



HDPE


Pipes & Fittings

PRICE
PRODUCT
PROMOTION



bw
Bright Water





فَلَا تَغُرَّنَّكُمُ الْحَيَاةُ الدُّنْيَا

"so let not this present life deceive you"



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CERTIFICATIONS

Allah (Alone) is Sufficient for us, and He is the Best Disposer of affairs (for us).



INTRODUCTION

Bright Water Rubber & Plastic manufacturing company has been established in 2013 as a manufacturer of Plastic Polyvinyl Chloride PVC Pressure and non-Pressure pipe system for cold and potable water and other industrial uses. Bright Water After succeeding in PVC & U-PVC piping system, has Started the production of PVC, U-PVC, PPR- C, HDPE pipes & Fittings with Advance Technology. Customer focus, quality and innovation are reflected in every aspect of our business.

Our strength lies in pre-empting customer expectations and product demands. Bright Water today is a trademark of reliability, durability and stability. Our team is highly skilled and experienced which uses the most advanced technology on its production line and retains the modern management system.

As a group, we are committed to high ethical business values, quality of products, committed deliveries and competitive pricing. These factors have contributed to our success ensuring our success at all levels.

We have developed and designed a setup and system in place which can meet your requirements and needs beyond your hopes and expectations.

We believe that our strength lies in satisfying our customers and clients. That is why, providing quality products backed by superior technical support services, is the Bright Water promise to all our valued customers. Besides its unique place in Afghanistan plastic and Hand Pumps industry, Bright Water products are exported to various other countries and thus play an important role in economy of Afghanistan.



PRESIDENT MESSAGE

Bright Water like many other companies invests millions of Afghani in its communities annually through different programs and events. They understand that community investment is a necessary component of a sustainable business and its subsequent growth and recognizes that corporations can utilize unique resources, including the expertise of their employees through volunteerism, to positively impact societal problems and issues.

Founded in 2013 by trader and entrepreneur Hamid Ahmadzai and other business leaders, Bright-Water continues to inspire and challenge leaders in the private and public sector to find innovative ways to fulfill unmet community needs and to lead the way towards better management of business and societal strategies and policies. Through our convening power, a focus on measurement, and the extensive resources we provide to communities, Bright-Water is leading the way to enable significant strategic advances in corporate community investments

We provide thought leadership in the field through our recognized events and forward-looking research reports in the time of economic volatility and uncertainty. Today's business leaders are keenly aware of the heightened needs in their communities around the world.

Bright-Water encourages corporate CEOs to think carefully about the societal issues that will affect their companies in the next decade, and to proactively engage in addressing those issues, in collaboration with customers, employees, investors, nonprofits organizations, governments, and other businesses.

To develop, grow, struggle to achieve perfection through advanced technology and utilize all its resources in order to ensure long lasting customer satisfaction are the objectives of Bright Water. Thanks to reliable, strong, easily accessible and easy-to-use products and perfect after sale support, Bright Water achieves its target perfection. Bright Water is ready to achieve its goals and objectives through regular investments in communities by implementing various mechanisms and technics.

Hamid Ahmadzai
President

QUALITY MANAGEMENT

Bright Water Rubber & Plastic Manufacturing Company is Germany (DAB) ISO 9001:2008, 14001:2015 & 18001:2007 Certified Company Which have been dedicated itself through the production of superior materials ensuring cost effectiveness, hurdle freedom and high quality in all aspects of business. We are using innovative, adoptive and modern technologies available in the industry to ensure all specific customers' requirements and expectations are met all the times with comfort and satisfaction which will enhance our production quality, performance and profitability.

This is the culmination of our dedicated efforts to manufacture superior product to our national and international clients by providing exceptional value, consistent performance and creative production solutions by which we have been promoting our ever-lasting and productive working relationship.

VISION

To become the leading manufacturing Company for PVC, U-PVC, PPRC & HDPE Pipes & Fittings and services at national and international levels.

MISSION

Profitable growth through superior customer service, innovation, quality and commitment. To be the leader in every market we enter and serve, to the benefit of our customers and shareholders The company's primary objective is to maximize long – term customer value, while adhering to the highest manufacturing standards

WHY BRIGHT WATER?

Bright Water Pipes & Fittings offer the greatest combination of versatility, durability and longevity, and gives importance to quality control and:

1. Uses the most advanced technology.
2. Has highly skilled and experienced team.
3. Uses the most suitable raw materials.
4. Produces pipes & fittings as per international standard.
5. Controls Quality at each stage of production & has well equipped laboratory
6. Committed to high ethical business values and competitive pricing.



QUALITY CONTROL

Profitable growth through superior customer service, innovation, quality and commitment. To be the leader in every market we enter and serve, to the benefit of our customers and shareholders. The company's primary objective is to maximize long – term customer value, while adhering to the highest manufacturing standards.

RAW MATERIAL QUALITY CONTROL

All types of Raw material from our supplier are subject to input quality control test. Before Production Samples chosen from raw material for Test being carried out obtain suitable for Production approval.

PROFITABLE GROWTH THROUGH SUPERIOR

All types of Raw material from our supplier are subject to input quality control test. Before Production Samples chosen from raw material for Test being carried out obtain suitable for Production approval.

PROCESS QUALITY CONTROL

To assure quality of the HDPE Pipes during production process and finish product, Quality Control department ensures that materials used in the manufacturing process are in strict compliance with the end users' requirement and the end product is in conformity with the applicable international standards.

HIGH QUALITY AND PERFORMANCE STANDARDS

The quality and performance of HDPE Pipes are assured by a wide array of tough standards, control tests and independent certifications. Bright Water HDPE Pipes maintain the quality of the products as per the revised and the latest standard ISO Germany (DAB) ISO 9001:2008, 14001:2015 & 18001:2007 which also is in line with the international standards on product quality.

EXTENSIVE QUALITY CONTROL

Bright Water pipe undergoes numerous quality control tests, including regular measurements of critical dimensions, tests for extrusion quality, pipe flattening, burst pressure, impact resistance, joint integrity, and hydrostatic soundness, Melt Flow rate, Internal Hydrostatic Pressure Resistance (ICPR), Longitudinal Reversion (Heat Reversion), Tensile Strength. This ensures optimum quality, reliability and long-term strength.

- 1) Heat Reversion
- 2) Opacity
- 3) Density
- 4) Burst Pressure
- 5) Fracture Toughness

- 1) Methylene Chloride
- 2) Impact Strength
- 3) Flattening (ASTM)
- 4) Acetone Resistance
- 5) Resistance to Sulphuric Acid



HDPE ENVIRONMENTAL FRIENDLY

Producing by the use of “Environmental Friendly Production Technologies” since its foundation, Bright Water proves its sensitivity toward environmental health through its Environmental Management System. Upon obtaining Germany (DAB) ISO 14001-2015 “Environment Management System”.

The environmentally friendly raw materials is used for manufacture of Bright Water PPRC Pipe system. to insure it’s environmental compatibility, all contained additives (color pigments & stanilizers) are extensively tested, not only by Bright Water own laboratory, but also by prominent independent laboratories.

Bright Water not only retains its established environmental consciousness within its organization but also transforms this consciousness into an environmental policy and shares it with its neighbors, suppliers and customers. Especially during domestic and foreign seminars held for its end-users, Bright Water shares its efforts made toward environmental problems and importance that should be attached to the environmental health primarily with its business partners.

95% of the products of Bright Water consists of re-cycled re-processable materials. It sends its non-household wasted and non-recyclable waster products to “Disposal Facilities”.

Environment Management Programs and Projects oriented to Environmental Health Protection drawn up by the Environmental Group consisting of our environmental engineers are being realized within Bright Water Rubber & Plastic Manufacturing Company.

Committing its compliance with all national and international Environmental Legislative Directives and Environmental regulations, Bright Water fulfills all its legal liabilities and declares statutory assessment reports to the relevant Ministry.

Bright Water always gives precedence to the importance of environmental health and shows necessary sensitivity in all its investments.

When things are too hard to handle, retreat & count your blessings instead.

SMOOTH-WALL HIGH-DENSITY POLYETHYLENE PIPE SYSTEMS

Piping made from polyethylene is a cost effective solution for a broad range of piping problems in municipal, industrial, marine, mining, landfill, duct and agricultural applications. It has been tested and proven effective for above ground, sur face, buried, slip lined, floating, and sub-sur face marine applications. High-density polyethylene pipe (HDPE) can carry potable water, wastewater, slurries, chemicals, hazardous wastes, and compressed gases. In fact, polyethylene pipe has a long and distinguished history of service to the gas, oil, mining and other industries. It has the lowest repair frequency per mile of pipe per year compared with all other pressure pipe materials used for urban gas distribution. Polyethylene is strong, extremely tough and very durable. Whether you're looking for long service, trouble-free installation, flexibility, resistance to chemicals or a myriad of other features, high-density polyethylene pipe will meet all your requirements.

HDPE PIPE SAVES BOTH TIME AND MONEY

LOWER LIFE CYCLE COSTS

- ❖ Corrosion resistance. Does not rust, rotor corrode.
- ❖ Leak tight. Heat-fused joints create a homogenous, monolithic system. The fusion joint is stronger than the pipe.
- ❖ Maintains optimum flow rates. Does not tuberculate, has a high resistance to scale or biological build-up.
- ❖ Excellent water hammer characteristics. Designed to withstand surge events.
- ❖ High strain allowance. Virtually eliminates breakage due to freezing pipes.pment.
- ❖ With no exfiltration or infiltration, potable water losses and groundwater nuisance treatment costs encountered in traditional piping systems are eliminated.

REDUCED INSTALLATION COSTS

- ❖ Material of choice for trenchless technology. Used in directional boring, plowing, river crossings, pipe bursting and slip lining.
- ❖ Fewer fittings due to pipe flexibility. Allowable bending radius of 20 to 25 times outside diameter of pipe.
- ❖ Lighter equipment required for handling and installation than with metallic materials.
- ❖ Eliminates the need for thrust blocking. Heat fused joints are fully restrained.
- ❖ Light weight and longer lengths allow for significant savings in labor and equipment.



CONSIDER THE FOLLOWING FEATURES OF HDPE PIPE:

LEAK FREE

Polyethylene pipe is normally joined by heat fusion. Butt, socket, sidewall fusion and electrofusion create a joint that is as strong as the pipe itself, and is virtually leak free. This unique joining method produces significant cost reductions compared to other materials.

CORROSION, ABRASION, AND CHEMICAL RESISTANT

Polyethylene piping's performance in mining, dredging and similar applications proves it will outwear many costlier piping materials when conveying a variety of abrasive slurries. HDPE has excellent corrosion resistance and is virtually inert. It does not need expensive maintenance or cathodes protection. It offers better overall resistance to corrosive acids, bases and salts than most piping materials. In addition, polyethylene is unaffected by bacteria, fungi and the most "aggressive" naturally occurring soils. It has good resistance to many organic substances, such as solvents and fuels.

EXCELLENT FLOW CHARACTERISTICS

Because polyethylene is smoother than steel, cast iron, ductile iron, or concrete, a smaller PE pipe can carry an equivalent volumetric flow rate at the same pressure. It has less drag and a lower tendency for turbulence at high flow. Its superior chemical resistance and "non-stick" surface combine to almost eliminate scaling and pitting and preserve the excellent hydraulic characteristics throughout the pipe service life.

LIGHTWEIGHT AND FLEXIBLE

Polyethylene pipe is produced in straight lengths or in coils. Made from materials about one-eighth the density of steel, it is lightweight and does not require the use of heavy lifting equipment for installation. It reduces the need for fittings, is excellent in shifting soils and performs well in earthquake-prone areas. HDPE resists the effects of freezing and allows bending without the need for an excessive number of fittings. Since HDPE is not a brittle material, it can be installed with bends over uneven terrain easily in continuous lengths without additional welds or couplings.

DUCTILITY AND TOUGHNESS

Polyethylene pipe and fittings are inherently tough, resilient and resistant to damage caused by external loads, vibrations, and from pressure surges such as water hammer. Even in cold weather polyethylene pipe is tolerant to handling and bending.

MANUFACTURED UNDER AWWA, NSF, ASTM, AGA, EPA, DNR, DOT, API, FM, CSA AND OTHER NATIONALLY RECOGNIZED STANDARDS

Polyethylene pipe is listed and approved by the standards or committees of the agencies listed above.



AVAILABLE IN DIAMETERS FROM 20MM TO 1200MM

Polyethylene pipe is available in a wide range of diameters and wall thickness, with flanges, elbows, tees, wyes, and valves, providing a total system solution. HDPE pipe is also available in Iron Pipe Size (IPS), Ductile Pipe Size (DIPS) as well as metric sizes. Plastic Pipe Institute members can provide pipe, fittings and other appurtenances.

APWA COLOR CODING BY APPLICATION

Polyethylene pipe is available with color coding by application as developed by the utility location and coordination council of the American Public Works Association (APWA).



PRODUCT IDENTITY CARD

PRODUCT NAME	BRIGHT WATER PE 80 NATURAL PIPES AND FITTINGS
RAW MATERIAL	MODPE 80 (=PE 80)
PRODUCT COLOR	BLACK
PRODUCTINON STANDARDS	DIN 8074

PRODUCT SPECIFICATION

Production Range	Ø25 - Ø500 mm	
Pressure Rating	SDR 11 - PN 12,5 [for 4 bar lines in accordance with TSE]	
Production Unit Lentgh	Ø25 - Ø125 (in coils)	Ø110-Ø500 (11.8 meter bars)

TECHNICAL SPECIFICATION

Polymer Data	PE 80	Until	Test Method
Density at 23 °C	0.94	gr/cm ³	ISO 1183
Viscosity Number	280	cm ³ /gr	ISO 16283
MFR 190 0/5Kg	0.85	gr/10min	ISO 1133
MFR 190 0/25Kg	18	gr/10min	ISO 1133
Mechanical Properties			
Yield strees	18	mpa	ISO 527
Elongation at yield	10--12	%	ISO 527
Tensile Modulus	600	mpa	ISO 527
	-	kJ/m ²	ISO 179/1eA
+ 23 °C			
- 20 °C	-	kJ/m ²	ISO 179/1eA
Oxidation - Induction time at 210 °C	≥ 20	min	ISO TR 10837
Carbon black content	2.3+0.2	%	ISO 6964
Carbon black Dispersion	≤3		ISO CD 11240
MRS minimum Required Strength	<8	Mpa	ISO TR 9080
Resistance to S. C. P (Slow Crack Propagation)	<2000	h	EN 33479
= 4.6 Mpa ' 80 °C Notched			
Resistance to R. C. P (Rapid Crack)	-	bar	ISO DIS 13477
Elongation at break	<600	%	EN 638
Linear Thermal Expansion	1.5 x 10	°C ⁻¹	ASTM D 696
Specific Heat Capacity			(20-60° C)
	1.9	j/g °C	PBCL
Electric Strength	>20	KV/mm	BS 2782:201 B
Volume resistivity	>10 ¹³	Ωm	BS 2782:230 A
Surface resistivity	>10 ¹⁵	Ω	BS 2782:231 A
Relative permittivity	2.6	-	BS 2067
			1 TO 20 MHZ
Los Tangent	3 x 10 ⁻⁴	-	BS2067

**PE 80 PIPE DIMENSION CONFORMING TO ISO
4427/DIN8074 DESIGN STRESS = 6.3 MPa**

O.D. mm	S 10		S 6.3		S 5		S 4	
	SDR 21		SDR 13.6		SDR 11		SDR 9	
	PN 6.3				PN 12.5		PN 16	
	W.T. mm	Weight Kg/m	W.T. mm	Weight Kg/m	W.T. mm	Weight Kg/m	W.T. mm	Weight Kg/m
16							1.8	0.084
20			1.08	0.107	1.9	0.112	2.3	0.133
25			1.9	0.144	2.3	0.171	2.8	0.200
32			2.4	0.232	3.0	0.272	3.6	0.327
40	1.9	0.239	3	0.356	3.7	0.430	4.5	0.509
50	2.4	0.374	3.7	0.549	4.6	0.866	5.6	0.788
63	3	0.58	4.7	0.873	5.8	0	7.1	1.26
75	3.6	0.828	5.6	1.24	6.8	1.47	8.4	1.76
90	4.3	1.18	6.7	1.77	8.2	2.12	10.1	2.54
110	5.3	1.77	8.1	2.62	10.0	3.14	12.3	3.78
125	6	2.27	9.2	3.37	11.4	4.08	14.0	4.67
140	6.7	2.83	10.3	4.22	12.7	5.08	15.7	6.11
160	7.7	3.72	11.8	5.50	14.6	6.67	17.9	7.98
180	8.6	4.67	13.3	6.98	16.4	8.42	20.1	10.1
200	9.6	5.78	14.7	8.56	18.2	10.4	22.4	12.4
225	10.8	7.3	16.6	10.9	20.5	13.1	25.2	15.8
250	11.9	8.93	18.4	13.4	22.7	16.2	27.9	19.4
280	13.4	11.3	20.6	16.8	25.4	20.3	31.3	24.3
315	15.0	14.2	23.2	21.2	28.6	25.6	35.2	30.8
355	16.9	18.0	26.1	26.0	32.2	32.6	39.7	39.1
400	19.1	22.9	29.4	34.1	36.2	41.3	44.7	49.6
450	21.5	28.9	33.1	43.2	40.9	52.3	50.3	62.7
*500	23.9	35.7	36.8	53.3	45.4	64.5	55.8	77.3
*560	26.7	44.7	41.2	68.9	50.8	80.8	62.5	97.0
*630	30.0	56.4	46.3	84.6	57.2	102		
*710	33.9	71.8	52.2	107				
*800	38.1	91.1	58.8	136				
*900	42.9	115.0						
*1000	47.7	142.0						
*1200	57.2	205.0						



PRODUCT IDENTITY CARD

PRODUCT NAME	BRIGHT WATER HDPE 100 POTABLE WATER NETWORK PIPES
RAW MATERIAL	MODPE 100 (=PE 100)
PRODUCT COLOR	BLACK
PRODUCTINON STANDARDS	DIN 8074

PRODUCT SPECIFICATION

Production Range	Ø25 - Ø500 mm
Pressure Rating	PN 6.3 - PN 16
Production Unit Lentgh	Ø25 - Ø125 (in coils) Ø110 - Ø500 (11.8 meter bars)

TECHNICAL SPECIFICATION

Polymer Data	PE 100	Until	Test Method
Density at 23 °C	0.955	gr/cm ³	ISO 1183
Viscosity Number	360	cm ³ /gr	ISO 16283
MFR 190° /5Kg	0.22	gr/10min	ISO 1133
MFR 190° /25Kg	606	gr/10min	ISO 1133
Mechanical Properties			
Yield streses	23	mpa	ISO 527
Elongation at yield	9	%	ISO 527
Tensile Modulus	900	mpa	ISO 527
Notched Impact Strength			
+ 23 °C	26	kJ/m ²	ISO 179/1eA
- 20 °C	13	kJ/m ²	ISO 179/1eA
Other Properties			
Oxidation - Induction time at 210 °c	≥ 20	min	ISO TR 10837
Carbon black content	2.3+0.2	%	ISO 6964
Carbon black Dispersion	≤3		ISO CD 11240
MRS minimum Required Strength	<10	mpa	ISO TR 9080
Resistance to S. C. P (Slow Crack Propagation) = 4.6 Mpa, 80 °C Notched	<3000	h	EN 33479
Resistance to R. C. P (Rapid Crack)	<25	bar	ISO DIS 13477
Elongation at break	<600	%	EN 638
Linear Thermal Expansion	1.8 x 10	°C ⁻¹	ASTM D 696
Specific Heat Capacity			(20-60 0C)
	1.9	j/g °C	PB CL
Elictrical Properties			
Electric Strength	>20	KV/mm	BS 2782:201 B
Volume resistivity	>10 ¹³	Ω m	BS 2782:230 A
Surface resistivity	>	Ω	BS 2782:231 A
Relative permittivity	2.6	-	BS 2067
			1 TO 20 MHZ
Los Tangent	3 x 10 ⁻⁴	-	BS2067

The Dunya is not the resting place, it is the testing place.

