355	8.70	338.20	7.60	9.69	13.60	327.90	7.60	14.89	16.90	321.00	7.60	18.28	21.10	312.10	7.60	22.55
400	9.80	380.00	8.80	12.28	15.30	369.50	8.80	18.88	19.10	361.50	8.80	23.31	23.70	351.90	8.80	28.50
450	11.00	428.90	10.00	15.49	17.20	415.80	10.00	23.87	21.50	406.80	10.00	29.48	26.70	395.90	10.00	36.11
500	12.30	476.30	11.30	19.28	19.10	462.00	11.30	29.45	23.90	452.00	11.30	36.37	29.60	439.90	11.30	44.48
560	13.70	533.60	12.80	24.00	21.40	517.40	12.80	36.91	26.70	506.40	12.80	45.52	33.20	492.70	12.80	55.89
630	15.40	600.40	14.60	30.37	24.10	582.10	14.60	46.77	30.00	569.80	14.60	57.50	37.30	554.40	14.60	70.62
710	17.40	676.50	16.60	38.65	27.20	655.90	16.60	59.45	33.90	641.90	16.60	73.22	42.10	624.60	16.60	89.82
800	19.60	762.30	18.80	49.01	30.60	739.20	18.80	75.29	38.10	723.40	18.80	92.80	47.40	703.90	18.80	113.89
900	22.00	857.80	21.30	61.81	34.40	831.70	21.30	95.23	42.90	813.90	21.30	117.42	53.50	791.70	21.30	144.55
1000	24.50	952.90	24.00	76.54	38.20	924.10	24.00	117.50	47.70	904.20	24.00	145.07	59.30	879.80	24.00	178.06
1200	29.40	1143.10	29.40	110.14	45.90	1108.50	29.40	169.18	57.20	1084.70	29.40	208.73	67.90	1062.70	29.40	245.17

**PE100 Series 1, Pressure Pipe dimensions, Din 8074 Confirming to ISO 4427 & EN 12201 for Water**  
**PE100 Series 1 (Design Stress 8MPa) - Pressure pipe dimensions AS/NZS4130**

Pipe Series

13.6				11				9				7.4				SDR
PN12.5				PN16				PN20				PN25				PN for PE100
Min Wall	Mean ID	Ovality Max	Weight Ave kg/m	Min Wall	Mean ID	Ovality Max	Weight Ave kg/m	Min Wall	Mean ID	Ovality Max	Weight Ave kg/m	Min Wall	Mean ID	Ovality Max	Weight Ave kg/m	DN
-	-	-	-	1.60	12.70	1.20	0.08	1.80	12.30	1.20	0.08	2.20	11.40	1.20	0.10	16
1.60	16.70	1.20	0.10	1.90	16.00	1.20	0.11	2.30	15.20	1.20	0.13	2.80	14.20	1.20	0.16	20
1.90	21.00	1.20	0.14	2.30	20.20	1.20	0.17	2.80	19.20	1.20	0.20	3.50	17.70	1.20	0.24	25
2.40	27.00	1.30	0.23	2.90	26.00	1.30	0.27	3.60	24.50	1.30	0.33	4.40	22.80	1.30	0.39	32
3.00	33.80	1.40	0.36	3.70	32.30	1.40	0.43	4.50	30.60	1.40	0.52	5.50	28.50	1.40	0.61	40
3.70	42.40	1.40	0.55	4.60	40.40	1.40	0.67	5.60	38.40	1.40	0.80	6.90	35.70	1.40	0.95	50
4.70	53.30	1.50	0.88	5.80	51.00	1.50	1.07	7.10	48.20	1.50	1.28	8.60	45.10	1.50	1.50	63
5.50	63.70	1.60	1.23	6.80	61.00	1.60	1.49	8.40	57.60	1.60	1.79	10.30	53.60	1.60	2.13	75
6.60	76.50	1.80	1.77	8.20	73.00	1.80	2.16	10.10	69.10	1.80	2.59	12.30	64.50	1.80	3.05	90
8.10	93.30	2.20	2.66	10.00	89.40	2.20	3.20	12.30	84.50	2.20	3.84	15.10	78.60	2.20	4.57	110
9.20	106.10	2.50	3.42	11.40	101.50	2.50	4.15	14.00	96.10	2.50	4.96	17.10	89.50	2.50	5.88	125
10.30	118.90	2.80	4.29	12.70	113.90	2.80	5.17	15.70	107.60	2.80	6.23	19.20	100.20	2.80	7.39	140
11.80	135.90	3.20	5.60	14.60	130.00	3.20	6.78	17.90	123.00	3.20	8.11	21.90	114.70	3.20	9.62	160
13.30	152.80	3.60	7.10	16.40	146.30	3.60	8.58	20.10	138.50	3.60	10.26	24.60	129.10	3.60	12.16	180
14.70	170.00	4.00	8.71	18.20	162.50	4.00	10.57	22.40	153.70	4.00	12.68	27.30	143.40	4.00	15.00	200
16.60	191.00	4.50	11.06	20.50	182.90	4.50	13.39	25.10	173.20	4.50	16.00	30.80	161.30	4.50	19.02	225
18.40	212.40	5.00	13.63	22.70	203.40	5.00	16.46	27.90	192.50	5.00	19.73	34.20	179.20	5.00	23.48	250
20.60	237.90	9.80	17.08	25.40	227.80	9.80	20.64	31.30	215.40	9.80	24.80	38.30	200.70	9.80	29.44	280
23.20	267.60	11.10	21.64	28.60	256.30	11.10	26.13	35.20	242.40	11.10	31.38	43.00	226.10	11.10	37.16	315
26.10	301.60	12.50	27.43	32.20	288.80	12.50	33.16	39.60	273.30	12.50	39.76	48.50	254.60	12.50	47.24	355
29.40	339.90	14.00	34.79	36.30	325.40	14.00	42.10	44.70	307.80	14.00	50.55	54.60	287.00	14.00	59.92	400
33.10	382.40	15.60	44.07	40.90	366.10	15.60	53.31	50.20	346.50	15.60	63.90	61.50	322.80	15.60	75.92	450
36.80	424.90	17.50	54.38	45.40	406.80	17.50	65.78	55.80	385.00	17.50	78.86	-	-	-	-	500
41.20	475.80	19.60	68.22	50.80	455.80	19.60	82.40	62.50	430.30	19.60	98.93	-	-	-	-	560
46.30	535.50	22.10	86.23	57.20	512.60	22.10	104.42	70.30	484.10	22.10	125.20	-	-	-	-	630
52.20	603.40	24.90	109.55	64.50	577.60	24.90	132.64	79.30	546.50	24.90	159.13	-	-	-	-	710
58.80	680.00	28.00	138.96	72.50	651.00	28.00	168.11	89.30	615.90	28.00	201.90	-	-	-	-	800
66.20	764.90	31.50	176.04	81.70	732.40	31.50	212.91	-	-	-	-	-	-	-	-	900
72.50	852.10	35.00	214.41	90.30	814.90	35.00	261.40	-	-	-	-	-	-	-	-	1000
88.20	1020.00	42.00	312.54	-	-	-	-	-	-	-	-	-	-	-	-	1200

**Note:**

- 1) All dimensions are in millimetres and mass in kg/m
- 2) Nominal Diameter (DN) equals outside diameter.
- 3) These dimensions also apply to Thermapipe.

## INSTALLATION METHOD FOR HDPE PIPES

- Suitable lifting equipment i.e. crane or forklift shall be used to shift the pipes from stored place to the installation site. All necessary safety precautions as per established safety procedure shall be implemented during shifting and installation.
- The pipe lengths shall be cut according to the approved shop drawing, and shall be joined using butt fusion welding or electro-fusion welding whichever is applicable.

### Jointing of HDPE Piping

Smaller diameter HDPE pipes i.e. up to 75 mm will be joined using the hot plate welding, while the pipe above 75 mm shall be joined using a butt fusion machine and as recommended by butt welding machine supplier.

### HDPE Electrofusion Welding

For HDPE electro-fusion welding, HDPE accessories are provided with spigot ends. The spigot ends are provided with low irregularities and the welding sleeve has projections to allow their exact distance apart to be determined.