PE 100 PIPE DIMENSION CONFORMING TO ISO 4427, DIN8074 & PREN 12201 SPECIFICATIONS. DESIGN STRESS = 8 MPa

OD. mm	S 20		S 12.5		S 10		S 8		S 6.3		S 5		S 4		S 3.2		S 2.5				
	W.T. mm	Weight Kg/m	W.T. mm	Weight Kg/m	W.T. mm	Weight Kg/m	W.T. mm	Weight Kg/m	W.T. mm	Weight Kg/m	W.T. mm	Weight Kg/m	W.T. mm	Weight Kg/m	W.T. mm	Weight Kg/m	W.T. mm	Weight Kg/m	W.T. mm	Weight Kg/m	
20																					
25																					
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280																					
315																					
355																					
400																					
450																					
*500																					
*560																					
*630																					
*710																					
*800																					
*900																					
*1000																					
*1200																					



PE 100-80 & 63 PIPE DIMENSION CONFORMING TO ISO 4427, DIN8074

PE 100	PN 3.2	PN 4	PN 5	PN 6.4	PN 7.8	PN 8	PN 9.6	PN 10	PN 12.7	PN 16	PN 20	PN 25																
PE 80	PN 205	PN 3.2	PN 4	PN 5	PN 6	PN 6.4	PN 7.7	PN 8	PN 10	PN 12.5	PN 16	PN 20																
PE 63	PN	PN 2.5	PN 3.2	PN 4	PN 4.8	PN 5	PN 6	PN 6.3	PN 8	PN 10	PN 12.6	PN 16																
25	20	16	16	12.5	10.5	10	8.3	8	6.3	5	4	3.2																
51	41	33	26	22	21	17.6	13.6	11	9	7.4																		
S	Kg/M	S	Kg/M	S	Kg/M	S	Kg/M	S	Kg/M	S	Kg/M	S	Kg/M															
10																												
12																												
16																												
20																												
25																												
32																												
40																												
50																												
63																												
75	1.8	0.436	1.9	0.457	2.3	0.551	2.9	0.675	3.5	0.807	4.1	1.14	4.3	1.18	5.1	1.39	5.4	1.46	6.7	1.77	8.2	2.12	10.1	2.54	12.3	3		
90	1.8	0.525	2.2	0.643	2.8	0.791	3.5	0.978	4.1	1.14	4.3	1.18	5.1	1.39	5.4	1.46	6.7	1.77	8.2	2.12	10.1	2.54	12.3	3				
110	2.2	0.706	2.7	0.943	3.4	1.17	4.2	1.43	5	1.67	5.3	1.77	6.3	2.08	6.6	2.17	8.1	2.62	10	3.14	12.3	3.78	15.1	4.49				
125	2.5	1	3.1	1.23	3.9	1.51	4.88	1.84	5.7	2.16	6	2.27	7.1	2.66	7.4	2.76	9.2	3.37	11.4	4.08	14	4.87	17.1	5.77				
140	2.8	1.25	3.5	1.54	4.3	1.88	5.4	2.32	6.4	2.72	6.7	2.83	8	3.34	8.3	3.46	10.3	4.22	12.7	5.08	15.7	6.11	19.2	7.25				
160	3.2	1.53	4	2	4.9	2.42	6.2	3.04	7.3	3.54	7.7	3.72	9.1	4.35	9.5	4.52	11.8	5.5	14.6	6.47	17.9	7.96	21.9	9.44				
180	3.6	2.5	4.4	2.4	5.5	3.07	6.9	3.79	8.2	4.47	8.6	4.67	10.2	5.48	10.7	5.71	13.3	6.98	16.4	8.42	20.1	10.1	24.6	11.9				
200	3.9	2.46	4.9	3.05	6.2	3.84	7.7	4.69	9.1	5.51	9.6	5.78	11.4	6.79	11.9	7.05	14.7	8.56	18.2	10.4	22.4	12.4	27.1	14.8				
225	4.4	3.12	5.5	3.86	6.9	4.77	8.6	5.89	10.3	7	10.8	7.3	12.8	8.55	13.4	8.93	16.6	10.9	20.5	13.1	25.2	15.8	30.8	18.6				
250	4.9	3.83	6.2	4.83	7.7	5.92	9.6	7.3	11.4	8.59	11.9	8.93	14.2	10.6	14.8	11	18.4	13.4	22.7	16.2	27.9	15.4	34.2	23				
280	5.5	4.83	6.9	5.98	8.6	7.4	10.7	9.1	12.8	10.8	13.4	11.3	15.9	13.2	16.6	13.7	20.6	16.8	25.4	20.3	31.3	15.4	38.3	28.9				
315	6.2	6.12	7.7	7.52	9.7	9.37	12.1	11.6	14.4	13.6	15	14.2	17.9	16.7	18.7	17.4	23.2	21.2	28.6	25.6	35.2	30.8	43.1	36.5				
355	7	7.73	8.7	9.55	10.9	11.8	13.6	14.6	16.2	17.3	16.9	18	20.1	21.2	21.1	22.1	26.1	26.9	32.2	32.5	39.7	39.1	48.5	46.5				
400	7.9	9.82	9.8	12.1	12.3	15.1	15.3	18.6	18.2	29.1	19.1	22.9	22.7	26.9	23.7	28	29.4	34.1	36.3	41.3	44.7	49.6	54.7	58.8				

Sometimes the blessing are not in what he gives, but in what it takes away!

WATER & SEWER DETAILS

POLYETHYLENE WATER & SEWER

P 3608/3408 IPS PIP DP PIP SI S

Nominal Size	Pressure Rating	Actual O.D.	DR 7 (267Psi)			DR 7.3 (254Psi)			DR 9 (200Psi)			DR 11 (160Psi)			DR 13.5 (128Psi)			DR 15.5 (110Psi)		
			MIN Wall	Average I.D	Weight lb/ft	MIN Wall	Average I.D	Weight lb/ft	MIN Wall	Average I.D	Weight lb/ft	MIN Wall	Average I.D	Weight lb/ft	MIN Wall	Average I.D	Weight lb/ft	MIN Wall	Average I.D	Weight lb/ft
3/4"		1.05"	0.150"	0.732"	0.184	0.144"	0.745"	0.178	0.177"	0.803"	0.15	0.095"	0.848"	0.125	...	...	...	...	...	...
1"		1.315"	0.188"	0.917"	0.289	0.180"	0.933"	0.279	0.146"	1.005"	0.234	0.120"	1.062"	0.197	...	...	...	...	...	...
1 1/4"		1.66"	0.237"	1.157"	0.46	0.227"	1.178"	0.444	0.184"	1.269"	0.372	0.151"	1.340"	0.312	...	...	...	...	...	...
1 1/2"		1.90"	0.271"	1.325"	0.603	0.260"	1.348"	0.582	0.211"	1.452"	0.488	0.173"	1.534"	0.409	...	...	...	...	...	...
2"		2.375"	0.339"	1.656"	0.943	0.325"	1.685"	0.762	0.264"	1.816"	0.762	0.216"	1.917"	0.639	0.176"	2.002"	0.531	0.153"	2.050"	0.467
3"		3.500"	0.500"	2.440"	2.047	0.479"	2.484"	1.656	0.389"	2.676"	1.656	0.318"	2.825"	1.387	0.259"	2.950"	1.153	0.226"	3.021"	1.015
4"		4.500"	0.643"	3.137"	3.384	0.616"	3.193"	2.737	0.500"	3.440"	2.737	0.409"	3.633"	2.294	0.333"	3.793"	1.906	0.290"	3.885"	1.678
5"		5.375"	0.768"	3.747"	4.83	0.736"	3.814"	4.663	0.597"	4.109"	3.903	0.489"	4.339"	3.272	0.398"	4.531"	2.718	0.347"	4.640"	2.396
5"		5.563"	0.795"	3.878"	5.172	0.762"	3.947"	4.182	0.618"	4.255"	4.182	0.506"	4.491"	3.505	0.412"	4.689"	2.912	0.359"	4.802"	2.564
6"		6.625"	0.946"	4.619"	7.336	0.908"	4.701"	5.932	0.736"	5.064"	5.932	0.602"	5.348"	4.971	0.491"	5.585"	4.13	0.427"	5.719"	3.637
7"		7.125"	1.018"	4.967"	8.195	0.976"	5.056"	8.2	0.792"	5.447"	6.863	0.648"	5.752"	5.75	0.528"	6.006"	4.779	0.460"	6.150"	3.985
8"		8.625"	1.232"	6.013"	12.433	1.182"	6.120"	10.054	0.958"	6.593"	10.054	0.784"	6.983"	8.425	0.639"	7.271"	7.001	0.556"	7.445"	6.164
10"		10.750"	1.536"	7.494"	19.314	1.473"	7.628"	15.618	1.194"	8.218"	15.618	0.977"	8.678"	13.089	0.796"	9.062"	10.785	0.694"	9.280"	9.576
12"		12.750"	1.821"	8.889"	27.17	1.747"	9.047"	21.97	1.417"	9.747"	21.97	1.159"	10.293"	18.412	0.944"	10.748"	15.298	0.823"	11.006"	13.471
14"		14.00"	2.000"	9.70"	32.758	1.918"	9.934"	26.489	1.556"	10.702"	26.489	1.273"	11.372"	22.199	1.037"	11.801"	18.445	0.903"	12.085"	16.242

PRESSURE ARE BASED ON USING WATER AT 23 C

AVERAGE INSIDE DIAMTER CALCULATED USING NOMINAL OD AND MINIMUM WALL PLUS 6% FOR USE IN ESTIMATING FLUID FLOWS,ACTUAL ID WILL VARY
 SERVICE FACTORS SHOULD BE UTILIZED TO COMPENSATE FOR THE EFFECT OF LIQUIDES OTHER THAN WATER,AND FOR OTHER TEMPERATURES .
 OTHER PIPING SIZES OR DR'S MAY BE AVAILABLE UPON REQUEST .

POLYETHYLENE WATER & SEWER

REFERENCE STANDARDS

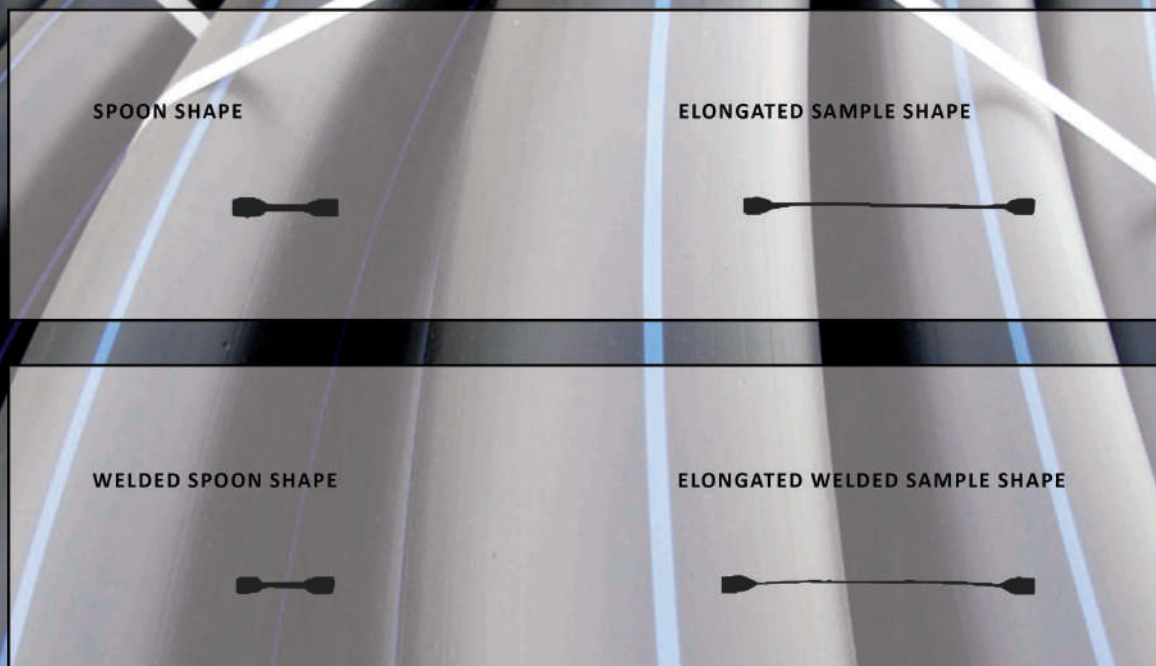
ASTM F714	Standard specification for polyethylene (PE) Plastic Pipe (S.D.R. - PR) Based on Outside Diameter
AWWA C901	Polyethylene (PE) Pressure Pipe & Tubing, 1/2" through 3" for Water Services
AWWA C906	Polyethylene (PE) Pressure Pipe & Fittings, 4" through 63" for Water Disturbance & Transmission

THE DAMAGE PERCENTAGES IN THE POTABLE WATER LINES AT KOBE/JAPAN EARTHQUAKE

Pipe Type	Percentage of damage apiec/km
Ductile cast iron pipe	0.488
Cast iron pipe	1.508
PVC pipe	1.430
Steel pipe	0.437
Asbestos Steel Pipe	1.782
PE pipe	0 (Zero)

THE DAMAGE PERCENTAGES IN THE GAS PIPE LINES AT KOBE/JAPAN EARTHQUAKE

	Steel pipe	Ductile cast & Iron Pipe	PE pipe
Total length	21,338	12,204	1,458
Number of damage	25,821	630	0 (zero)
Damage ratio (place/km)	1,210	0,052	0.000 (zero)



BUTT-WELDING CAPACITY

Size (mm)	No. of Welding >SDR 26	No. of Welding >SDR 22
1600	2--3	—
1400	2--3	—
1200	3--4	3--4
1000	3--4	3--4
900	4--5	4--5
800	4--5	4--5
710	5--6	5--6
630	6--8	6--8
560	7--9	7--9
500	7--10	7--10
450	7--10	8--11
400	10--13	10--13
355	10--13	10--13
280	14--17	14--17
250	16--20	16--20
225	18--22	17--22
200	20--25	18--25
180	22--27	18--27
160	22--27	20--27
140	22--28	20--28
125	25--30	22--30
110	25--30	25--30
90	25--30	25--30
75	26--30	25--30

When there is no way ALLAH will make a way.



BUTT WELDING PARAMETERS FOR BRIGHT WATER PE 100 PIPES

Nominal Diameter	Wall Pressure height of lip formed Thickness			Free heating Time for removing Time for attaining the Cooling period Total welding period heating plate necessary welding temp under				
	mm	bar	mm	Sec	Sec	Sec	Minute	Hour
75	4.5	10	100.000	45	5	5	6	0.12
	6.8	6	100.000	68	6	6	10	0.18
90	3.3	6	0.5	33	5	5	6	0.11
	5.4	10	100.00	54	5	5	7	0.14
110	8.2	16	1.5	82	6	6	11	0.21
	4	6	0.5	40	5	5	6	0.11
125	6.6	10	1	66	6	6	9	0.18
	10	16	1.5	100	6	6	13	0.25
140	4.5	6	1	45	5	5	6	0.12
	7.4	10	1.5	74	6	6	10	0.2
160	11.4	16	1.5	114	6	6	14	0.28
	5.1	6	1	51	5	5	7	0.13
180	8.3	10	1.5	83	6	6	11	0.21
	12.7	16	2	127	8	8	17	0.32
200	5.8	6	1	58	6	6	8	0.15
	9.5	10	1.5	95	6	6	13	0.24
225	14.6	16	2	146	8	8	19	0.36
	6.5	6	1	65	6	6	9	0.17
250	10.7	10	1.5	107	6	6	14	0.26
	6.54	16	2	164	8	8	20	0.39
280	7.2	6	1.5	72	6	6	10	0.19
	11.9	10	1.5	119	6	6	15	0.28
315	18.2	16	2	182	8	8	22	0.43
	8.2	6	1.5	82	6	6	11	0.21
355	13.4	10	2	134	8	8	17	0.33
	20.5	16	2.5	205	10	11	26	0.49
400	9.1	6	1.5	91	6	6	12	0.23
	14.8	10	2	148	8	8	19	0.36
450	22.7	16	2.5	227	10	11	28	0.53
	10.1	6	1.5	101	6	6	13	0.25
500	16.6	10	2	166	8	8	21	0.39
	25.4	16	2.5	254	10	11	30	0.58
560	11.4	6	1.5	114	6	6	14	0.28
	18.7	10	2	187	8	8	23	0.43
630	28.6	16	3	286	12	14	35	0.66
	12.9	6	2	129	8	8	17	0.32
700	21.1	10	2.5	211	10	10	26	0.5
	32.2	16	3	322	12	12	38	0.73
760	14.5	6	2	145	8	8	19	0.35
	23.7	10	2.5	237	10	10	29	0.55
840	36.3	16	3	363	12	12	42	0.73
	16.3	6	2	163	8	8	20	0.39
900	26.7	10	3	267	12	12	33	0.63
	40.9	16	3.5	409	16	16	45	0.87
975	18.1	6	2	181	8	8	22	0.42
	29.7	10	3	297	12	12	36	0.68
1050	45.4	16	3.5	454	16	16	46	0.89
	20.3	6	2.5	203	10	10	25	0.48
1125	33.2	10	3	332	12	12	39	0.75
	50.8	16	4	508	20	20	61	1.17

Do not lose hope, nor be sad."

FLANGE DIMENSIONS ACCORDING TO DIN STANDARD

Stub end DN	DN	PN Bar	d1	C	D	h	Number of Holes	F	Screw
50	40	10	62	110	150	15	4	19	M 16
		16	62	110	150	15	4	19	M 16
		25	-	-	-	-	-	-	-
63	50	10	78	135	175	15	4	19	M 16
		16	78	135	175	15	4	19	M 16
		25	-	-	-	-	-	-	-
75	65	10	92	145	185	15	4	19	M 16
		16	92	145	185	15	4	19	M 16
		25	-	-	-	-	-	-	-
90	80	10	108	160	200	19	8	19	M 16
		16	108	160	200	19	8	19	M 16
		25	-	-	-	-	-	-	-
110	100	10	128	180	220	19	8	19	M 16
		16	128	180	220	19	8	19	M 16
		25	-	-	-	-	-	-	-
125	100	10	135	180	220	19	8	19	M 16
		16	135	180	220	19	8	19	M 16
		25	-	-	-	-	-	-	-
140	125	10	158	210	250	19	8	19	M 16
		16	158	210	250	19	8	19	M 16
		25	-	-	-	-	-	-	-
160	150	10	178	240	285	19	8	23	M 20
		16	178	240	285	19	8	23	M 20
		25	-	-	-	-	-	-	-
180	150	10	188	240	340	19	8	23	M 20
		16	188	240	340	19	8	23	M20
		25	-	-	360	-	-	-	-
200	200	10	235	295	340	20	8	23	M20
		16	235	295	340	20	12	23	M20
		25	235	310	360	22	12	28	M 24
225	200	10	238	295	400	20	8	23	M20
		16	238	295	400	20	12	23	M24
		25	238	310	425	22	12	28	M 27
250	250	10	288	350	400	22	12	23	M20
		16	288	355	400	22	12	28	M 24
		25	288	370	425	24.5	12	31	M 27
280	250	10	294	350	455	22	12	23	M 20
		16	294	355	455	22	12	28	M 24
		25	294	370	485	24.5	12	31	M 27
315	300	10	338	400	505	24.5	12	23	M 20
		16	338	410	520	24.5	12	28	M 24
		25	338	430	555	27.5	16	31	M 30
355	350	10	376	460	565	24.5	16	23	M 24
		16	376	470	580	26.5	16	28	M 27
		25	376	490	620	30	16	34	M 33
400	400	10	430	515	670	24.5	16	28	M 24
		16	430	525	-	28	16	31	-
		25	430	550	-	32	16	37	-
450	500	10	517	620	670	26.5	20	28	M 24
		16	-	-	-	-	-	-	-
		25	-	-	-	-	-	-	-
500	500	10	533	620	670	26.5	20	28	-
		16	-	-	-	-	-	-	-
		25	-	-	-	-	-	-	-

BLIND PLATE DIMENSIONS ACCORDING TO DIN STANDARD

Stub end DN	DN	PN Bar	C	D	h	g	Number of Holes	Screw
50	40	10	110	150	15	88	4	19
		16	110	150	15	88	4	19
		25	-	-	-	-	-	-
63	50	10	135	175	15	102	4	19
		16	135	175	15	102	4	19
		25	-	-	-	-	-	-
75	65	10	145	185	15	133	4	19
		16	145	185	15	133	4	19
		25	-	-	-	-	-	-
90	80	10	160	200	19	153	8	19
		16	160	200	19	153	8	19
		25	-	-	-	-	-	-
110	100	10	180	220	19	153	8	19
		16	180	220	19	153	8	19
		25	-	-	-	-	-	-
125	100	10	180	220	19	183	8	19
		16	180	220	19	183	8	19
		25	-	-	-	-	-	-
140	125	10	210	250	19	209	8	19
		16	210	250	19	209	8	19
		25	-	-	-	-	-	-
160	150	10	240	285	19	209	8	23
		16	240	285	19	209	8	23
		25	-	-	-	-	-	-
180	150	10	240	340	19	209	8	23
		16	240	340	19	209	8	23
		25	-	360	-	-	-	-
200	200	10	295	340	20	264	8	23
		16	295	340	20	264	12	23
		25	310	360	22	274	12	28
225	200	10	295	400	20	264	8	23
		16	295	400	20	264	12	23
		25	310	425	22	274	12	28
250	250	10	350	400	22	319	12	23
		16	355	400	22	319	12	28
		25	370	425	24.5	331	12	31
280	250	10	350	455	22	319	12	23
		16	355	455	22	319	12	28
		25	370	485	24.5	331	12	31
315	300	10	400	505	24.5	367	12	23
		16	410	520	24.5	367	12	28
		25	430	555	27.5	389	16	31
355	350	10	460	565	24.5	427	16	23
		16	470	580	26.5	432	16	28
		25	490	620	30	446	16	34
400	400	10	515	670	24.5	477	16	28
		16	525	-	28	484	16	31
		25	550	-	32	503	16	37
450	500	10	620	670	26.5	582	20	28
		16	-	-	-	-	-	-
		25	-	-	-	-	-	-
500	500	10	620	670	26.5	582	20	28
		16	-	-	-	-	-	-
		25	-	-	-	-	-	-

Kindness is a mark of faith, and whoever is not kind has no faith

COMPARISON OF BRIGHT WATER PE SEWORAGE WITH OTHER BRAND PIPES

Features	Pipe Type	BW PE	PVC	Stell	Ductile Font	Concrete	GRP	ASBESTOS	EXPLANATION
Production Range (mm)	Ø20-Ø3600	Ø20-Ø360	Ø15-Ø400	Ø50-Ø2000	Ø200-Ø3200	Ø20-Ø1600	Ø-Ø1600		
Guaranteed service life (year)	50	0-20	3-15	5-25	0-30	0-50	0-30		For the Pipes other than PEE100 pipes, the service life depends on many parameters like quality of the raw material of the pipe bedding in the trench, etc
Feature of breaking	Very Durable	Weak	Durable	Durable	Very Weak	Partially Durable	Very Weak		
Max. Production length	500	6	12	6	4	6-12	4		
Standard production length(m)	12	6	6	6	2	6	2		
Strength against corrosion and abrasion	Very Durable	Partially Durable	Very Weak	Very Weak	Partially Durable	Durable	Weak		The evaluation depends on the nature and type of the chemical like SO ₂ , Na ₂ , chlorine
the easines of Production fitting	Very easy	Very Easy	Difficult	Very Difficult	Very Difficult	Very Difficult	Very Difficult		
The easines of installation(the	100	50	25	40	15	45	5		
Superiority from the side of hygiene	Perfect	Doubtful	Doubtful	Doubtful	Doubtful	Good	Trouble		
Surface roughness coefficient (c)	149	149	120	130	100	145	130		Depende on the quality of the production and raw material
Variety of fitting and thire pirc strength against chemicals	Perfect-cheap	Perfect-cheap	limited-expensivi	limited-expensivi	limited-expensivi	limited-expensivi	limited-expensivi		Limited-expensive
Surface elasticity coefficient ©	377	33	0.5	1	4.4	>33	-0.5		
Ability for passifying the ram impact	Perfect	Trouble	Trouble	Trouble	Trouble	Trouble	Trouble		Depende on the quality of the production and raw material
the easines of making Pressure test at site	Perfect	Trouble	Trouble	Trouble	Trouble	Trouble	Trouble		Since the connection of the pipes other then steel and PE pipes is done using o-ring ,it is very difficult to have perfect leak proof,it is necessary to take additional precaution for absolute leak proof.
Need of safety of 1 tum points	Very little	Very Much	Very Much	Very Much	Very Much	Very Much	Very Much		For PE 100 it is possible to make even full round shape with a diameters 25 time of the pipe outer diameters
Max. instant test pressure (forPN 10)	>28 bar	>16 bar	>40 bar	>40 bar	>13 bar	>18 bar	>13 bar		
the safety of 1 connection points (Max: 100-min:0)	100	0-50	0-80	0-80	0-30	0-70	0-40		The connction with o-ring always create problems for PE pipes, since the connction is done by welding, the molecular fusion males
Ability for passifying the ram impact	Perfect	Doubtful	Trouble	Doubtful	Trouble	Doubtful	Trouble		
Needed trench width (as%pipe diameter)	Approx.%5-10 wider then the pipe dia	Approx.%100 wider then the pipe dia	Approx.%200wi der then the pipe dia	Approx.%110 wider then the pipe dia	Approx.%200 wider then the pipe dia	Approx.%200 wider then the pipe dia	Approx.%200 wider than the pipe dia		These figure are for pipes with avarage 400 mm diameters
Need of bedding around the pipe (max; 100 min;0)	10	100	70	60	100	100	100		For PE 100 pipes if there sharp stones which may damage the pipe there is no need make bedding around the pipes

**PRESSURE LOSS TABLE FOR BRIGHT WATER PE-100 PN-10 PIPES.
(CALCULATED USING COLEBROOKE-WHITE FORMULA. K=0.20M)**

D	36	mm	75	mm	90	mm	110	mm				
S	3.8	mm	4.5	mm	5.4	mm	66	mm				
DI	5.5.4	mm	66.0	mm	79.2	mm	96.8	mm				
Vort	Debye	Debye	J m/m	Debye	Debye	J m/m	Debye	Debye	J m/m	Debye l/s	Debye	J m/m
0.5	1.21	4.36	0.005554	1.72	6.2	0.00447	2.47	8.9	0.003569	3.68	13.25	0.002788
0.6	1.45	5.22	0.007712	2.06	7.42	0.006211	2.96	10.66	0.004961	4.42	15.92	0.003878
0.7	1.69	6.09	0.010192	2.4	8.64	0.008211	3.45	12.42	0.006562	5.16	18.58	0.005131
0.8	1.93	6.95	0.012987	2.74	9.87	0.010647	3.95	14.22	0.008367	5.89	21.21	0.006546
0.9	2.17	7.82	0.016094	3.08	11.09	0.012975	4.44	15.99	0.010375	6.63	23.87	0.008119
1	2.42	8.72	0.01951	3.43	12.35	0.015732	4.93	17.75	0.012584	7.36	26.5	0.00985
1.1	2.66	958	0.023232	3.77	13.58	0.018738	5.42	19.52	0.014991	8.1	29.16	0.011737
1.2	2.9	10.44	0.027258	4.11	14.8	0.021989	5.92	21.32	0.017595	8.84	31.83	0.013779
1.3	3.14	11.31	0.031585	4.45	16.02	0.025484	6.41	23.08	0.020395	9.57	34.46	0.015975
1.4	3.38	12.17	0.036214	4.79	17.25	0.029222	6.9	24.84	0.02339	10.31	37.12	0.018323
1.5	3.62	13.04	0.041141	5.14	18.51	0.033202	7.39	26.61	0.026579	11.04	39.75	0.020824
1.6	3.86	13.9	0.046366	5.48	19.73	0.037423	7.89	28.41	0.029962	11.78	42.41	0.023477
1.7	4.1	14.76	0.51887	5.82	20.96	0.041884	8.38	30.17	0.033537	12.52	45.08	0.026281
1.8	4.34	15.63	0.057705	6.16	22.18	0.046584	8.87	31.94	0.037303	13.25	47.7	0.029236
1.9	4.58	16.49	0.063817	6.51	23.44	0.051523	9.37	33.74	0.041262	13.99	50.37	0.032342
2	4.83	17.39	0.070224	6.85	24.66	0.0567	9.86	35.5	0.045411	14.72	53	0.035597
2.1	5.07	18.26	0.076925	7.19	25.89	0.062114	10.35	37.26	0.049751	15.46	55.66	0.039002
2.2	5.31	19.12	0.083918	7.53	27.11	0.067666	10.84	39.03	0.054281	16.2	58.32	0.42556
2.3	5.55	19.98	0.091205	7.87	28.34	0.073654	11.34	40.83	0.059001	16.93	60.95	0.046259
2.4	5.79	20.85	0.098783	8.22	29.6	0.079778	11.83	42.59	0.06391	17.67	63.62	0.050111
2.5	6.03	21.71	0.106653	8.56	30.82	0.086138	12.32	44.36	0.069009	18.4	66.24	0.054112
2.6	6.27	22.58	0.114814	8.9	32.04	0.092734	12.81	46.12	0.074296	19.14	68.91	0.058261
2.7	6.51	23.44	0.123266	9.24	33.27	0.099565	13.31	47.92	0.079773	19.88	71.57	0.062558
2.8	6.75	24.3	0.132009	9.58	34.49	0.106631	13.8	49.68	0.085438	20.61	74.2	0.067004
2.9	7	25.2	0.141042	9.93	35.75	0.113932	14.29	51.45	0.091291	21.35	76.86	0.071597
3	7.24	26.07	0.150365	10.27	36.98	0.121467	14.78	53.21	0.097332	22.08	79.49	0.076338
3.2	7.72	27.8	0.169881	10.95	39.42	0.13724	15.77	56.78	0.109979	23.55	84.78	0.086262
3.4	8.2	29.52	0.190554	11.64	41.91	0.15395	16.76	60.34	0.1233476	25.03	90.11	0.096777
3.6	8.68	31.25	0.212382	12.32	44.36	0.171594	17.74	63.87	0.137523	26.5	95.4	0.10788
3.8	9.16	32.98	0.235366	13.01	46.84	0.190712	18.73	67.43	0.152419	27.97	100.7	0.11957
4	9.65	34.74	0.259502	13.69	49.29	0.209682	19.71	70.96	0.168063	29.44	105.99	0.131849
4.2	10.13	36.47	0.284791	14.37	51.74	0.230124	20.7	74.52	0.1844541	30.91	111.28	0.144714
4.4	10.61	38.2	0.311232	15.06	54.22	0.251498	21.68	78.05	0.201592	32.39	116.61	0.158165
4.6	11.09	39.93	0.338823	15.74	56.67	0.273801	22.67	81.62	0.219477	33.86	121.9	0.172203

D	125	mm	140	mm	160	mm	180	mm				
S	7.4	mm	8.3	mm	9.5	mm	10.7	mm				
DI	110	mm	123.4	mm	141.0	mm	158.6	mm				
Vort	Debye	Debye	J m/m	Debye	Debye	J m/m	Debye	Debye	J m/m	Debye	Debye	J /mm
0.5	4.77	17.18	0.002378	5.98	21.53	0.002071	2.47	8.9	0.003569	3.68	13.25	J /mm
0.6	5.73	20.63	0.003309	7.18	25.85	0.002882	2.96	10.66	0.004961	4.42	15.92	0.003878
0.7	6.68	24.05	0.00438	8.38	30.17	0.003816	3.45	12.42	0.006562	5.16	18.58	0.005131
0.8	7.64	27.51	0.005589	9.57	34.46	0.00487	3.95	14.22	0.008367	5.89	21.21	0.006546
0.9	8.59	30.93	0.006933	10.77	38.78	0.006043	4.44	15.99	0.010375	6.63	23.87	0.008119
1	9.54	34.35	0.008413	11.69	43.06	0.007333	4.93	17.75	0.012584	7.36	26.5	0.00985
1.1	10.5	37.8	0.010026	13.16	47.38	0.00874	5.42	19.52	0.014991	8.1	29.16	0.011737
1.2	11.45	41.22	0.011771	14.36	51.7	0.010263	5.92	21.32	0.017595	8.84	31.83	0.013779
1.3	12.4	44.64	0.013649	15.55	55.98	0.011901	6.41	23.08	0.020395	9.57	34.46	0.015975
1.4	13.36	48.1	0.015657	16.75	60.3	0.013653	6.9	24.84	0.02339	10.31	37.12	0.018323
1.5	14.31	51.52	0.017795	17.94	64.59	0.015519	7.39	26.61	0.026579	11.04	39.75	0.020824
1.6	15.27	54.98	0.020064	19.14	68.91	0.017499	7.89	28.41	0.029962	11.78	42.41	0.023477
1.7	16.22	58.4	0.022462	20.34	73.23	0.019591	8.38	30.17	0.033537	12.52	45.08	0.026281
1.8	17.17	61.82	0.024989	21.53	77.51	0.021797	8.87	31.94	0.037303	13.25	47.7	0.029236
1.9	18.13	65.27	0.027645	22.73	81.83	0.024114	9.37	33.74	0.041262	13.99	50.37	0.032342
2	19.08	68.69	0.030429	23.92	86.12	0.026544	9.86	35.5	0.045411	14.72	53	0.035597
2.1	20.03	72.11	0.033341	25.12	90.44	0.029085	10.35	37.26	0.049751	15.46	55.66	0.039002
2.2	20.99	75.75	0.36381	26.32	94.76	0.031739	10.84	39.03	0.054281	16.2	58.32	0.42556
2.3	21.94	78.99	0.039549	27.51	99.04	0.034503	11.34	40.83	0.059001	16.93	60.95	0.046259
2.4	22.9	82.44	0.042843	28.71	103.36	0.037379	11.83	42.59	0.06391	17.67	63.62	0.050111
2.5	23.85	85.86	0.046265	29.9	107.64	0.040366	12.32	44.36	0.069009	18.4	66.24	0.054112
2.6	23.8	89.28	0.049815	31.1	111.96	0.043463	12.81	46.12	0.074296	19.14	68.91	0.058261
2.7	25.76	92.74	0.05349	32.3	116.28	0.046672	13.31	47.92	0.079773	19.88	71.57	0.062558
2.8	26.71	96.16	0.057293	33.49	120.57	0.049991	13.8	49.68	0.085428	20.61	74.2	0.067004
2.9	27.66	99.58	0.061222	34.69	124.89	0.05342	14.29	51.45	0.091291	21.35	76.86	0.071597
3	28.62	103.04	0.065278	35.88	129.17	0.05696	14.78	53.21	0.097332	22.08	79.49	0.076338
3.2	30.53	109.91	0.073768	38.28	137.81	0.064371	15.77	56.78	0.109979	23.55	84.78	0.086262
3.4	32.43	116.75	0.082762	40.67	146.42	0.072222	16.76	60.34	0.123376	25.03	90.11	0.096777
3.6	34.34	123.63	0.09226	43.06	155.02	0.080513	17.74	63.87	0.137523	26.5	95.4	0.10788
3.8	36.25	130.5	0.102262	45.45	163.62	0.089244	18.73	67.43	0.152419	27.97	100.7	0.11957
4	38.16	137.38	0.112766	47.84	172.23	0.098413	19.71	70.96	0.168063	29.44	105.99	0.131849
4.2	40.06	144.22	0.123772	50.24	180.87	0.108021	20.7	74.52	0.184454	30.91	111.28	0.144714
4.4	41.97	151.1	0.123528	52.63	189.47	0.118066	21.68	78.05	0.201592	32.39	116.61	0.158165
4.6	43.88	157.97	0.14729	55.02	198.08	0.12855	22.67	81.62	0.219477	33.86	121.9	0.172203

Being Muslim is for all day. Not just 5 times a day.

PRESSURE LOSS TABLE FOR BRIGHT WATER PE-100 PN-10 PIPES. (CALCULATED USING COLEBROOKE-WHITE FORMULA. K=0.20M)

D	200	mm	225	mm	250	mm	280	mm				
S	11,9	mm	13,4	mm	14,8	mm	16,5	mm				
DI	176,2	mm	198,2	mm	198,4	mm	245,8	mm				
Vort m/s	Debye 1/s	Debye m ³ /h	J m/m	Debye 1/s	Debye m ³ /h	J m/m	Debye 1/s	Debye m ³ /h	J m/m	Debye 1/s	Debye m ³ /h	J m/m
0.5	12.2	43.92	0.001342	15.43	55.55	0.001163	19.08	6869	0.001023	23.92	86.12	0.000892
0.6	14.64	52.71	0.001869	18.52	66.68	0.001621	22.9	8244	0.001426	28.92	103.36	0.001244
0.7	17.07	61.46	0.002477	21.6	77.76	0.002148	26.71	9616	0.00189	33.49	120.57	0.0001649
0.8	19.51	70.14	0.003163	24.69	88.89	0.002744	30.53	10991	0.002415	38.28	137.81	0.002108
0.9	21.95	79.02	0.003927	27.77	99.98	0.003407	34.34	123.63	0.002999	43.06	155.12	0.002618
1	2439	87.71	0.004767	30.86	111.10	0.004137	38.16	237.38	0.003642	47.84	172.23	0.003179
1.1	26.83	96.59	0.005684	33.94	122.19	0.004934	41.97	151.10	0.004343	52.63	189.47	0.003792
1.2	29.27	105.38	0.006676	37.03	133.31	0.005796	45.79	164.85	0.005102	57.41	206.68	0.004456
1.3	31.7	114.12	0.007744	40.11	144.4	0.006723	49.60	178.56	0.005919	62.2	223.92	0.005169
1.4	34.14	122.91	0.008887	43.2	155.52	0.007716	53.42	192.32	0.006794	66.98	241.13	0.005933
1.5	36.58	131.69	0.010104	45.28	166.61	0.008773	57.23	206.03	0.007725	71.76	258.34	0.006747
1.6	39.02	140.48	0.011395	49.37	177.74	0.009894	61.05	219.78	0.008713	76.55	275.58	0.007611
1.7	41.46	149.26	0.01276	52.46	188.86	0.01108	64.86	233.5	0.009758	81.33	292.79	0.008524
1.8	43.9	158.04	0.014198	55.54	199.95	0.01233	68.68	247.25	0.010859	86.11	310	0.009486
1.9	46.33	166.79	0.01571	58.63	211.07	0.013644	72.49	260.97	0.012017	90.9	327.24	0.010498
2	48.77	175.58	0.017295	61.71	222.16	0.015022	76.31	274.72	0.01323	95.68	344.45	0.011559
2.1	51.21	184.36	0.018954	64.8	233.28	0.016463	80.12	288.44	0.0145	100.47	361.70	0.012669
2.2	53.65	193.14	0.020685	67.88	244.37	0.017967	83.94	302.19	0.015826	105.25	378.9	0.013827
2.3	56.09	201.93	0.022489	70.97	255.5	0.019535	87.75	315.9	0.017207	110.03	396.11	0.015035
2.4	58.53	210.71	0.024366	74.05	266.58	0.021156	91.57	329.66	0.018644	114.82	413.36	0.016291
2.5	60.96	219.46	0.026316	77.14	277.71	0.02286	95.38	343.37	0.020137	119.6	430.56	0.017596
2.6	63.4	228.24	0.028337	80.22	288.8	0.024517	99.20	357.12	0.021685	124.39	447.81	0.018949
2.7	65.84	237.03	0.030432	83.31	299.92	0.026247	103.01	370.84	0.023289	129.17	465.02	0.020351
2.8	68.28	245.81	0.032598	86.39	311.01	0.028039	106.83	384.59	0.024948	133.95	482.22	0.021801
2.9	70.72	254.60	0.034837	89.48	322.13	0.030265	110.64	398.31	0.026663	138.74	499.47	0.0233
3	73.16	263.38	0.037148	92.56	333.22	0.032273	114.46	412.06	0.028432	143.52	516.68	0.024847
3.2	78.03	280.91	0.041986	98.73	355.43	0.036478	122.09	439.53	0.032138	153.09	551.13	0.028086
3.4	82.91	298.48	0.047112	104.91	377.68	0.040933	129.72	467.00	0.036063	162.66	585.58	0.031518
3.6	87.79	316.05	0.052525	111.08	399.89	0.045537	137.35	494.6	0.040210	172.22	620.00	0.035142
3.8	92.66	333.58	0.058225	117.25	422.10	0.050591	144.98	521.93	0.044576	181.79	654.45	0.038959
4	97.54	351.15	0.064212	123.42	444.32	0.055795	152.61	549.4	0.049161	191.36	688.90	0.042968
4.2	102.42	368.72	0.070486	129.59	466.53	0.061247	160.24	576.87	0.053967	200.93	723.35	0.047169
4.4	107.29	386.25	0.077045	135.76	488.74	0.066949	167.87	604.34	0.058991	210.50	757.8	0.051561
4.6	112.17	403.82	0.083891	141.93	510.95	0.072899	175.5	631.80	0.064235	220.06	792.22	0.056146
D	315	mm	355	mm	400	mm	450	mm				
S	7,4	mm	8,3	mm	9,5	mm	10,7	mm				
DI	110,2	mm	123,4	mm	141,0	mm	158,6	mm				
Vort m/s	Debye 1/s	Debye m ³ /h	J m/m	Debye 1/s	Debye m ³ /h	J m/m	Debye 1/s	Debye m ³ /h	J m/m	Debye 1/s	Debye m ³ /h	J m/m
0.5	30.27	108.98	0.000774	38.43	138.35	0.000671	48.83	175.79	0.000581	61.77	222.38	0.000504
0.6	36.32	130.76	0.00108	46.11	166	0.000936	58.59	210.93	0.0081	74.13	266.87	0.00704
0.7	42.37	152.54	0.001432	53.8	193.68	0.001241	68.36	246.1	0.001075	86.48	311.33	0.00934
0.8	48.42	174.32	0.00183	61.48	221.33	0.001586	78.12	281.24	0.001375	98.83	355.79	0.011195
0.9	54.48	196.13	0.002273	69.17	249.02	0.001971	87.89	316.41	0.001708	111.19	400.29	0.0001485
1	60.53	217.91	0.002762	76.85	276.66	0.002394	97.65	351.54	0.002075	123.54	444.75	0.001814
1.1	66.58	239.69	0.003294	84.54	304.35	0.002856	107.42	386.72	0.002476	135.9	489.24	0.002153
1.2	72.63	261.47	0.003871	92.22	332	0.003357	117.18	421.85	0.00291	148.25	533.7	0.00253
1.3	78.69	283.29	0.004491	99.91	359.68	0.003895	126.94	456.99	0.003377	160.6	578.16	0.002937
1.4	84.74	305.07	0.005156	107.59	387.33	0.004472	136.71	492.16	0.003877	172.96	622.66	0.003372
1.5	90.79	326.85	0.005863	115.27	414.98	0.005086	146.47	527.3	0.00441	185.31	667.12	0.003835
1.6	96.84	348.63	0.006614	122.96	442.66	0.005737	156.24	562.47	0.004976	197.66	711.58	0.004327
1.7	102.9	370.44	0.007408	130.64	470.31	0.006426	166	597.6	0.005573	210.02	756.08	0.004847
1.8	108.95	392.22	0.008245	138.33	497.99	0.007153	175.77	632.78	0.006204	222.37	800.54	0.005396
1.9	115	414	0.009125	14601	525.64	0.007916	185.53	667.91	0.006866	234.72	845	0.005972
2	121.05	435.78	0.010047	153.70	553.32	0.008717	195.3	703.08	0.007561	247.08	889.49	0.006577
2.1	127.11	457.6	0.011012	161.38	580.97	0.009554	205.06	738.22	0.008288	259.43	933.95	0.007209
2.2	133.16	479.38	0.01202	169.07	608.66	0.010429	214.83	773.39	0.009047	271.79	987.45	0.00787
2.3	139.21	501.16	0.01307	176.75	636.30	0.01134	224.59	808.53	0.009838	284.14	1022.91	0.008558
2.4	145.26	522.94	0.014162	184.44	663.99	0.012289	234.36	843.7	0.010661	296.49	1067.37	0.009274
2.5	151.32	544.76	0.015297	192.12	691.64	0.013274	244.12	878.84	0.011515	308.85	1111.86	0.010018
2.6	157.37	566.54	0.016474	199.81	719.32	0.014295	253.88	913.97	0.012402	321.2	1156.32	0.01079
2.7	163.42	588.32	0.017693	207.49	746.97	0.015354	263.65	949.14	0.013321	333.55	1200.78	0.011589
2.8	169.47	610.1	0.018954	215.17	774.62	0.016449	273.41	984.28	0.014271	345.91	1245.28	0.012416
2.9	175.53	631.91	0.020258	222.86	802.30	0.01758	283.18	1019.45	0.015253	358.26	1289.74	0.013271
3	181.58	653.69	0.021603	230.54	829.95	0.018748	292.94	1054.59	0.016267	370.61	1334.2	0.014153
3.2	193.68	697.25	0.024420	245.91	885.28	0.021194	312.47	1124.90	0.018389	395.32	1423.16	0.016001
3.4	205.79	740.85	0.027405	261.28	940.61	0.023784	332.00	1195.20	0.020638	420.03	1512.11	0.017958
3.6	217.89	784.41	0.030558	276.65	995.94	0.026521	351.53	1265.51	0.023103	444.74	1601.07	0.020026
3.8	230.00	828.00	0.033877	292.02	1051.28	0.029403	371.06	1335.82	0.025515	469.44	1689.99	0.022203
4	242.10	871.56	0.037364	307.39	1106.61	0.032431	390.59	1406.13	0.028142	494.15	1778.94	0.02449
4.2	254.21	915.16	0.041018	322.76	1161.94	0.035603	410.12	1476.44	0.030896	518.86	1897.90	0.026886
4.4	266.31	958.72	0.044839	338.13	1217.27	0.03892	429.65	1546.74	0.033775	543.57	1956.86	0.029392
4.6	278.42	1002.32	0.048826	353.50	1272.60	0.042382	449.18	1617.05	0.03678	568.27	2045.78	0.032008