1. The HDPE electro-weld sleeve is provided with 2 socket ends which can be welded in a single operation.
2. The welding equipment sends current through the resistance wires in the electro-weld socket for a set period. Both electro-weld sockets are welded at the same time.
3. The electro-weld socket has stops on the interior. The socket has two contact pins on the outside for the connection of the welding equipment.
4. There are two welding indicators which appear during and after the welding operation. These indicate that the welding has been reached and that the welding pressure has been applied.
5. The connector cables from the welding equipment should be connected to electro-weld socket.
6. Check the weld indicators. They should have emerged by around 2mm.
7. Press the start button. The welding indicator lamp will illuminate. Once the welding time is complete the lamp automatically extinguishes and the current supply switches off.
8. This will illuminate "connection" indicator lamp.

In butt welding (pipes 75mm and smaller) both pipe ends are placed against a hot plate at a constant temperature and pressure. The plastic pipe ends are now pressed together so that the molecules of the material are transferred between them. Before starting hot plate welding the equipment shall be checked for the following items:

1. The hot plate temperature must be 210°C.
2. The hot plate must be clean and free of grease.
3. Ensure that the two pipe brackets and two pipe supports are correctly aligned.
4. Both pipe clamps must be adjusted so that they hold the pipe tightly enough to withstand the force of the welding process.
5. Press the pipe ends against hot plate by briefly applying a high pressure. Continue heating very low pressure until an up stand of 1mm has formed.
6. Quickly remove the hot plate and slowly increase the welding pressure.
7. Hold the welding pressure steady and allow the weld to cool.
8. Remove the joint and inspect the weld. An irregular weld seam should be rejected.



Install the pipe according to approved shop drawing. The installed pipe shall be inspected by the consultant. After approval for installation, pipe shall be hydro-statically tested.

# CERTIFICATE OF REGISTRATION



This is to certify that the Quality Management System of  
**New Products Plastic Factory-NEPRO W.L.L.**

Building 283- Street 2,  
New Industrial Area Zone 81, Doha - Qatar  
has been assessed and registered by TNV as conforming  
to the requirements of:

## ISO 9001:2015

For the following Scope

"Provision of Production of HDPE, MDPE, PVC, CPVC,  
PPRCT & PPR Pipes Fitting & Accessories"

Certificate Number: 1707210740102  
Issue Date: 21<sup>st</sup> Jul. 2017  
Valid Until: 20<sup>th</sup> Jul. 2020

TNV Certification UK Ltd.

*Auth. Signatory*



Authorized Signatory  
TNV Certification UK Ltd.  
Regd. Off: Armstrong House, First Avenue, Robin Hood Airport, Doncaster, South  
Yorkshire, England, DN9 3GA, United Kingdom  
Mail: info@tnv.uk.com  
Certificate can be verified on Accreditation Board website: [www.abcab.org](http://www.abcab.org) and on CAB's  
website [www.tnv.uk.com](http://www.tnv.uk.com)

TNV Certification UK Ltd is a Conformity Assessment Body as per requirement of ISO 17021 and meet the requirement  
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maintaining their system in accordance with TNV's requirements for systems certification.



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# CERTIFICATE OF REGISTRATION



This is to Certify that the Occupational Health & Safety Management System of  
**New Products Plastic Factory-NEPRO W.L.L.**

Building 283- Street 2,  
New Industrial Area Zone 81, Doha - Qatar  
has been assessed and registered by TNV as conforming  
to the requirements of:

## OHSAS 18001:2007

For the following Scope

"Provision of Production of HDPE, MDPE, PVC, CPVC,  
PPRCT & PPR Pipes Fitting & Accessories"

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# CERTIFICATE OF REGISTRATION



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**New Products Plastic Factory-NEPRO W.L.L.**

Building 283- Street 2,  
New Industrial Area Zone 81, Doha - Qatar  
has been assessed and registered by TNV as conforming  
to the requirements of:

## ISO 14001:2015

For the following Scope

"Provision of Production of HDPE, MDPE, PVC, CPVC,  
PPRCT & PPR Pipes Fitting & Accessories"

Certificate Number: 1707210740102  
Issue Date: 21<sup>st</sup> Jul. 2017  
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