**PRESSURE LOSS TABLE FOR BRIGHT WATER PE-100 PN-10 PIPES.
(CALCULATED USING COLEBROOKE-WHITE FORMULA. K=0.20M)**

D	500	mm		560	mm		630	mm		710	mm	
S	29.7	mm		33.2	mm		33.2	mm		42.1	mm	
DI	440.6	mm		493.6	mm		493.6	mm		625.8	mm	
Vort	Debye l/s	Debye	J/m/m	Debye	Debye l/s	J/m/m	Debye l/s	Debye m ³ /h	J/m/m	Debye l/s	Debye m ³ /h	J/m/m
0.5	76.24	274.47	0.000445	95.68	334.45	0.000388	121.05	435.78	0.000338	153.8	553.68	0.000293
0.6	91.49	329.37	0.000621	114.82	413.82	0.000542	145.26	522.94	0.000471	184.55	664.38	0.000409
0.7	106.73	384.23	0.000824	133.95	482.22	0.00072	169.47	610.1	0.000626	215.31	775.12	0.000543
0.8	121.98	439.13	0.001054	153.09	551.13	0.000921	193.68	697.25	0.000801	246.07	885.56	0.000695
0.9	137.23	494.03	0.00131	172.22	620	0.001144	217.89	784.41	0.000995	276.83	996.59	0.000864
1	152.47	548.9	0.001592	191.36	688.9	0.001391	242.1	871.56	0.00121	307.59	1107.33	0.001005
1.1	167.72	603.8	0.0019	210.5	757.8	0.00166	266.31	958.72	0.001444	338.85	1218.06	0.001254
1.2	182.97	658.7	0.002233	229.63	826.67	0.001952	290.52	1045.88	0.001698	369.1	1328.76	0.001474
1.3	198.21	713.56	0.002592	248.77	895.58	0.002265	314.73	1133.03	0.001971	399.86	1439.5	0.001711
1.4	213.46	768.46	0.002976	267.9	964.44	0.002601	338.94	1220.19	0.002264	430.62	1550.24	0.001965
1.5	228.71	823.36	0.003385	287.04	1033.35	0.002959	363.15	1307.34	0.002575	461.38	1660.97	0.002236
1.6	243.95	878.22	0.00382	306.17	1102.22	0.003339	387.36	1394.5	0.002906	492.14	1771.17	0.002523
1.7	259.2	933.12	0.004279	325.31	1171.12	0.003741	411.57	1481.66	0.003256	522.89	1882.41	0.002827
1.8	274.45	988.02	0.004764	344.44	1239.99	0.004165	435.78	1568.81	0.003625	553.65	1993.14	0.003148
1.9	289.69	1042.89	0.005273	363.58	1308.89	0.00461	459.99	1655.97	0.004012	584.41	2103.88	0.003484
2	304.94	1097.79	0.005807	382.72	1377.8	0.005077	484.2	1743.12	0.004419	615.41	2214.62	0.003838
2.1	320.19	1152.69	0.006365	401.85	1446.66	0.00556	508.41	1830.28	0.004845	645.93	2325.35	0.004207
2.2	335.43	1207.55	0.006949	420.99	1515.57	0.006076	532.62	1917.44	0.005289	676.69	2436.09	0.004593
2.3	350.68	1262.45	0.007557	440.12	1584.44	0.006608	556.83	2004.59	0.005752	707.44	2546.79	0.005096
2.4	365.93	1317.35	0.008189	459.26	1653.34	0.007161	581.04	2091.75	0.006234	738.2	2657.52	0.005614
2.5	381.18	1372.25	0.008846	478.39	1722.21	0.007736	605.25	2178.9	0.006734	768.96	2768.52	0.006149
2.6	396.42	1427.12	0.009528	497.53	1791.11	0.008332	629.46	2266.06	0.007254	799.72	2768.26	0.006693
2.7	411.67	1482.02	0.010234	516.66	1859.98	0.00895	653.67	2353.22	0.007792	830.48	2879	0.007254
2.8	426.92	1536.92	0.010965	535.8	1928.88	0.009589	677.88	2440.37	0.008348	861.23	2989.73	0.007821
2.9	442.16	1591.78	0.01172	554.93	1997.75	0.010249	702.09	2527.53	0.008923	891.99	3100.43	0.008394
3	457.41	1648.68	0.012499	574.07	2066.66	0.010931	726.29	2614.65	0.009517	922.75	3211.17	0.008986
3.2	487.9	1756.44	0.014131	612.34	2204.43	0.012359	774.71	2788.96	0.01076	984.27	3321.9	0.009934
3.4	518.4	1866.24	0.01586	650.61	2342.2	0.013871	823.13	2963.27	0.012078	1045.78	3433.38	0.010992
3.6	548.89	1976.01	0.017686	688.88	2479.97	0.015469	871.55	3137.58	0.013469	1107.3	3546.81	0.012170
3.8	579.38	2085.77	0.019609	727.15	2617.74	0.017152	919.97	3311.9	0.014934	1168.82	3661.88	0.013365
4	609.88	2195.57	0.02163	765.43	2755.55	0.018919	968.39	3486.21	0.016474	1230.33	3777.26	0.014621
4.2	640.37	2305.34	0.023747	803.7	2893.32	0.020771	1016.81	3660.52	0.018087	1291.85	3892.63	0.015978
4.4	670.86	2415.1	0.025961	841.97	3031.1	0.022708	1065.23	3834.83	0.019774	1353.37	4007.6	0.017445
4.6	701.36	2524.9	0.028271	880.24	3168.87	0.02473	1113.65	4009.14	0.021534	1414.88	4122.14	0.018921

D	600	mm		900	mm		1000	mm		1200	mm	
S	47.4	mm		53.3	mm		59.3	mm		70.6	mm	
DI	705.2	mm		793.4	mm		881.4	mm		1058.8	mm	
Vort	Debye l/s	Debye	J/m/m	Debye	Debye l/s	J/m/m	Debye l/s	Debye m ³ /h	J/m/m	Debye l/s	Debye m ³ /h	J/m/m
0.5	195.3	703.08	0.000254	247.2	889.92	0.000221	305.08	1098.29	0.00195	440.24	1480.3	0.000157
0.6	234.36	883.7	0.000355	296.64	1067.91	0.000309	366.09	1317.93	0.000273	528.29	1584.87	0.00022
0.7	273.47	984.28	0.000471	346.08	1245.89	0.00041	427.11	1537.6	0.000362	616.34	1901.85	0.000292
0.8	312.53	1124.9	0.000603	395.52	1423.88	0.000525	488.12	1757.24	0.000464	704.39	2218.83	0.000374
0.9	351.53	1265.51	0.00075	444.96	1616.86	0.000653	549.14	1976.91	0.000577	792.43	2535.81	0.000465
1	390.59	1406.13	0.000912	494.4	1779.84	0.000794	610.15	2196.54	0.000701	880.48	2852.75	0.000565
1.1	429.65	1546.74	0.001089	543.84	1967.83	0.000947	671.17	2416.22	0.000837	968.53	3169.73	0.000675
1.2	468.71	1687.36	0.00128	593.28	2135.81	0.001114	732.18	2635.85	0.000985	1056.53	3503.71	0.000794
1.3	507.76	1827.94	0.001486	642.72	2313.8	0.001294	793.18	2855.52	0.001143	1144.62	4120.64	0.000922
1.4	546.82	1968.56	0.001707	692.16	2491.78	0.001486	854.21	3075.16	0.001313	1232.67	4437.62	0.001059
1.5	585.88	2109.17	0.001942	741.6	2669.76	0.001691	915.23	3294.83	0.001494	1320.72	4754.6	0.001205
1.6	624.94	2249.79	0.002192	791.04	2847.75	0.001908	976.24	3514.47	0.001687	1408.74	5071.58	0.00136
1.7	664	2390.4	0.002456	840.48	3025.73	0.002138	1037.25	3734.14	0.00189	1496.81	5388.52	0.001524
1.8	703.06	2531.02	0.002735	889.92	3213.72	0.002381	1098.25	3953.78	0.002104	1584.86	5705.5	0.001698
1.9	742.11	2671.6	0.003027	939.36	3381.7	0.002636	1159.29	4173.45	0.00233	1672.91	6022.48	0.00188
2	781.17	2812.22	0.003335	988.8	3559.68	0.002903	1220.3	4393.08	0.002566	1760.96	6339.46	0.00207
2.1	820.29	2952.83	0.003656	1038.23	3737.68	0.003183	1281.32	4612.76	0.002814	1849.01	6656.44	0.002269
2.2	859.29	3093.45	0.003991	1087.67	3915.62	0.003476	1342.32	4832.39	0.003072	1937.05	6973.38	0.002474
2.3	898.35	3234.06	0.004341	1137.11	4093.6	0.00378	1403.35	5052.06	0.003342	2025.1	7290.36	0.002696
2.4	937.41	3374.68	0.004705	1186.55	4271.58	0.004097	1464.36	5271.7	0.003622	2113.15	7607.34	0.002931
2.5	976.47	3515.3	0.005083	1235.99	4449.57	0.004427	1525.38	5491.37	0.003913	2201.2	7924.32	0.003176
2.6	1015.52	3655.88	0.005475	1285.43	4627.55	0.004768	1586.39	5711.01	0.0042105	2289.24	8241.27	0.003434
2.7	1054.58	3796.49	0.005882	1334.87	4805.54	0.005122	1647.41	5930.68	0.004528	2377.29	8558.25	0.003702
2.8	1093.64	3937.11	0.006302	1384.31	4983.52	0.005488	1708.41	6150.32	0.004852	2465.34	8875.23	0.003981
2.9	1132.7	4077.72	0.006736	1433.75	5161.5	0.005867	1769.44	6369.99	0.005187	2553.39	9192.21	0.004269
3	1171.76	4218.34	0.007185	1483.19	5339.49	0.006258	1830.45	6589.62	0.005532	2641.43	9509.15	0.004564
3.2	1294.87	4499.54	0.008124	1582.07	5695.46	0.007076	1952.48	7028.93	0.0062556	2817.53	10143.11	0.005166
3.4	1327.99	4780.77	0.009119	1680.95	6051.42	0.007943	2074.51	7458.24	0.007023	2993.62	10777.04	0.005822
3.6	1406.11	5062	0.01017	1779.83	6407.39	0.008858	2196.54	7907.55	0.007832	3169.72	11411	0.006544
3.8	1484.22	5343.2	0.011287	1878.71	6763.36	0.009823	2318.57	8346.86	0.008685	3345.82	12044.96	0.007334
4	1562.34	5624.43	0.01244	1977.59	7119.3	0.010836	2440.6	8786.16	0.009581	3521.91	12678.88	0.008182
4.2	1640.46	5905.66	0.013659	2076.46	7475.26	0.011898	2562.63	9225.47	0.01052	3698.01	13312.84	0.009118
4.4	1718.57	6186.86	0.014934	2175.34	7831.23	0.013008	2684.66	9665.47	0.011502	3874.1	13946.76	0.010113
4.6	1796.69	6468.09	0.016264	2274.22	8187.2	0.014167	2806.69	10104.09	0.012527	4050.2	14580.72	0.011203

The greatest thing a friend can do for you is bring you closer to ALLAH.

SUPPLEMENTARY EQUIPMENT, EXTRA PARTS & ASSURANCE CONDITION

Bright Water – Butt Welding machine is provided as a set including the main machine with necessary equipment, set includes.

- ❖ The main machine chassis
- ❖ Hydraulic system
- ❖ Heating system
- ❖ Clamps inserts for any diameter
- ❖ Reduction and flange clamping apparatus

Together with machine set a spare thermocouple is provided.

Bright Water Butt – Welding machine is guaranteed for 1 year from the date of sales to the end of use.

The date of sales has to be proven through invoice and delivery receipt along with other important documents.

Any fault regarding products are Bright Water responsibility.

BRIGHT WATER HDPE - PE/100 PIPES BUTT WELDING PARAMETERS

Nominal Daimeter (DN) mm	Wall Thickness (s)mm	Hieght Bulge (11)mm	Non-Pressure Heating Time (t2) sec	Change-Over Time (t3) sec	Pressure Built Up Time (t4) sec	Cooling Time (t5) min	Total Welding Time (t) min
16	3	0.5	30	5	5	6	6.7
20	3.4	0.5	34	5	5	6	6.7
25	4.2	0.5	42	5	5	6	6.9
32	5.4	1	54	5	5	7.4	8.5
40	6.7	1	67	6	6	9.5	10.8
50	8.3	1.5	83	7	7	11.6	13.2
63	10.5	1.5	105	7	7	14.2	16.2
75	12.5	2	125	8	8	16.6	18.9
90	15	2	150	9	9	19.4	22.2
110	18.3	2	183	10	11	23.2	26.6
125	20.8	2.5	208	11	12	25.1	29.9
140	23.3	2.5	233	11	13	28.9	33.2
160	26.6	3	266	12	14	32.7	37.6
180	29.9	3	299	13	15	36.6	42.1
200	33.2	3	332	15	17	40.5	46.6
225	37.4	3.5	374	18	22	52.1	59
250	41.5	3.5	415	19	23	54.7	62.3
280	46.5	3.5	465	19	24	57.8	66.3
315	52.3	4	523	22	26	62.3	71.8
355	59	4	590	27	30	69	79.8
400	56.7	4	667	33	33	76.7	88.9

BRIGHT WATER HDPE - PE/100 PIPES BUTT WELDING PARAMETERS

Nominal Daimeter (DN) mm	Wall Thickness (s)mm	Hieght Bulge (11)mm	Non-Pressure Heating Time (t2) sec	Change-Over Time (t3) sec	Pressure Built Up Time (t4) sec	Cooling Time (t5) min	Total Welding Time (t) min
50	2.4	0.5	24	5	5	6	6.6
63	3	0.5	30	5	5	6	6.7
75	3.6	0.5	36	5	5	6	6.8
90	4.3	0.5	43	5	5	6	6.9
110	5.3	1	53	5	5	7.3	8.3
125	6	1	60	6	6	8.4	9.6
140	6.7	1	67	6	6	9.5	10.8
160	7.7	1.5	77	6	6	10.8	12.3
180	8.6	1.5	86	7	7	11.9	13.6
200	9.6	1.5	96	7	7	13.1	15
225	10.8	1.5	108	8	8	14.6	16.6
250	11.9	1.5	119	8	8	15.9	18.1
280	13.4	2	134	8	9	17.6	20.1
315	15	2	150	9	9	19.4	22.2
355	16.9	2	169	9	10	21.6	27.7
400	19.1	2.5	191	10	11	24.1	27.6
450	21.5	2.5	215	11	12	26.9	30.8
500	23.9	2.5	239	11	13	29.6	34
560	26.7	3	267	12	14	32.8	37.7
630	30	3	300	13	16	36.7	42.2
710	33.9	3.9	509	15	24	41.3	50.5
800	38.1	4.3	572	18	27	52.6	62.8
900	42.9	4.8	644	19	30	55.6	67.1
1000	47.7	5.3	716	20	33	58.6	71.4
1200	57.2	6.2	858	25	39	67.2	82.6
1400	66.7	7.2	1001	33	45	76.7	94.7
1600	76.2	8.1	1143	42	51	87.5	108.1

BRIGHT WATER HDPE - PE/100 PIPES BUTT WELDING PARAMETERS

Nominal Daimeter (DN) mm	Wall Thickness (s)mm	Hieght Bulge (11)mm	Non-Pressure Heating Time (t2) sec	Change-Over Time (t3) sec	Pressure Built Up Time (t4) sec	Cooling Time (t5) min	Total Welding Time (t) min
40	2.4	0.5	24	5	5	6	6.6
50	3	0.5	30	5	5	6	6.7
63	3.8	0.5	38	5	5	6	6.8
75	4.5	1	45	5	5	6	6.9
90	5.4	1	54	5	5	7.4	8.5
110	6.6	1	66	6	6	9.4	10.7
125	7.4	1.5	74	6	6	10.5	11.9
140	8.3	1.5	83	7	7	11.6	13.2
160	9.5	1.5	95	7	7	13	14.8
180	10.7	1.5	107	7	7	14.4	16.5
200	11.9	1.5	119	8	8	15.9	18.1
225	13.4	2	134	8	9	17.6	20.1
250	14.8	2	148	9	9	19.2	22
280	16.6	2	166	9	10	21.3	24.3
315	18.7	2	187	10	11	23.7	27.1
355	21.1	2.5	211	11	12	26.4	30.3
400	23.7	2.5	237	11	13	29.4	33.7
450	26.7	3	267	12	14	32.8	37.7
500	29.7	3	297	13	16	36.4	41.8
560	33.2	3	332	15	17	40.5	46.6
630	37.4	3.5	374	18	22	52.1	59
710	42.1	4.7	632	19	24	55.1	66.3
800	47.4	5.2	711	20	27	58.4	71
900	53.3	5.8	800	22	30	63.3	77.5
1000	59.3	6.4	890	27	33	69.3	85.1
1200	70.6	7.6	1059	36	39	81.3	100.2
1400	82.4	8.7	1236	45	45	93.3	115.4
1600	94.1	9.9	1412	54	51	105.3	130.6

Every test is a blessing every blessing is a Test.

BRIGHT WATER HDPE - PE/100 PIPES BUTT WELDING PARAMETERS

Nominal Daimeter (DN) mm	Wall Thickness (s)mm	Hieght Bulge (11)mm	Non-Pressure Heating Time (t2) sec	Change-Over Time (t3) sec	Pressure Built Up Time (t4) sec	Cooling Time (t5) min	Total Welding Time (t) min
40	3	0.5	30	5	5	6	6.7
50	3.7	0.5	37	5	5	6	6.8
63	4.7	1	47	5	5	6.3	7.3
75	5.6	1	56	5	5	7.8	8.9
90	6.7	1	67	6	6	9.5	10.8
110	8.1	1.5	81	6	6	11.3	12.9
125	9.2	1.5	92	7	7	12.6	14.4
140	10.3	1.5	103	7	7	14	15.9
160	11.8	1.5	118	8	8	15.8	18
180	13.3	2	133	8	9	17.5	20
200	14.7	2	147	9	9	19.1	21.8
225	16.6	2	166	9	10	21.3	24.3
250	18.4	2	184	10	11	23.3	26.7
280	20.6	2.5	206	10	12	25.8	29.6
315	23.2	2.5	232	11	13	28.8	33.1
355	26.1	3	261	12	14	32.1	36.9
400	29.4	3	294	13	16	36	41.4
450	33.1	3	331	15	17	40.4	46.4
500	36.8	3	368	16	19	44.8	51.5
560	41.2	3.5	412	19	23	54.5	62.1
630	46.3	3.5	463	19	24	57.7	66.1
710	52.2	5.7	783	22	24	62.2	76
800	58.8	6.4	882	27	27	68.8	84.4
900	76.2	7.1	993	32	30	76.2	93.8
1000	73.5	7.9	103	39	33	84.4	104

BRIGHT WATER HDPE - PE/100 PIPES BUTT WELDING PARAMETERS

Nominal Daimeter (DN) mm	Wall Thickness (s)mm	Hieght Bulge (11)mm	Non-Pressure Heating Time (t2) sec	Change-Over Time (t3) sec	Pressure Built Up Time (t4) sec	Cooling Time (t5) min	Total Welding Time (t) min
32	3	0.5	30	5	5	6	6.7
40	3.7	0.5	37	5	5	6	6.8
50	4.6	1	46	5	5	6.2	7.1
63	5.8	1	58	6	6	8.1	9.2
75	6.8	1	68	6	6	9.7	11
90	8.2	1.5	82	6	6	11.4	13
110	10	1.5	100	7	7	13.6	15.5
125	11.4	1.5	114	8	8	15.3	17.4
140	12.7	2	127	8	8	16.8	19.2
160	14.6	2	146	9	9	19	21.7
180	16.4	2	164	9	10	21	24.1
200	18.2	2	182	10	11	23.1	26.5
225	20.5	2.5	205	10	12	25.7	29.5
250	22.7	2.5	227	11	13	28.2	32.4
280	25.4	2.5	254	12	14	31.3	36
315	28.6	3	286	13	15	35.1	40.3
355	32.2	3	322	14	17	39.3	45.2
400	36.3	3	363	16	19	44.2	50.8
450	40.9	3.5	409	18	23	54.3	61.8
500	45.4	3.5	454	19	24	57.1	65.4
560	50.8	4	508	21	25	60.8	70
630	57.2	4	572	25	29	67.2	77.6
710	64.5	7	968	31	32	74.5	91.7

BRIGHT WATER HDPE - PE/100 PIPES BUTT WELDING PARAMETERS

Nominal Daimeter (DN) mm	Wall Thickness (s)mm	Hieght Bulge (11)mm	Non-Pressure Heating Time (t2) sec	Change-Over Time (t3) sec	Pressure Built Up Time (t4) sec	Cooling Time (t5) min	Total Welding Time (t) min
25	3	0.5	30	5	5	6	6.7
32	3.6	0.5	36	5	5	6	6.8
40	4.5	1	45	5	5	6	6.9
50	5.6	1	56	5	5	7.8	8.9
63	7.1	1.5	71	6	6	10.1	11.5
75	8.4	1.5	84	7	7	11.7	13.3
90	10.1	1.5	101	7	7	13.7	15.6
110	12.3	2	123	8	8	16.3	18.7
125	14	2	140	9	9	18.3	20.9
140	15.7	2	157	9	10	20.2	23.2
160	17.9	2	179	10	11	22.7	26.1
180	20.1	2.5	201	10	11	25.3	29
200	22.1	2.5	224	11	12	27.9	32
225	25.2	2.5	252	12	14	31.1	35.7
250	27.9	3	279	13	15	34.3	39.4
280	31.3	3	313	14	16	38.3	44
315	35.2	3	352	15	18	42.9	49.3
355	39.7	3.5	397	18	22	53.6	60.9
400	44.7	3.5	447	19	24	56.7	64.9
450	50.3	4	503	20	25	60.3	69.4
500	55.8	4	558	24	28	65.8	76
560	62.2	4	622	29	31	72.2	83.6

BRIGHT WATER HDPE - PE/100 PIPES BUTT WELDING PARAMETERS

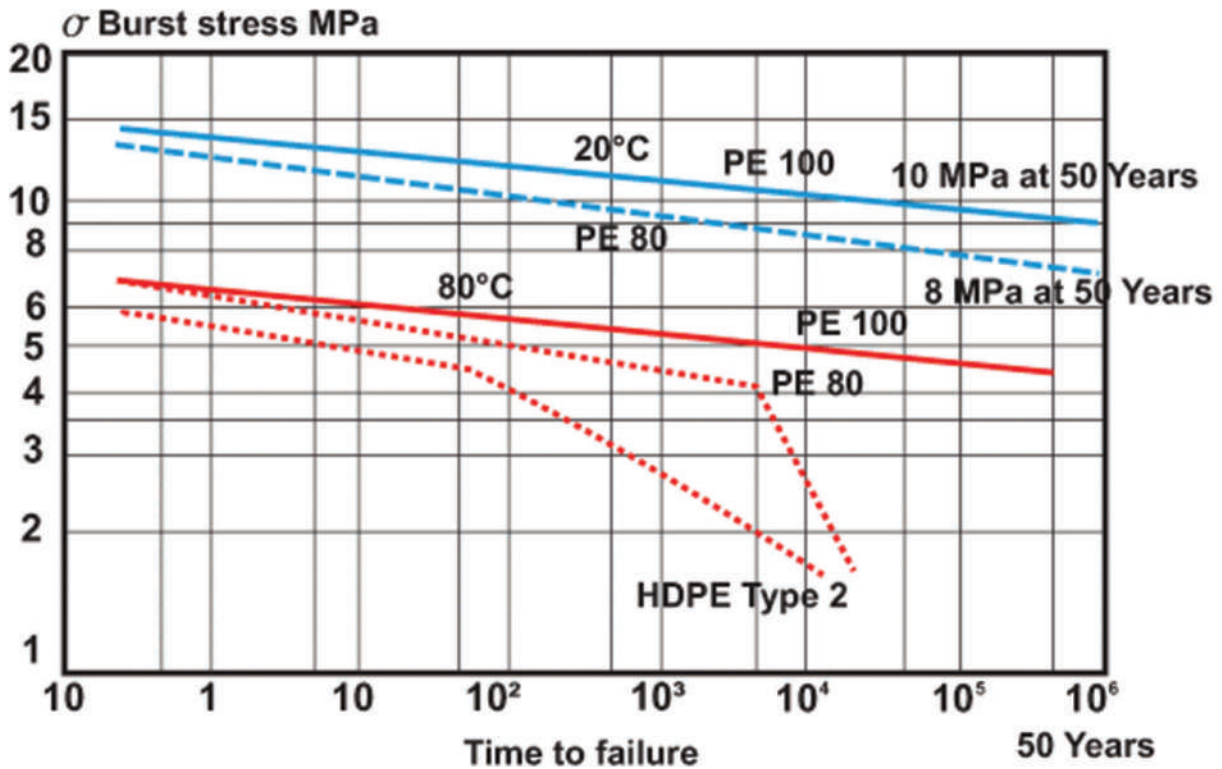
Nominal Daimeter (DN) mm	Wall Thickness (s)mm	Hieght Bulge (11)mm	Non-Pressure Heating Time (t2) sec	Change-Over Time (t3) sec	Pressure Built Up Time (t4) sec	Cooling Time (t5) min	Total Welding Time (t) min
20	3	0.5	30	5	5	6	6.7
25	3.5	0.5	35	5	5	6	6.8
32	4.4	0.5	44	5	5	6	6.9
40	5.5	1	55	5	5	7.8	8.7
50	6.9	1	69	6	6	9.8	11.2
63	8.6	1.5	86	7	7	11.9	13.6
75	10.3	1.5	103	7	7	14	15.911
90	12.3	2	123	8	8	16.3	8.7
110	15.1	2	151	9	9	19.5	22.4
125	17.1	2	171	9	10	21.8	25
140	19.2	2.5	192	10	11	24.2	27.8
160	21.9	2.5	219	11	12	27.3	31.3
180	24.6	2.5	246	12	13	30.4	34.9
200	27.4	3	274	13	15	33.7	38.7
225	30.8	3	308	14	16	37.7	43.3
250	34.2	3	342	15	18	41.7	47.9
280	38.3	3.5	383	18	22	52.7	59.7
315	43.1	3.5	431	19	23	55.7	63.6
355	48.5	3.5	485	20	25	59.1	67.9
400	54.7	4	547	24	27	64.7	74.7
450	61.5	4	615	29	31	71.5	82.7

Balance your dunya around your Deen. it's All a matter of priorities.

SERVICE LIFE OF PE PIPES

The production design of PE 100 pipes is done for a service life of 50 years. So the minimum service life of PE 100 pipes is 50 years.

The curve in the figure below the change in the phy properties PE 100 pipes in time.



STORAGE

Pipe in packages should be kept on a working, plane surface, and outside should be supported by support of safety the height of the stacked packages should not exceed 3m. The separate pipes which are not in packages should be stacked as a pyramid not higher than 1m, and the bottom layer of pipes should be fixed by wedges. In some places under the bottom pipes it is necessary to place wooden bars on distance of 1m. pipes in reels should in a horizontal position, especially in warm weather, and on a firm, smooth surface. It is necessary. That the bottom reel was steady, the height of the stacked reels should not exceed 2.5m at all.



One who remembers ALLAH is never AloneLY.

TRADEMARK
1 7 1 7 9



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CERTIFICATIONS

Allah (Alone) is Sufficient for us, and He is the Best Disposer of affairs (for us).



INTRODUCTION

Bright Water Rubber & Plastic manufacturing company has been established in 2013 as a manufacturer of Plastic Polyvinyl Chloride PVC Pressure and non-Pressure pipe system for cold and potable water and other industrial uses. Bright Water After succeeding in PVC & U-PVC piping system, has Started the production of PVC, U-PVC, PPR- C, HDPE pipes & Fittings with Advance Technology. Customer focus, quality and innovation are reflected in every aspect of our business.

Our strength lies in pre-empting customer expectations and product demands. Bright Water today is a trademark of reliability, durability and stability. Our team is highly skilled and experienced which uses the most advanced technology on its production line and retains the modern management system.

As a group, we are committed to high ethical business values, quality of products, committed deliveries and competitive pricing. These factors have contributed to our success ensuring our success at all levels.

We have developed and designed a setup and system in place which can meet your requirements and needs beyond your hopes and expectations.

We believe that our strength lies in satisfying our customers and clients. That is why, providing quality products backed by superior technical support services, is the Bright Water promise to all our valued customers. Besides its unique place in Afghanistan plastic and Hand Pumps industry, Bright Water products are exported to various other countries and thus play an important role in economy of Afghanistan.



PRESIDENT MESSAGE

First of all I, on behalf of Bright Water Rubber & Plastic Manufacturing Company; would like to introduce you Bright Water, Bright Water like many other companies invests millions of Afghanis in its communities annually through different programs and events. They understand that community investment is a necessary component of a sustainable business and its subsequent growth and recognizes that corporations can utilize unique resources, including the expertise of their employees through volunteerism, to positively impact societal problems and issues. Founded in 2013 & continued to inspire and challenge leaders in the private and public sector to find innovative ways to fulfil unmet community needs and to lead the way towards better management of business and societal strategies and policies. Through our convening power, a focus on measurement, and the extensive resources we provide to customers, employees, investors, nonprofits organizations, governments, and other businesses.

We provide thought leadership in the field through our recognized events and forward-looking research reports in the time of economic volatility and uncertainty. Today's business leaders are keenly aware of the heightened needs in their communities around the world. Bright Water encourages corporate CEOs to think carefully about the societal issues that will affect their companies in the next decade,

and to proactively engage in addressing those issues, in collaboration with customers, employees, investors, nonprofits organizations, governments, and other businesses. To develop, grow, struggle to achieve perfection through advanced technology and utilize all its resources in order to ensure long lasting customer satisfaction are the objectives of Bright Water. Thanks to reliable, strong, easily accessible and easy-to-use products and perfect after sale support, Bright Water achieves its target perfection. Bright Water is ready to achieve its goals and objectives through regular investments in communities by implementing various mechanisms and Technics.

I, on behalf of Bright Water; would like to request you to kindly consider our request favorably to add us in the list of your vendors and to give us the opportunities to work close with you in the categories of all activities which is included in our Corporation.

I am looking forward to working close with your organization on a long term basis.

Hamid Ahmadzai
President



QUALITY MANAGEMENT

At Bright Water quality is high priority and the foundation of all our processes and operations. Each and every one of us here at Bright Water is committed to consistently achieving the highest quality standards in our products and services, with the aim of satisfying and exceeding the requirements and expectations of our customers. This goes for every area of our business.

Bright Water Rubber & Plastic Manufacturing Company is Germany (DAB) ISO 9001:2008 for Quality Management System, 14001:2015 for Environmental Management System & 18001:2007 for Health & Safety Management System Certified Company. Which have been dedicated itself through the production of superior materials ensuring cost effectiveness, hurdle freedom and high quality in all aspects of business. We are using innovative, adoptive and modern technologies available in the industry to ensure all specific customers' requirements and expectations are met all the times with comfort and satisfaction which will enhance our production quality, performance and profitability. This is the culmination of our dedicated efforts to manufacture superior product to our national and international clients by providing exceptional value, consistent performance and creative production solutions by which we have been promoting our ever-lasting and productive working relationship.

Each and every single piece of pipes & fittings are subjected to a detailed inspection & testing by trained and experienced staff to detect dimensional inaccuracies, surface imperfections and its conformity with applicable standards.

Our quality policy includes:

- ❖ Strict observance to a quality management system that complies with all quality oriented standards.
- ❖ Our quality policy is maintained throughout our business in accordance with our commitment to customer and regulatory requirements.

- ❖ Our quality policy is communicated to all employees and they are actively involved in the development of its objectives.
- ❖ A proactive culture of continuous improvement aiming to "get the job done in first time".
- ❖ Highly qualified and experienced staff with expertise in their individual fields.
- ❖ Periodically conducting ongoing training sessions for all staff.

We believe in open and honest communication to all our customers and staff within a trusted environment.

VISION

To become the leading manufacturing Company for PVC, U-PVC, PPRC & HDPE Pipes & Fittings and services at national and international levels.

MISSION

Profitable growth through superior customer service, innovation, quality and commitment. To be the leader in every market we enter and serve, to the benefit of our customers and shareholders. The company's primary objective is to maximize long-term customer value, while adhering to the highest manufacturing standards.

WHY BRIGHT WATER?

Bright Water Pipes & Fittings offer the greatest combination of versatility, durability and longevity, and gives importance to quality control and:

1. Uses the most advanced technology.
2. Has highly skilled and experienced team.
3. Uses the most suitable raw materials.
4. Produces pipes & fittings as per international standard.
5. Controls Quality at each stage of production & has well equipped laboratory
6. Committed to high ethical business values and competitive pricing.

QUALITY CONTROL

Profitable growth through superior customer service, innovation, quality and commitment. To be the leader in every market we enter and serve, to the benefit of our customers and shareholders. The company's primary objective is to maximize long – term customer value, while adhering to the highest manufacturing standards.

RAW MATERIAL QUALITY CONTROL

All types of Raw material from our supplier are subject to input quality control test. Before Production Samples chosen from raw material for Test being carried out obtain suitable for Production approval.

PROFITABLE GROWTH THROUGH SUPERIOR

All types of Raw material from our supplier are subject to input quality control test. Before Production Samples chosen from raw material for Test being carried out obtain suitable for Production approval.

PROCESS QUALITY CONTROL

To assure quality of the HDPE Pipes during production process and finish product, Quality Control department ensures that materials used in the manufacturing process are in strict compliance with the end users' requirement and the end product is in conformity with the applicable international standards.

HIGH QUALITY AND PERFORMANCE STANDARDS

The quality and performance of HDPE Pipes are assured by a wide array of tough standards, control tests and independent certifications. Bright Water HDPE Pipes maintain the quality of the products as per the revised and the latest standard ISO Germany (DAB) ISO 9001:2008, 14001:2015 & 18001:2007 which also is in line with the international standards on product quality.

EXTENSIVE QUALITY CONTROL

Bright Water pipe undergoes numerous quality control tests, including regular measurements of critical dimensions, tests for extrusion quality, pipe flattening, burst pressure, impact resistance, joint integrity, and hydrostatic soundness, Melt Flow rate, Internal Hydrostatic Pressure Resistance (ICPR), Longitudinal Reversion (Heat Reversion), Tensile Strength. This ensures optimum quality, reliability and long-term strength.

- 1) Heat Reversion
- 2) Opacity
- 3) Density
- 4) Burst Pressure
- 5) Fracture Toughness

- 1) Methylene Chloride
- 2) Impact Strength
- 3) Flattening (ASTM)
- 4) Acetone Resistance
- 5) Resistance to Sulphuric Acid



HDPE ENVIRONMENTAL FRIENDLY

Producing by the use of “Environmental Friendly Production Technologies” since its foundation, Bright Water proves its sensitivity toward environmental health through its Environmental Management System. Upon obtaining Germany (DAB) ISO 14001-2015 “Environment Management System”.

The environmentally friendly raw materials is used for manufacture of Bright Water PPRC Pipe system. to insure it’s environmental compatibility, all contained additives (color pigments & stanilizers) are extensively tested, not only by Bright Water own laboratory, but also by prominent independent laboratories.

Bright Water not only retains its established environmental consciousness within its organization but also transforms this consciousness into an environmental policy and shares it with its neighbors, suppliers and customers. Especially during domestic and foreign seminars held for its end-users, Bright Water shares its efforts made toward environmental problems and importance that should be attached to the environmental health primarily with its business partners.

95% of the products of Bright Water consists of re-cycled re-processable materials. It sends its non-household wasted and non-recyclable waster products to “Disposal Facilities”.

Environment Management Programs and Projects oriented to Environmental Health Protection drawn up by the Environmental Group consisting of our environmental engineers are being realized within Bright Water Rubber & Plastic Manufacturing Company.

Committing its compliance with all national and international Environmental Legislative Directives and Environmental regulations, Bright Water fulfills all its legal liabilities and declares statutory assessment reports to the relevant Ministry.

Bright Water always gives precedence to the importance of environmental health and shows necessary sensitivity in all its investments.

When things are too hard to handle, retreat & count your blessings instead.

SMOOTH-WALL HIGH-DENSITY POLYETHYLENE PIPE SYSTEMS

Piping made from polyethylene is a cost effective solution for a broad range of piping problems in municipal, industrial, marine, mining, landfill, duct and agricultural applications. It has been tested and proven effective for above ground, sur face, buried, slip lined, floating, and sub-sur face marine applications. High-density polyethylene pipe (HDPE) can carry potable water, wastewater, slurries, chemicals, hazardous wastes, and compressed gases. In fact, polyethylene pipe has a long and distinguished history of service to the gas, oil, mining and other industries. It has the lowest repair frequency per mile of pipe per year compared with all other pressure pipe materials used for urban gas distribution. Polyethylene is strong, extremely tough and very durable. Whether you're looking for long service, trouble-free installation, flexibility, resistance to chemicals or a myriad of other features, high-density polyethylene pipe will meet all your requirements.

HDPE PIPE SAVES BOTH TIME AND MONEY

LOWER LIFE CYCLE COSTS

- ❖ Corrosion resistance. Does not rust, rotor corrode.
- ❖ Leak tight. Heat-fused joints create a homogenous, monolithic system. The fusion joint is stronger than the pipe.
- ❖ Maintains optimum flow rates. Does not tuberculate, has a high resistance to scale or biological build-up.
- ❖ Excellent water hammer characteristics. Designed to withstand surge events.
- ❖ High strain allowance. Virtually eliminates breakage due to freezing pipes.pment.
- ❖ With no exfiltration or infiltration, potable water losses and groundwater nuisance treatment costs encountered in traditional piping systems are eliminated.

REDUCED INSTALLATION COSTS

- ❖ Material of choice for trenchless technology. Used in directional boring, plowing, river crossings, pipe bursting and slip lining.
- ❖ Fewer fittings due to pipe flexibility. Allowable bending radius of 20 to 25 times outside diameter of pipe.
- ❖ Lighter equipment required for handling and installation than with metallic materials.
- ❖ Eliminates the need for thrust blocking. Heat fused joints are fully restrained.
- ❖ Light weight and longer lengths allow for significant savings in labor and equipment.



CONSIDER THE FOLLOWING FEATURES OF HDPE PIPE:

LEAK FREE

Polyethylene pipe is normally joined by heat fusion. Butt, socket, sidewall fusion and electrofusion create a joint that is as strong as the pipe itself, and is virtually leak free. This unique joining method produces significant cost reductions compared to other materials.

CORROSION, ABRASION, AND CHEMICAL RESISTANT

Polyethylene piping's performance in mining, dredging and similar applications proves it will outwear many costlier piping materials when conveying a variety of abrasive slurries. HDPE has excellent corrosion resistance and is virtually inert. It does not need expensive maintenance or cathodes protection. It offers better overall resistance to corrosive acids, bases and salts than most piping materials. In addition, polyethylene is unaffected by bacteria, fungi and the most "aggressive" naturally occurring soils. It has good resistance to many organic substances, such as solvents and fuels.

EXCELLENT FLOW CHARACTERISTICS

Because polyethylene is smoother than steel, cast iron, ductile iron, or concrete, a smaller PE pipe can carry an equivalent volumetric flow rate at the same pressure. It has less drag and a lower tendency for turbulence at high flow. Its superior chemical resistance and "non-stick" surface combine to almost eliminate scaling and pitting and preserve the excellent hydraulic characteristics throughout the pipe service life.

LIGHTWEIGHT AND FLEXIBLE

Polyethylene pipe is produced in straight lengths or in coils. Made from materials about one-eighth the density of steel, it is lightweight and does not require the use of heavy lifting equipment for installation. It reduces the need for fittings, is excellent in shifting soils and performs well in earthquake-prone areas. HDPE resists the effects of freezing and allows bending without the need for an excessive number of fittings. Since HDPE is not a brittle material, it can be installed with bends over uneven terrain easily in continuous lengths without additional welds or couplings.

DUCTILITY AND TOUGHNESS

Polyethylene pipe and fittings are inherently tough, resilient and resistant to damage caused by external loads, vibrations, and from pressure surges such as water hammer. Even in cold weather polyethylene pipe is tolerant to handling and bending.

MANUFACTURED UNDER AWWA, NSF, ASTM, AGA, EPA, DNR, DOT, API, FM, CSA AND OTHER NATIONALLY RECOGNIZED STANDARDS

Polyethylene pipe is listed and approved by the standards or committees of the agencies listed above.



AVAILABLE IN DIAMETERS FROM 20MM TO 1200MM

Polyethylene pipe is available in a wide range of diameters and wall thickness, with flanges, elbows, tees, wyes, and valves, providing a total system solution. HDPE pipe is also available in Iron Pipe Size (IPS), Ductile Pipe Size (DIPS) as well as metric sizes. Plastic Pipe Institute members can provide pipe, fittings and other appurtenances.

APWA COLOR CODING BY APPLICATION

Polyethylene pipe is available with color coding by application as developed by the utility location and coordination council of the American Public Works Association (APWA).



PRODUCT IDENTITY CARD

PRODUCT NAME	BRIGHT WATER PE 80 NATURAL PIPES AND FITTINGS
RAW MATERIAL	MODPE 80 (=PE 80)
PRODUCT COLOR	BLACK
PRODUCTINON STANDARDS	DIN 8074

PRODUCT SPECIFICATION

Production Range	Ø25 - Ø500 mm	
Pressure Rating	SDR 11 - PN 12,5 [for 4 bar lines in accordance with TSE]	
Production Unit Lentgh	Ø25 - Ø125 (in coils)	Ø110-Ø500 (11.8 meter bars)

TECHNICAL SPECIFICATION

Polymer Data	PE 80	Until	Test Method
Density at 23 °C	0.94	gr/cm ³	ISO 1183
Viscosity Number	280	cm ³ /gr	ISO 16283
MFR 190 0/5Kg	0.85	gr/10min	ISO 1133
MFR 190 0/25Kg	18	gr/10min	ISO 1133
Mechanical Properties			
Yield strees	18	mpa	ISO 527
Elongation at yield	10--12	%	ISO 527
Tensile Modulus	600	mpa	ISO 527
	-	kJ/m ²	ISO 179/1eA
+ 23 °C			
- 20 °C	-	kJ/m ²	ISO 179/1eA
Oxidation - Induction time at 210 °C	≥ 20	min	ISO TR 10837
Carbon black content	2.3+0.2	%	ISO 6964
Carbon black Dispersion	≤3		ISO CD 11240
MRS minimum Required Strength	<8	Mpa	ISO TR 9080
Resistance to S. C. P (Slow Crack Propagation)	<2000	h	EN 33479
= 4.6 Mpa ' 80 °C Notched			
Resistance to R. C. P (Rapid Crack)	-	bar	ISO DIS 13477
Elongation at break	<600	%	EN 638
Linear Thermal Expansion	1.5 x 10	°C ⁻¹	ASTM D 696
Specific Heat Capacity			(20-60° C)
	1.9	j/g °C	PBCL
Electric Strength	>20	KV/mm	BS 2782:201 B
Volume resistivity	>10 ¹³	Ωm	BS 2782:230 A
Surface resistivity	>10 ¹⁵	Ω	BS 2782:231 A
Relative permittivity	2.6	-	BS 2067
			1 TO 20 MHZ
Los Tangent	3 x 10 ⁻⁴	-	BS2067

**PE 80 PIPE DIMENSION CONFORMING TO ISO
4427/DIN8074 DESIGN STRESS = 6.3 MPa**

O.D. mm	S 10		S 6.3		S 5		S 4	
	SDR 21		SDR 13.6		SDR 11		SDR 9	
	PN 6.3				PN 12.5		PN 16	
	W.T. mm	Weight Kg/m	W.T. mm	Weight Kg/m	W.T. mm	Weight Kg/m	W.T. mm	Weight Kg/m
16							1.8	0.084
20			1.08	0.107	1.9	0.112	2.3	0.133
25			1.9	0.144	2.3	0.171	2.8	0.200
32			2.4	0.232	3.0	0.272	3.6	0.327
40	1.9	0.239	3	0.356	3.7	0.430	4.5	0.509
50	2.4	0.374	3.7	0.549	4.6	0.866	5.6	0.788
63	3	0.58	4.7	0.873	5.8	0	7.1	1.26
75	3.6	0.828	5.6	1.24	6.8	1.47	8.4	1.76
90	4.3	1.18	6.7	1.77	8.2	2.12	10.1	2.54
110	5.3	1.77	8.1	2.62	10.0	3.14	12.3	3.78
125	6	2.27	9.2	3.37	11.4	4.08	14.0	4.67
140	6.7	2.83	10.3	4.22	12.7	5.08	15.7	6.11
160	7.7	3.72	11.8	5.50	14.6	6.67	17.9	7.98
180	8.6	4.67	13.3	6.98	16.4	8.42	20.1	10.1
200	9.6	5.78	14.7	8.56	18.2	10.4	22.4	12.4
225	10.8	7.3	16.6	10.9	20.5	13.1	25.2	15.8
250	11.9	8.93	18.4	13.4	22.7	16.2	27.9	19.4
280	13.4	11.3	20.6	16.8	25.4	20.3	31.3	24.3
315	15.0	14.2	23.2	21.2	28.6	25.6	35.2	30.8
355	16.9	18.0	26.1	26.0	32.2	32.6	39.7	39.1
400	19.1	22.9	29.4	34.1	36.2	41.3	44.7	49.6
450	21.5	28.9	33.1	43.2	40.9	52.3	50.3	62.7
*500	23.9	35.7	36.8	53.3	45.4	64.5	55.8	77.3
*560	26.7	44.7	41.2	68.9	50.8	80.8	62.5	97.0
*630	30.0	56.4	46.3	84.6	57.2	102		
*710	33.9	71.8	52.2	107				
*800	38.1	91.1	58.8	136				
*900	42.9	115.0						
*1000	47.7	142.0						
*1200	57.2	205.0						



PRODUCT IDENTITY CARD

PRODUCT NAME	BRIGHT WATER HDPE 100 POTABLE WATER NETWORK PIPES
RAW MATERIAL	MODPE 100 (=PE 100)
PRODUCT COLOR	BLACK
PRODUCTINON STANDARDS	DIN 8074

PRODUCT SPECIFICATION

Production Range	Ø25 - Ø500 mm
Pressure Rating	PN 6.3 - PN 16
Production Unit Lentgh	Ø25 - Ø125 (in coils) Ø110 - Ø500 (11.8 meter bars)

TECHNICAL SPECIFICATION

Polymer Data	PE 100	Until	Test Method
Density at 23 °C	0.955	gr/cm ³	ISO 1183
Viscosity Number	360	cm ³ /gr	ISO 16283
MFR 190° /5Kg	0.22	gr/10min	ISO 1133
MFR 190° /25Kg	606	gr/10min	ISO 1133
Mechanical Properties			
Yield streses	23	mpa	ISO 527
Elongation at yield	9	%	ISO 527
Tensile Modulus	900	mpa	ISO 527
Notched Impact Strength			
+ 23 °C	26	kJ/m ²	ISO 179/1eA
- 20 °C	13	kJ/m ²	ISO 179/1eA
Other Properties			
Oxidation - Induction time at 210 °c	≥ 20	min	ISO TR 10837
Carbon black content	2.3+0.2	%	ISO 6964
Carbon black Dispersion	≤3		ISO CD 11240
MRS minimum Required Strength	<10	mpa	ISO TR 9080
Resistance to S. C. P (Slow Crack Propagation) = 4.6 Mpa, 80 °C Notched	<3000	h	EN 33479
Resistance to R. C. P (Rapid Crack)	<25	bar	ISO DIS 13477
Elongation at break	<600	%	EN 638
Linear Thermal Expansion	1.8 x 10	°C ⁻¹	ASTM D 696
Specific Heat Capacity			(20-60 0C)
	1.9	j/g °C	PB CL
Elictrical Properties			
Electric Strength	>20	KV/mm	BS 2782:201 B
Volume resistivity	>10 ¹³	Ω m	BS 2782:230 A
Surface resistivity	>	Ω	BS 2782:231 A
Relative permittivity	2.6	-	BS 2067
			1 TO 20 MHZ
Los Tangent	3 x 10 ⁻⁴	-	BS2067

PE 100 PIPE DIMENSION CONFORMING TO ISO 4427, DIN8074 & PREN 12201 SPECIFICATIONS. DESIGN STRESS = 8 MPa

OD. mm	S 20		S 12.5		S 10		S 8		S 6.3		S 5		S 4		S 3.2		S 2.5				
	W.T. mm	Weight Kg/m	W.T. mm	Weight Kg/m	W.T. mm	Weight Kg/m	W.T. mm	Weight Kg/m	W.T. mm	Weight Kg/m	W.T. mm	Weight Kg/m	W.T. mm	Weight Kg/m	W.T. mm	Weight Kg/m	W.T. mm	Weight Kg/m	W.T. mm	Weight Kg/m	OD. mm
20																					
25																					
32																					
40																					
50																					
63																					
75																					
90																					
110																					
125																					
140																					
160																					
180																					
200																					
225																					
250																					
280																					
315																					
355																					
400																					
450																					
*500																					
*560																					
*630																					
*710																					
*800																					
*900																					
*1000																					
*1200																					

PE 100-80 & 63 PIPE DIMENSION CONFORMING TO ISO 4427, DIN8074

	PN 3.2	PN 4	PN 5	PN 6.4	PN 7.8	PN 8	PN 9.6	PN 10	PN 12.7	PN 16	PN 20	PN 25												
PE 100	PN 3.2	PN 4	PN 5	PN 6.4	PN 7.8	PN 8	PN 9.6	PN 10	PN 12.7	PN 16	PN 20	PN 25												
PE 80	PN 205	PN 3.2	PN 4	PN 5	PN 6	PN 6.4	PN 7.7	PN 8	PN 10	PN 12.5	PN 16	PN 20												
PE 63	PN	PN 2.5	PN 3.2	PN 4	PN 4.8	PN 5	PN 6	PN 6.3	PN 8	PN 10	PN 12.6	PN 16												
25	20	16	16	12.5	10.5	10	8.3	8	6.3	5	4	3.2												
51	41	33	26	22	21	17.6	13.6	11	9	7.4														
S	Kg/M	S	Kg/M	S	Kg/M	S	Kg/M	S	Kg/M	S	Kg/M	S	Kg/M											
10																								
12																								
16																								
20																								
25																								
32																								
40																								
50																								
63																								
75	1.8	0.436	1.9	0.457	2.3	0.551	2.9	0.675	3.5	0.807	3.6	0.828	4.3	0.976	4.5	1.02	5.6	1.24	6.8	1.47	8.4	1.76	10.3	2.09
90	1.8	0.525	2.2	0.643	2.8	0.791	3.5	0.978	4.1	1.14	4.3	1.18	5.1	1.39	5.4	1.46	6.7	1.77	8.2	2.12	10.1	2.54	12.3	3
110	2.2	0.706	2.7	0.943	3.4	1.17	4.2	1.43	5	1.67	5.3	1.77	6.3	2.08	6.6	2.17	8.1	2.62	10	3.14	12.3	3.78	15.1	4.49
125	2.5	1	3.1	1.23	3.9	1.51	4.88	1.84	5.7	2.16	6	2.27	7.1	2.66	7.4	2.76	9.2	3.37	11.4	4.08	14	4.87	17.1	5.77
140	2.8	1.25	3.5	1.54	4.3	1.88	5.4	2.32	6.4	2.72	6.7	2.83	8	3.34	8.3	3.46	10.3	4.22	12.7	5.08	15.7	6.11	19.2	7.25
160	3.2	1.53	4	2	4.9	2.42	6.2	3.04	7.3	3.54	7.7	3.72	9.1	4.35	9.5	4.52	11.8	5.5	14.6	6.47	17.9	7.96	21.9	9.44
180	3.6	2.5	4.4	2.4	5.5	3.07	6.9	3.79	8.2	4.47	8.6	4.67	10.2	5.48	10.7	5.71	13.3	6.98	16.4	8.42	20.1	10.1	24.6	11.9
200	3.9	2.46	4.9	3.05	6.2	3.84	7.7	4.69	9.1	5.51	9.6	5.78	11.4	6.79	11.9	7.05	14.7	8.56	18.2	10.4	22.4	12.4	27.1	14.8
225	4.4	3.12	5.5	3.86	6.9	4.77	8.6	5.89	10.3	7	10.8	7.3	12.8	8.55	13.4	8.93	16.6	10.9	20.5	13.1	25.2	15.8	30.8	18.6
250	4.9	3.83	6.2	4.83	7.7	5.92	9.6	7.3	11.4	8.59	11.9	8.93	14.2	10.6	14.8	11	18.4	13.4	22.7	16.2	27.9	15.4	34.2	23
280	5.5	4.83	6.9	5.98	8.6	7.4	10.7	9.1	12.8	10.8	13.4	11.3	15.9	13.2	16.6	13.7	20.6	16.8	25.4	20.3	31.3	15.4	38.3	28.9
315	6.2	6.12	7.7	7.52	9.7	9.37	12.1	11.6	14.4	13.6	15	14.2	17.9	16.7	18.7	17.4	23.2	21.2	28.6	25.6	35.2	30.8	43.1	36.5
355	7	7.73	8.7	9.55	10.9	11.8	13.6	14.6	16.2	17.3	16.9	18	20.1	21.2	21.1	22.1	26.1	26.9	32.2	32.5	39.7	39.1	48.5	46.5
400	7.9	9.82	9.8	12.1	12.3	15.1	15.3	18.6	18.2	29.1	19.1	22.9	22.7	26.9	23.7	28	29.4	34.1	36.3	41.3	44.7	49.6	54.7	58.8

Sometimes the blessing are not in what he gives, but in what it takes away!

WATER & SEWER DETAILS

POLYETHYLENE WATER & SEWER

P 3608/3408 IPS PIP DP PIP SI S

Nominal Size	Pressure Rating	DR 7 (267Psi)			DR 7.3 (254Psi)			DR 9 (200Psi)			DR 11 (160Psi)			DR 13.5 (128Psi)			DR 15.5 (110Psi)		
		MIN Wall	Average I.D	Weight lb/ft	MIN Wall	Average I.D	Weight lb/ft	MIN Wall	Average I.D	Weight lb/ft	MIN Wall	Average I.D	Weight lb/ft	MIN Wall	Average I.D	Weight lb/ft	MIN Wall	Average I.D	Weight lb/ft
3/4"	1.05"	0.150"	0.732"	0.184	0.144"	0.178	0.177"	0.803"	0.15	0.095"	0.848"	0.125	...	...	...	...	...	...	...
1"	1.315"	0.188"	0.917"	0.289	0.180"	0.279	0.146"	1.005"	0.234	0.120"	1.062"	0.197	...	...	...	...	...	...	...
1 1/4"	1.66"	0.237"	1.157"	0.46	0.227"	0.444	0.184"	1.269"	0.372	0.151"	1.340"	0.312	...	...	...	...	...	...	...
1 1/2"	1.90"	0.271"	1.325"	0.603	0.260"	0.582	0.211"	1.452"	0.488	0.173"	1.534"	0.409	...	...	...	...	...	...	...
2"	2.375"	0.339"	1.656"	0.943	0.325"	0.762	0.264"	1.816"	0.762	0.216"	1.917"	0.639	...	...	...	...	...	...	...
3"	3.500"	0.500"	2.440"	2.047	0.479"	2.484"	1.656	2.676"	1.656	0.318"	2.825"	1.387	...	...	...	...	...	...	...
4"	4.500"	0.643"	3.137"	3.384	0.616"	3.193"	2.737	3.440"	2.737	0.409"	3.633"	2.294	...	...	...	...	...	...	...
5"	5.375"	0.768"	3.747"	4.83	0.736"	3.814"	4.663	4.109"	3.903	0.489"	4.339"	3.272	...	...	...	...	...	...	...
5"	5.563"	0.795"	3.878"	5.172	0.762"	3.947"	4.182	4.253"	4.182	0.506"	4.491"	3.505	...	...	...	...	...	...	...
6"	6.625"	0.946"	4.619"	7.336	0.908"	4.701"	5.932	5.064"	5.932	0.602"	5.348"	4.971	...	...	...	...	...	...	...
7"	7.125"	1.018"	4.967"	8.195	0.976"	5.056"	8.2	5.447"	6.863	0.648"	5.752"	5.75	...	...	...	...	...	...	...
8"	8.625"	1.232"	6.013"	12.433	1.182"	6.120"	10.054	6.593"	10.054	0.784"	6.983"	8.425	...	...	...	...	...	...	...
10"	10.750"	1.536"	7.494"	19.314	1.473"	7.628"	15.618	8.218"	15.618	0.977"	8.678"	13.089	...	...	...	...	...	...	...
12"	12.750"	1.821"	8.889"	27.17	1.747"	9.047"	21.97	9.747"	21.97	1.159"	10.293"	18.412	...	...	...	...	...	...	...
14"	14.00"	2.000"	9.70"	32.758	1.918"	9.934"	26.489	10.702"	26.489	1.273"	11.372"	22.199	...	...	...	...	...	...	...

PRESSURE ARE BASED ON USING WATER AT 23 C
 AVERAGE INSIDE DIAMTER CALCULATED USING NOMINAL OD AND MINIMUM WALL PLUS 6% FOR USE IN ESTIMATING FLUID FLOWS,ACTUAL ID WILL VARY
 SERVICE FACTORS SHOULD BE UTILIZED TO COMPENSATE FOR THE EFFECT OF LIQUIDES OTHER THAN WATER,AND FOR OTHER TEMPERATURES .
 OTHER PIPING SIZES OR DR'S MAY BE AVAILABLE UPON REQUEST .

POLYETHYLENE WATER & SEWER

REFERENCE STANDARDS

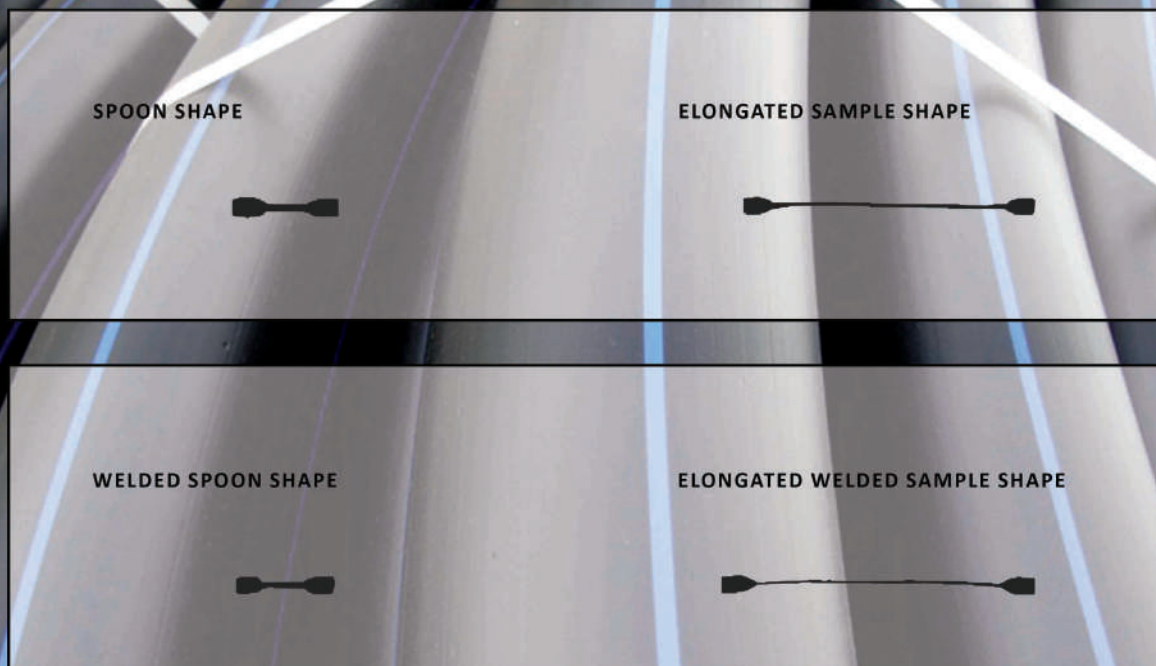
ASTM F714	Standard specification for polyethylene (PE) Plastic Pipe (S.D.R. - PR) Based on Outside Diameter
AWWA C901	Polyethylene (PE) Pressure Pipe & Tubing, 1/2" through 3" for Water Services
AWWA C906	Polyethylene (PE) Pressure Pipe & Fittings, 4" through 63" for Water Disturbance & Transmission

THE DAMAGE PERCENTAGES IN THE POTABLE WATER LINES AT KOBE/JAPAN EARTHQUAKE

Pipe Type	Percentage of damage apiec/km
Ductile cast iron pipe	0.488
Cast iron pipe	1.508
PVC pipe	1.430
Steel pipe	0.437
Asbestos Steel Pipe	1.782
PE pipe	0 (Zero)

THE DAMAGE PERCENTAGES IN THE GAS PIPE LINES AT KOBE/JAPAN EARTHQUAKE

	Steel pipe	Ductile cast & Iron Pipe	PE pipe
Total length	21,338	12,204	1,458
Number of damage	25,821	630	0 (zero)
Damage ratio (place/km)	1,210	0,052	0.000 (zero)



BUTT-WELDING CAPACITY

Size (mm)	No. of Welding >SDR 26	No. of Welding >SDR 22
1600	2--3	—
1400	2--3	—
1200	3--4	3--4
1000	3--4	3--4
900	4--5	4--5
800	4--5	4--5
710	5--6	5--6
630	6--8	6--8
560	7--9	7--9
500	7--10	7--10
450	7--10	8--11
400	10--13	10--13
355	10--13	10--13
280	14--17	14--17
250	16--20	16--20
225	18--22	17--22
200	20--25	18--25
180	22--27	18--27
160	22--27	20--27
140	22--28	20--28
125	25--30	22--30
110	25--30	25--30
90	25--30	25--30
75	26--30	25--30

When there is no way ALLAH will make a way.



BUTT WELDING PARAMETERS FOR BRIGHT WATER PE 100 PIPES

Nominal Diameter	Wall Pressure height of lip formed Thickness			Free heating Time for removing Time for attaining the Cooling period Total welding period heating plate necessary welding temp under				
	mm	bar	mm	Sec	Sec	Sec	Minute	Hour
75	4.5	10	100.000	45	5	5	6	0.12
	6.8	6	100.000	68	6	6	10	0.18
90	3.3	6	0.5	33	5	5	6	0.11
	5.4	10	100.00	54	5	5	7	0.14
110	8.2	16	1.5	82	6	6	11	0.21
	4	6	0.5	40	5	5	6	0.11
	6.6	10	1	66	6	6	9	0.18
125	10	16	1.5	100	6	6	13	0.25
	4.5	6	1	45	5	5	6	0.12
	7.4	10	1.5	74	6	6	10	0.2
140	11.4	16	1.5	114	6	6	14	0.28
	5.1	6	1	51	5	5	7	0.13
	8.3	10	1.5	83	6	6	11	0.21
160	12.7	16	2	127	8	8	17	0.32
	5.8	6	1	58	6	6	8	0.15
	9.5	10	1.5	95	6	6	13	0.24
180	14.6	16	2	146	8	8	19	0.36
	6.5	6	1	65	6	6	9	0.17
	10.7	10	1.5	107	6	6	14	0.26
200	6.54	16	2	164	8	8	20	0.39
	7.2	6	1.5	72	6	6	10	0.19
	11.9	10	1.5	119	6	6	15	0.28
225	18.2	16	2	182	8	8	22	0.43
	8.2	6	1.5	82	6	6	11	0.21
	13.4	10	2	134	8	8	17	0.33
250	20.5	16	2.5	205	10	11	26	0.49
	9.1	6	1.5	91	6	6	12	0.23
	14.8	10	2	148	8	8	19	0.36
280	22.7	16	2.5	227	10	11	28	0.53
	10.1	6	1.5	101	6	6	13	0.25
	16.6	10	2	166	8	8	21	0.39
315	25.4	16	2.5	254	10	11	30	0.58
	11.4	6	1.5	114	6	6	14	0.28
	18.7	10	2	187	8	8	23	0.43
355	28.6	16	3	286	12	14	35	0.66
	12.9	6	2	129	8	8	17	0.32
	21.1	10	2.5	211	10	10	26	0.5
400	32.2	16	3	322	12	12	38	0.73
	14.5	6	2	145	8	8	19	0.35
	23.7	10	2.5	237	10	10	29	0.55
450	36.3	16	3	363	12	12	42	0.18
	16.3	6	2	163	8	8	20	0.39
	26.7	10	3	267	12	12	33	0.63
500	40.9	16	3.5	409	16	16	45	0.87
	18.1	6	2	181	8	8	22	0.42
	29.7	10	3	297	12	12	36	0.68
560	45.4	16	3.5	454	16	16	46	0.89
	20.3	6	2.5	203	10	10	25	0.48
	33.2	10	3	332	12	12	39	0.75
	50.8	16	4	508	20	20	61	1.17

Do not lose hope, nor be sad."

FLANGE DIMENSIONS ACCORDING TO DIN STANDARD

Stub end DN	DN	PN Bar	d1	C	D	h	Number of Holes	F	Screw
50	40	10	62	110	150	15	4	19	M 16
		16	62	110	150	15	4	19	M 16
		25	-	-	-	-	-	-	-
63	50	10	78	135	175	15	4	19	M 16
		16	78	135	175	15	4	19	M 16
		25	-	-	-	-	-	-	-
75	65	10	92	145	185	15	4	19	M 16
		16	92	145	185	15	4	19	M 16
		25	-	-	-	-	-	-	-
90	80	10	108	160	200	19	8	19	M 16
		16	108	160	200	19	8	19	M 16
		25	-	-	-	-	-	-	-
110	100	10	128	180	220	19	8	19	M 16
		16	128	180	220	19	8	19	M 16
		25	-	-	-	-	-	-	-
125	100	10	135	180	220	19	8	19	M 16
		16	135	180	220	19	8	19	M 16
		25	-	-	-	-	-	-	-
140	125	10	158	210	250	19	8	19	M 16
		16	158	210	250	19	8	19	M 16
		25	-	-	-	-	-	-	-
160	150	10	178	240	285	19	8	23	M 20
		16	178	240	285	19	8	23	M 20
		25	-	-	-	-	-	-	-
180	150	10	188	240	340	19	8	23	M 20
		16	188	240	340	19	8	23	M20
		25	-	-	360	-	-	-	-
200	200	10	235	295	340	20	8	23	M20
		16	235	295	340	20	12	23	M20
		25	235	310	360	22	12	28	M 24
225	200	10	238	295	400	20	8	23	M20
		16	238	295	400	20	12	23	M24
		25	238	310	425	22	12	28	M 27
250	250	10	288	350	400	22	12	23	M20
		16	288	355	400	22	12	28	M 24
		25	288	370	425	24.5	12	31	M 27
280	250	10	294	350	455	22	12	23	M 20
		16	294	355	455	22	12	28	M 24
		25	294	370	485	24.5	12	31	M 27
315	300	10	338	400	505	24.5	12	23	M 20
		16	338	410	520	24.5	12	28	M 24
		25	338	430	555	27.5	16	31	M 30
355	350	10	376	460	565	24.5	16	23	M 24
		16	376	470	580	26.5	16	28	M 27
		25	376	490	620	30	16	34	M 33
400	400	10	430	515	670	24.5	16	28	M 24
		16	430	525	-	28	16	31	-
		25	430	550	-	32	16	37	-
450	500	10	517	620	670	26.5	20	28	M 24
		16	-	-	-	-	-	-	-
		25	-	-	-	-	-	-	-
500	500	10	533	620	670	26.5	20	28	-
		16	-	-	-	-	-	-	-
		25	-	-	-	-	-	-	-

BLIND PLATE DIMENSIONS ACCORDING TO DIN STANDARD

Stub end DN	DN	PN Bar	C	D	h	g	Number of Holes	Screw
50	40	10	110	150	15	88	4	19
		16	110	150	15	88	4	19
		25	-	-	-	-	-	-
63	50	10	135	175	15	102	4	19
		16	135	175	15	102	4	19
		25	-	-	-	-	-	-
75	65	10	145	185	15	133	4	19
		16	145	185	15	133	4	19
		25	-	-	-	-	-	-
90	80	10	160	200	19	153	8	19
		16	160	200	19	153	8	19
		25	-	-	-	-	-	-
110	100	10	180	220	19	153	8	19
		16	180	220	19	153	8	19
		25	-	-	-	-	-	-
125	100	10	180	220	19	183	8	19
		16	180	220	19	183	8	19
		25	-	-	-	-	-	-
140	125	10	210	250	19	209	8	19
		16	210	250	19	209	8	19
		25	-	-	-	-	-	-
160	150	10	240	285	19	209	8	23
		16	240	285	19	209	8	23
		25	-	-	-	-	-	-
180	150	10	240	340	19	209	8	23
		16	240	340	19	209	8	23
		25	-	360	-	-	-	-
200	200	10	295	340	20	264	8	23
		16	295	340	20	264	12	23
		25	310	360	22	274	12	28
225	200	10	295	400	20	264	8	23
		16	295	400	20	264	12	23
		25	310	425	22	274	12	28
250	250	10	350	400	22	319	12	23
		16	355	400	22	319	12	28
		25	370	425	24.5	331	12	31
280	250	10	350	455	22	319	12	23
		16	355	455	22	319	12	28
		25	370	485	24.5	331	12	31
315	300	10	400	505	24.5	367	12	23
		16	410	520	24.5	367	12	28
		25	430	555	27.5	389	16	31
355	350	10	460	565	24.5	427	16	23
		16	470	580	26.5	432	16	28
		25	490	620	30	446	16	34
400	400	10	515	670	24.5	477	16	28
		16	525	-	28	484	16	31
		25	550	-	32	503	16	37
450	500	10	620	670	26.5	582	20	28
		16	-	-	-	-	-	-
		25	-	-	-	-	-	-
500	500	10	620	670	26.5	582	20	28
		16	-	-	-	-	-	-
		25	-	-	-	-	-	-

Kindness is a mark of faith, and whoever is not kind has no faith

COMPARISON OF BRIGHT WATER PE SEWORAGE WITH OTHER BRAND PIPES

Features	Pipe Type	BW PE	PVC	Stell	Ductile Font	Concrete	GRP	ASBESTOS	EXPLANATION
Production Range (mm)	Ø20-Ø3600	Ø20-Ø360	Ø15-Ø400	Ø50-Ø2000	Ø200-Ø3200	Ø20-Ø1600	Ø-Ø1600		
Guaranteed service life (year)	50	0-20	3-15	5-25	0-30	0-50	0-30		For the Pipes other than PEE100 pipes, the service life depends on many parameters like quality of the raw material of the pipe bedding in the trench, etc
Feature of breaking	Very Durable	Weak	Durable	Durable	Very Weak	Partially Durable	Very Weak		
Max. Production length	500	6	12	6	4	6-12	4		
Standard production length(m)	12	6	6	6	2	6	2		
Strength against corrosion and abrasion	Very Durable	Partially Durable	Very Weak	Very Weak	Partially Durable	Durable	Weak		The evaluation depends on the nature and type of the chemical like SO ₂ , Na ₂ , chlorine
the easines of Production fitting	Very easy	Very Easy	Difficult	Very Difficult	Very Difficult	Very Difficult	Very Difficult		
The easines of installation(the	100	50	25	40	15	45	5		
Superiority from the side of hygiene	Perfect	Doubtful	Doubtful	Doubtful	Doubtful	Good	Trouble		
Surface roughness coefficient (c)	149	149	120	130	100	145	130		Depende on the quality of the production and raw material
Variety of fitting and thire pirc	Perfect-cheap	Perfect-cheap	limited-expensiv	limited-expensiv	limited-expensiv	limited-expensiv	limited-expensiv		Limited-expensive
strength against chemicals	Perfect	Doubtful	Trouble	Doubtful	Doubtful	Good	Doubtful		
Surface elasticity coefficient ©	377	33	0.5	1	4.4	>33	-0.5		
Ability for passifying the ram impact	Perfect	Trouble	Trouble	Trouble	Trouble	Trouble	Trouble		Depende on the quality of the production and raw material
the easines of making Pressure test at site	Perfect	Trouble	Trouble	Trouble	Trouble	Trouble	Trouble		Since the connection of the pipes other then steel and PE pipes is done using o-ring ,it is very difficult to have perfect leak proof,it is necessary to take additional precaution for absolute leak proof.
Need of safety of 1 tum points	Very little	Very Much	Very Much	Very Much	Very Much	Very Much	Very Much		For PE 100 it is possible to make even full round shape with a diameters 25 time of the pipe outer diameters
Max. instant test pressure (forPN 10)	>28 bar	>16 bar	>40 bar	>40 bar	>13 bar	>18 bar	>13 bar		
the safety of 1 connection points (Max: 100-min;0)	100	0-50	0-80	0-80	0-30	0-70	0-40		The connction with o-ring always create problems for PE pipes, since the connction is done by welding, the molecular fusion males
Ability for passifying the ram impact	Perfect	Doubtful	Trouble	Doubtful	Trouble	Doubtful	Trouble		
Needed trench width (as%pipe diameter)	Approx.%5-10 wider then the pipe dia	Approx.%100 wider then the pipe dia	Approx.%200wi der then the pipe dia	Approx.%110 wider then the pipe dia	Approx.%200 wider then the pipe dia	Approx.%200 wider then the pipe dia	Approx.%200 wider than the pipe dia		These figure are for pipes with avarage 400 mm diameters
Need of bedding around the pipe (max; 100 min;0)	10	100	70	60	100	100	100		For PE 100 pipes if there sharp stones which may damage the pipe there is no need make bedding around the pipes

**PRESSURE LOSS TABLE FOR BRIGHT WATER PE-100 PN-10 PIPES.
(CALCULATED USING COLEBROOKE-WHITE FORMULA. K=0.20M)**

D	36	mm	75	mm	90	mm	110	mm				
S	3.8	mm	4.5	mm	5.4	mm	66	mm				
DI	5.5.4	mm	66.0	mm	79.2	mm	96.8	mm				
Vort	Debye	Debye	J m/m	Debye	Debye	J m/m	Debye	Debye	J m/m	Debye I/S	Debye	J m/m
0.5	1.21	4.36	0.005554	1.72	6.2	0.00447	2.47	8.9	0.003569	3.68	13.25	0.002788
0.6	1.45	5.22	0.007712	2.06	7.42	0.006211	2.96	10.66	0.004961	4.42	15.92	0.003878
0.7	1.69	6.09	0.010192	2.4	8.64	0.008211	3.45	12.42	0.006562	5.16	18.58	0.005131
0.8	1.93	6.95	0.012987	2.74	9.87	0.010647	3.95	14.22	0.008367	5.89	21.21	0.006546
0.9	2.17	7.82	0.016094	3.08	11.09	0.012975	4.44	15.99	0.010375	6.63	23.87	0.008119
1	2.42	8.72	0.01951	3.43	12.35	0.015732	4.93	17.75	0.012584	7.36	26.5	0.00985
1.1	2.66	958	0.023232	3.77	13.58	0.018738	5.42	19.52	0.014991	8.1	29.16	0.011737
1.2	2.9	10.44	0.027258	4.11	14.8	0.021989	5.92	21.32	0.017595	8.84	31.83	0.013779
1.3	3.14	11.31	0.031585	4.45	16.02	0.025484	6.41	23.08	0.020395	9.57	34.46	0.015975
1.4	3.38	12.17	0.036214	4.79	17.25	0.029222	6.9	24.84	0.02339	10.31	37.12	0.018323
1.5	3.62	13.04	0.041141	5.14	18.51	0.033202	7.39	26.61	0.026579	11.04	39.75	0.020824
1.6	3.86	13.9	0.046366	5.48	19.73	0.037423	7.89	28.41	0.029962	11.78	42.41	0.023477
1.7	4.1	14.76	0.51887	5.82	20.96	0.041884	8.38	30.17	0.033537	12.52	45.08	0.026281
1.8	4.34	15.63	0.057705	6.16	22.18	0.046584	8.87	31.94	0.037303	13.25	47.7	0.029236
1.9	4.58	16.49	0.063817	6.51	23.44	0.051523	9.37	33.74	0.041262	13.99	50.37	0.032342
2	4.83	17.39	0.070224	6.85	24.66	0.0567	9.86	35.5	0.045411	14.72	53	0.035597
2.1	5.07	18.26	0.076925	7.19	25.89	0.062114	10.35	37.26	0.049751	15.46	55.66	0.039002
2.2	5.31	19.12	0.083918	7.53	27.11	0.067766	10.84	39.03	0.054281	16.2	58.32	0.042556
2.3	5.55	19.98	0.091205	7.87	28.34	0.073654	11.34	40.83	0.059001	16.93	60.95	0.046259
2.4	5.79	20.85	0.098783	8.22	29.6	0.079778	11.83	42.59	0.06391	17.67	63.62	0.050111
2.5	6.03	21.71	0.106653	8.56	30.82	0.086138	12.32	44.36	0.069009	18.4	66.24	0.054112
2.6	6.27	22.58	0.114814	8.9	32.04	0.092734	12.81	46.12	0.074296	19.14	68.91	0.058261
2.7	6.51	23.44	0.123266	9.24	33.27	0.099565	13.31	47.92	0.079773	19.88	71.57	0.062558
2.8	6.75	24.3	0.132009	9.58	34.49	0.106631	13.8	49.68	0.085438	20.61	74.2	0.067004
2.9	7	25.2	0.141042	9.93	35.75	0.113932	14.29	51.45	0.091291	21.35	76.86	0.071597
3	7.24	26.07	0.150365	10.27	36.98	0.121467	14.78	53.21	0.097332	22.08	79.49	0.076338
3.2	7.72	27.8	0.169881	10.95	39.42	0.13724	15.77	56.78	0.109979	23.55	84.78	0.086262
3.4	8.2	29.52	0.190554	11.64	41.91	0.15395	16.76	60.34	0.1233476	25.03	90.11	0.096777
3.6	8.68	31.25	0.212382	12.32	44.36	0.171594	17.74	63.87	0.137523	26.5	95.4	0.10788
3.8	9.16	32.98	0.235366	13.01	46.84	0.190712	18.73	67.43	0.152419	27.97	100.7	0.11957
4	9.65	34.74	0.259502	13.69	49.29	0.209682	19.71	70.96	0.168063	29.44	105.99	0.131849
4.2	10.13	36.47	0.284791	14.37	51.74	0.230124	20.7	74.52	0.1844541	30.91	111.28	0.144714
4.4	10.61	38.2	0.311232	15.06	54.22	0.251498	21.68	78.05	0.201592	32.39	116.61	0.158165
4.6	11.09	39.93	0.338823	15.74	56.67	0.273801	22.67	81.62	0.219477	33.86	121.9	0.172203

D	125	mm	140	mm	160	mm	180	mm				
S	7.4	mm	8.3	mm	9.5	mm	10.7	mm				
DI	110	mm	123.4	mm	141.0	mm	158.6	mm				
Vort	Debye	Debye	J m/m	Debye	Debye	J m/m	Debye	Debye	J m/m	Debye	Debye	J /mm
0.5	4.77	17.18	0.002378	5.98	21.53	0.002071	2.47	8.9	0.003569	3.68	13.25	J /mm
0.6	5.73	20.63	0.003309	7.18	25.85	0.002882	2.96	10.66	0.004961	4.42	15.92	0.003878
0.7	6.68	24.05	0.00438	8.38	30.17	0.003816	3.45	12.42	0.006562	5.16	18.58	0.005131
0.8	7.64	27.51	0.005589	9.57	34.46	0.00487	3.95	14.22	0.008367	5.89	21.21	0.006546
0.9	8.59	30.93	0.006933	10.77	38.78	0.006043	4.44	15.99	0.010375	6.63	23.87	0.008119
1	9.54	34.35	0.008413	11.69	43.06	0.007333	4.93	17.75	0.012584	7.36	26.5	0.00985
1.1	10.5	37.8	0.010026	13.16	47.38	0.00874	5.42	19.52	0.014991	8.1	29.16	0.011737
1.2	11.45	41.22	0.011771	14.36	51.7	0.010263	5.92	21.32	0.017595	8.84	31.83	0.013779
1.3	12.4	44.64	0.013649	15.55	55.98	0.011901	6.41	23.08	0.020395	9.57	34.46	0.015975
1.4	13.36	48.1	0.015657	16.75	60.3	0.013653	6.9	24.84	0.02339	10.31	37.12	0.018323
1.5	14.31	51.52	0.017795	17.94	64.59	0.015519	7.39	26.61	0.026579	11.04	39.75	0.020824
1.6	15.27	54.98	0.020064	19.14	68.91	0.017499	7.89	28.41	0.029962	11.78	42.41	0.023477
1.7	16.22	58.4	0.022462	20.34	73.23	0.019591	8.38	30.17	0.033537	12.52	45.08	0.026281
1.8	17.17	61.82	0.024989	21.53	77.51	0.021797	8.87	31.94	0.037303	13.25	47.7	0.029236
1.9	18.13	65.27	0.027645	22.73	81.83	0.024114	9.37	33.74	0.041262	13.99	50.37	0.032342
2	19.08	68.69	0.030429	23.92	86.12	0.026544	9.86	35.5	0.045411	14.72	53	0.035597
2.1	20.03	72.11	0.033341	25.12	90.44	0.029085	10.35	37.26	0.049751	15.46	55.66	0.039002
2.2	20.99	75.5	0.36381	26.32	94.76	0.031739	10.84	39.03	0.054281	16.2	58.32	0.042556
2.3	21.94	78.99	0.039549	27.51	99.04	0.034503	11.34	40.83	0.059001	16.93	60.95	0.046259
2.4	22.9	82.44	0.042843	28.71	103.36	0.037379	11.83	42.59	0.06391	17.67	63.62	0.050111
2.5	23.85	85.86	0.046265	29.9	107.64	0.040366	12.32	44.36	0.069009	18.4	66.24	0.054112
2.6	23.8	89.28	0.049815	31.1	111.96	0.043463	12.81	46.12	0.074296	19.14	68.91	0.058261
2.7	25.76	92.74	0.05349	32.3	116.28	0.046672	13.31	47.92	0.079773	19.88	71.57	0.062558
2.8	26.71	96.16	0.057293	33.49	120.57	0.049991	13.8	49.68	0.085428	20.61	74.2	0.067004
2.9	27.66	99.58	0.061222	34.69	124.89	0.05342	14.29	51.45	0.091291	21.35	76.86	0.071597
3	28.62	103.04	0.065278	35.88	129.17	0.05696	14.78	53.21	0.097332	22.08	79.49	0.076338
3.2	30.53	109.91	0.073768	38.28	137.81	0.064371	15.77	56.78	0.109979	23.55	84.78	0.086262
3.4	32.43	116.75	0.082762	40.67	146.42	0.072222	16.76	60.34	0.123376	25.03	90.11	0.096777
3.6	34.34	123.63	0.09226	43.06	155.02	0.080513	17.74	63.87	0.137523	26.5	95.4	0.10788
3.8	36.25	130.5	0.102262	45.45	163.62	0.089244	18.73	67.43	0.152419	27.97	100.7	0.11957
4	38.16	137.38	0.112766	47.84	172.23	0.098413	19.71	70.96	0.168063	29.44	105.99	0.131849
4.2	40.06	144.22	0.123772	50.24	180.87	0.108021	20.7	74.52	0.184454	30.91	111.28	0.144714
4.4	41.97	151.1	0.123528	52.63	189.47	0.118066	21.68	78.05	0.201592	32.39	116.61	0.158165
4.6	43.88	157.97	0.14729	55.02	198.08	0.12855	22.67	81.62	0.219477	33.86	121.9	0.172203

Being Muslim is for all day. Not just 5 times a day.

PRESSURE LOSS TABLE FOR BRIGHT WATER PE-100 PN-10 PIPES. (CALCULATED USING COLEBROOKE-WHITE FORMULA. K=0.20M)

D 200 mm				D 225 mm				D 250 mm				D 280 mm			
S 11,9 mm				S 13,4 mm				S 14,8 mm				S 16,5 mm			
DI 176,2 mm				DI 198,2 mm				DI 198,4 mm				DI 245,8 mm			
Vort m/s	Debye 1/s	Debye m³/h	J m/m	Debye 1/s	Debye m³/h	J m/m	Debye 1/s	Debye m³/h	J m/m	Debye 1/s	Debye m³/h	J m/m	Debye 1/s	Debye m³/h	J m/m
0.5	12.2	43.92	0.001342	15.43	55.55	0.001163	19.08	6869	0.001023	23.92	86.12	0.000892			
0.6	14.64	52.71	0.001869	18.52	66.68	0.001621	22.9	8244	0.001426	28.92	103.36	0.001244			
0.7	17.07	61.46	0.002477	21.6	77.76	0.002148	26.71	9616	0.00189	33.49	120.57	0.001649			
0.8	19.51	70.14	0.003163	24.69	88.89	0.002744	30.53	10991	0.002415	38.28	137.81	0.002108			
0.9	21.95	79.02	0.003927	27.77	99.98	0.003407	34.34	123.63	0.002999	43.06	155.12	0.002618			
1	2439	87.71	0.004767	30.86	111.10	0.004137	38.16	237.38	0.003642	47.84	172.23	0.003179			
1.1	26.83	96.59	0.005684	33.94	122.19	0.004934	41.97	151.10	0.004343	52.63	189.47	0.003792			
1.2	29.27	105.38	0.006676	37.03	133.31	0.005796	45.79	164.85	0.005102	57.41	206.68	0.004456			
1.3	31.7	114.12	0.007744	40.11	144.4	0.006723	49.60	178.56	0.005919	62.2	223.92	0.005169			
1.4	34.14	122.91	0.008887	43.2	155.52	0.007716	53.42	192.32	0.006794	66.98	241.13	0.005933			
1.5	36.58	131.69	0.010104	45.28	166.61	0.008773	57.23	206.03	0.007725	71.76	258.34	0.006747			
1.6	39.02	140.48	0.011395	49.37	177.74	0.009894	61.05	219.78	0.008713	76.55	275.58	0.007611			
1.7	41.46	149.26	0.01276	52.46	188.86	0.01108	64.86	233.5	0.009758	81.33	292.79	0.008524			
1.8	43.9	158.04	0.014198	55.54	199.95	0.01233	68.68	247.25	0.010859	86.11	310	0.009486			
1.9	46.33	166.79	0.01571	58.63	211.07	0.013644	72.49	260.97	0.012017	90.9	327.24	0.010498			
2	48.77	175.58	0.017295	61.71	222.16	0.015022	76.31	274.72	0.01323	95.68	344.45	0.011559			
2.1	51.21	184.36	0.018954	64.8	233.28	0.016463	80.12	288.44	0.0145	100.47	361.70	0.012669			
2.2	53.65	193.14	0.020685	67.88	244.37	0.017967	83.94	302.19	0.015826	105.25	378.9	0.013827			
2.3	56.09	201.93	0.022489	70.97	255.5	0.019535	87.75	315.9	0.017207	110.03	396.11	0.015035			
2.4	58.53	210.71	0.024366	74.05	266.58	0.021156	91.57	329.66	0.018644	114.82	413.36	0.016291			
2.5	60.96	219.46	0.026316	77.14	277.71	0.02286	95.38	343.37	0.020137	119.6	430.56	0.017596			
2.6	63.4	228.24	0.028337	80.22	288.8	0.024517	99.20	357.12	0.021685	124.39	447.81	0.018949			
2.7	65.84	237.03	0.030432	83.31	299.92	0.026247	103.01	370.84	0.023289	129.17	465.02	0.020351			
2.8	68.28	245.81	0.032598	86.39	311.01	0.028039	106.83	384.59	0.024948	133.95	482.22	0.021801			
2.9	70.72	254.60	0.034837	89.48	322.13	0.030265	110.64	398.31	0.026663	138.74	499.47	0.0233			
3	73.16	263.38	0.037148	92.56	333.22	0.032273	114.46	412.06	0.028432	143.52	516.68	0.024847			
3.2	78.03	280.91	0.041986	98.73	355.43	0.036478	122.09	439.53	0.032138	153.09	551.13	0.028086			
3.4	82.91	298.48	0.047112	104.91	377.68	0.040933	129.72	467.00	0.036063	162.66	585.58	0.031518			
3.6	87.79	316.05	0.052525	111.08	399.89	0.045537	137.35	497.46	0.040210	172.22	620.00	0.035142			
3.8	92.66	333.58	0.058225	117.25	422.10	0.050591	144.98	529.93	0.044576	181.79	654.45	0.038959			
4	97.54	351.15	0.064212	123.42	444.32	0.055795	152.61	549.4	0.049161	191.36	688.90	0.042968			
4.2	102.42	368.72	0.070486	129.59	466.53	0.061247	160.24	576.87	0.053967	200.93	723.35	0.047169			
4.4	107.29	386.25	0.077045	135.76	488.74	0.066949	167.87	604.34	0.058991	210.50	757.8	0.051561			
4.6	112.17	403.82	0.083891	141.93	510.95	0.072899	175.5	631.80	0.064235	220.06	792.22	0.056146			

D 315 mm				D 355 mm				D 400 mm				D 450 mm			
S 7,4 mm				S 8,3 mm				S 9,5 mm				S 10,7 mm			
DI 110,2 mm				DI 123,4 mm				DI 141,0 mm				DI 158,6 mm			
Vort m/s	Debye 1/s	Debye m³/h	J m/m	Debye 1/s	Debye m³/h	J m/m	Debye 1/s	Debye m³/h	J m/m	Debye 1/s	Debye m³/h	J m/m	Debye 1/s	Debye m³/h	J m/m
0.5	30.27	108.98	0.000774	38.43	138.35	0.000671	48.83	175.79	0.000581	61.77	222.38	0.000504			
0.6	36.32	130.76	0.00108	46.11	166	0.00936	58.59	210.93	0.0081	74.13	266.87	0.00704			
0.7	42.37	152.54	0.001432	53.8	193.68	0.01241	68.36	246.1	0.01075	86.48	311.33	0.00934			
0.8	48.42	174.32	0.00183	61.48	221.33	0.01586	78.12	281.24	0.01375	98.83	355.79	0.01195			
0.9	54.48	196.13	0.002273	69.17	249.02	0.001971	87.89	316.41	0.01708	111.19	400.29	0.001485			
1	60.53	217.91	0.002762	76.85	276.66	0.002394	97.65	351.54	0.002075	123.54	444.75	0.001814			
1.1	66.58	239.69	0.003294	84.54	304.35	0.002856	107.42	386.72	0.002476	135.9	489.24	0.002153			
1.2	72.63	261.47	0.003871	92.22	332	0.003357	117.18	421.85	0.00291	148.25	533.7	0.00253			
1.3	78.69	283.29	0.004491	99.91	359.68	0.003895	126.94	456.99	0.003377	160.6	578.16	0.002937			
1.4	84.74	305.07	0.005156	107.59	387.33	0.004472	136.71	492.16	0.003877	172.96	622.66	0.003372			
1.5	90.79	326.85	0.005863	115.27	414.98	0.005086	146.47	527.3	0.00441	185.31	667.12	0.003835			
1.6	96.84	348.63	0.006614	122.96	442.66	0.005737	156.24	562.47	0.004976	197.66	711.58	0.004327			
1.7	102.9	370.44	0.007408	130.64	470.31	0.006426	166	597.6	0.005573	210.02	756.08	0.004847			
1.8	108.95	392.22	0.008245	138.33	497.99	0.007153	175.77	632.78	0.006204	222.37	800.54	0.005396			
1.9	115	414	0.009125	14601	525.64	0.007916	185.53	667.91	0.006866	234.72	845	0.005972			
2	121.05	435.78	0.010047	153.70	553.32	0.008717	195.3	703.08	0.007561	247.08	889.49	0.006577			
2.1	127.11	457.6	0.0114012	161.38	580.97	0.009554	205.06	738.22	0.008288	259.43	933.95	0.007209			
2.2	133.16	479.38	0.01202	169.07	608.66	0.010429	214.83	773.39	0.009047	271.79	987.45	0.00787			
2.3	139.21	501.16	0.01307	176.75	636.30	0.01134	224.59	808.53	0.009838	284.14	1022.91	0.008558			
2.4	145.26	522.94	0.014162	184.44	663.99	0.012289	234.36	843.7	0.010661	296.49	1067.37	0.009274			
2.5	151.32	544.76	0.015297	192.12	691.64	0.013274	244.12	878.84	0.011515	308.85	1111.86	0.010018			
2.6	157.37	566.54	0.016474	199.81	719.32	0.014295	253.88	913.97	0.012402	321.2	1156.32	0.01079			
2.7	163.42	588.32	0.017693	207.49	746.97	0.015354	263.65	949.14	0.013321	333.55	1200.78	0.011589			
2.8	169.47	610.1	0.018954	215.17	774.62	0.016449	273.41	984.28	0.014271	345.91	1245.28	0.012416			
2.9	175.53	631.91	0.020258	222.86	802.30	0.01758	283.18	1019.45	0.015253	358.26	1289.74	0.013271			
3	181.58	653.69	0.021603	230.54	829.95	0.018748	292.94	1054.59	0.016267	370.61	1334.2	0.014153			
3.2	193.68	697.25	0.024420	245.91	885.28	0.021194	312.47	1124.90	0.018389	395.32	1423.16	0.016001			
3.4	205.79	740.85	0.027405	261.28	940.61	0.023784	332.00	1195.20	0.020638	420.03	1512.11	0.017958			
3.6	217.89	784.41	0.030558	276.65	995.94	0.026521	351.53	1265.51	0.023013	444.74	1601.07	0.020026			
3.8	230.00	828.00	0.033877	292.02	1051.28	0.029403	371.06	1335.82	0.025515	469.44	1689.99	0.022203			
4	242.10	871.56	0.037364	307.39	1106.61	0.032431	390.59	1406.13	0.028142	494.15	1778.94	0.02449			
4.2	254.21	915.16	0.041018	322.76	1161.94	0.035603	410.12	1476.44	0.030896	518.86	1897.90	0.026886			
4.4	266.31	958.72	0.044839	338.13	1217.27	0.03892	429.65	1546.74	0.033775	543.57	1956.86	0.029392			
4.6	278.42	1002.32	0.048826	353.50	1272.60	0.042382	449.18	1617.05	0.03678	568.27	2045.78	0.032008			

Stay close to anything that reminds you of ALLAH.

PRESSURE LOSS TABLE FOR BRIGHT WATER PE-100 PN-10 PIPES. (CALCULATED USING COLEBROOKE-WHITE FORMULA. K=0.20M)

D	500	mm		560	mm		630	mm		710	mm	
S	29.7	mm		33.2	mm		33.2	mm		42.1	mm	
DI	440.6	mm		493.6	mm		493.6	mm		625.8	mm	
Vort	Debye l/s	Debye	J/m	Debye	Debye l/s	J/m	Debye l/s	Debye m ³ /h	J/m	Debye l/s	Debye m ³ /h	J/m
0.5	76.24	274.47	0.000445	95.68	334.45	0.000388	121.05	435.78	0.000338	153.8	553.68	0.000293
0.6	91.49	329.37	0.000621	114.82	413.82	0.000542	145.26	522.94	0.000471	184.55	664.38	0.000409
0.7	106.73	384.23	0.000824	133.95	482.22	0.00072	169.47	610.1	0.000626	215.31	775.12	0.000543
0.8	121.98	439.13	0.001054	153.09	551.13	0.000921	193.68	697.25	0.000801	246.07	885.56	0.000695
0.9	137.23	494.03	0.00131	172.22	620	0.001144	217.89	784.41	0.000995	276.83	996.59	0.000864
1	152.47	548.9	0.001592	191.36	688.9	0.001391	242.1	871.56	0.00121	307.59	1107.33	0.001005
1.1	167.72	603.8	0.0019	210.5	757.8	0.00166	266.31	958.72	0.001444	338.85	1218.06	0.001254
1.2	182.97	658.7	0.002233	229.63	826.67	0.001952	290.52	1045.88	0.001698	369.1	1328.76	0.001474
1.3	198.21	713.56	0.002592	248.77	895.58	0.002265	314.73	1133.03	0.001971	399.86	1439.5	0.001711
1.4	213.46	768.46	0.002976	267.9	964.44	0.002601	338.94	1220.19	0.002264	430.62	1550.24	0.001965
1.5	228.71	823.36	0.003385	287.04	1033.35	0.002959	363.15	1307.34	0.002575	461.38	1660.97	0.002236
1.6	243.95	878.22	0.00382	306.17	1102.22	0.003339	387.36	1394.5	0.002906	492.14	1771.17	0.002523
1.7	259.2	933.12	0.004279	325.31	1171.12	0.003741	411.57	1481.66	0.003256	522.89	1882.41	0.002827
1.8	274.45	988.02	0.004764	344.44	1239.99	0.004165	435.78	1568.81	0.003625	553.65	1993.14	0.003148
1.9	289.69	1042.89	0.005273	363.58	1308.89	0.00461	459.99	1655.97	0.004012	584.41	2103.88	0.003484
2	304.94	1097.79	0.005807	382.72	1377.8	0.005077	484.2	1743.12	0.004419	615.41	2214.62	0.003838
2.1	320.19	1152.69	0.006365	401.85	1446.66	0.00556	508.41	1830.28	0.004845	645.93	2325.35	0.004207
2.2	335.43	1207.55	0.006949	420.99	1515.57	0.006076	532.62	1917.44	0.005289	676.69	2436.09	0.004593
2.3	350.68	1262.45	0.007557	440.12	1584.44	0.006608	556.83	2004.59	0.005752	707.44	2546.79	0.004996
2.4	365.93	1317.35	0.008189	459.26	1653.34	0.007161	581.04	2091.75	0.006234	738.2	2657.52	0.005414
2.5	381.18	1372.25	0.008846	478.39	1722.21	0.007736	605.25	2178.9	0.006734	768.96	2768.52	0.005849
2.6	396.42	1427.12	0.009528	497.53	1791.11	0.008332	629.46	2266.06	0.007254	799.72	2879.26	0.006306
2.7	411.67	1482.02	0.010234	516.66	1859.98	0.00895	653.67	2353.22	0.007792	830.48	2879	0.006768
2.8	426.92	1536.92	0.010965	535.8	1928.88	0.009589	677.88	2440.37	0.008348	861.23	2989.73	0.007251
2.9	442.16	1591.78	0.01172	554.93	1997.75	0.010249	702.09	2527.53	0.008923	891.99	3100.43	0.007751
3	457.41	1648.68	0.012499	574.07	2066.66	0.010931	726.29	2614.65	0.009517	922.75	3211.17	0.008267
3.2	487.9	1756.44	0.014131	612.34	2204.43	0.012359	774.71	2788.96	0.01076	984.27	3321.9	0.009347
3.4	518.4	1866.24	0.01586	650.61	2342.2	0.013871	823.13	2963.27	0.012078	1045.78	3433.38	0.010492
3.6	548.89	1976.01	0.017686	688.88	2479.97	0.015469	871.55	3137.58	0.013469	1107.3	3544.81	0.011701
3.8	579.38	2085.77	0.019609	727.15	2617.74	0.017152	919.97	3311.9	0.014934	1168.82	3656.28	0.012975
4	609.88	2195.57	0.02163	765.43	2755.55	0.018919	968.39	3486.21	0.016474	1230.33	3767.75	0.014312
4.2	640.37	2305.34	0.023747	803.7	2893.32	0.020771	1016.81	3660.52	0.018087	1291.85	3879.22	0.015714
4.4	670.86	2415.1	0.025961	841.97	3031.1	0.022708	1065.23	3834.83	0.019774	1353.37	3990.69	0.01718
4.6	701.36	2524.9	0.028271	880.24	3168.87	0.02473	1113.65	4009.14	0.021534	1414.88	4102.16	0.01871
D	600	mm		900	mm		1000	mm		1200	mm	
S	47.4	mm		53.3	mm		59.3	mm		70.6	mm	
DI	705.2	mm		793.4	mm		881.4	mm		1058.8	mm	
Vort	Debye l/s	Debye	J/m	Debye	Debye l/s	J/m	Debye l/s	Debye m ³ /h	J/m	Debye l/s	Debye m ³ /h	J/m
0.5	195.3	703.08	0.000254	247.2	889.92	0.000221	305.08	1098.29	0.00195	440.24	1480.3	0.000157
0.6	234.36	483.7	0.000355	296.64	1067.91	0.000309	366.09	1317.93	0.000273	528.29	1584.87	0.00022
0.7	273.47	984.28	0.000471	346.08	1245.89	0.00041	427.11	1537.6	0.000362	616.34	1901.85	0.000292
0.8	312.53	1124.9	0.000603	395.52	1423.88	0.000525	488.12	1757.24	0.000464	704.39	2218.83	0.000374
0.9	351.53	1265.51	0.00075	444.96	1616.86	0.000653	549.14	1976.91	0.000577	792.43	2535.81	0.000465
1	390.59	1406.13	0.000912	494.4	1779.84	0.000794	610.15	2196.54	0.000701	880.48	2852.75	0.000565
1.1	429.65	1546.74	0.001089	543.84	1967.83	0.000947	671.17	2416.22	0.000837	968.53	3169.73	0.000675
1.2	468.71	1687.36	0.00128	593.28	2135.81	0.001114	732.18	2635.85	0.000985	1056.53	3493.71	0.000794
1.3	507.76	1827.94	0.001486	642.72	2313.8	0.001294	793.18	2855.52	0.001143	1144.62	3824.66	0.000922
1.4	546.82	1968.56	0.001707	692.16	2491.78	0.001486	854.21	3075.16	0.001313	1232.67	4155.62	0.001059
1.5	585.88	2109.17	0.001942	741.6	2669.76	0.001691	915.23	3294.83	0.001494	1320.72	4487.66	0.001205
1.6	624.94	2249.79	0.002192	791.04	2847.75	0.001908	976.24	3514.47	0.001687	1408.747	4829.75	0.00136
1.7	664	2390.4	0.002456	840.48	3025.73	0.002138	1037.25	3734.14	0.00189	1496.81	5182.52	0.001524
1.8	703.06	2531.02	0.002735	889.92	323.72	0.002381	1098.25	3953.78	0.002104	1584.86	5587.5	0.001698
1.9	742.11	2671.6	0.003027	939.36	3381.7	0.002636	1159.29	4173.45	0.00233	1672.91	6022.48	0.00188
2	781.17	2812.22	0.003335	988.8	3559.68	0.002903	1220.3	4393.08	0.002566	1760.96	6339.46	0.00207
2.1	820.29	2952.83	0.003656	1038.23	3737.68	0.003183	1281.32	4612.76	0.002814	1849.01	6656.44	0.002279
2.2	859.29	3093.45	0.003991	1087.67	3915.62	0.003476	1342.32	4832.39	0.003072	1937.05	6973.38	0.002496
2.3	898.35	3234.06	0.004341	1137.11	4093.6	0.00378	1403.35	5052.06	0.003342	2025.1	7290.36	0.002723
2.4	937.41	3374.68	0.004705	1186.55	4271.58	0.004097	1464.36	5271.7	0.003622	2113.15	7607.34	0.00296
2.5	976.47	3515.3	0.005083	1235.99	4449.57	0.004427	1525.38	5491.37	0.003913	2201.2	7924.32	0.003202
2.6	1015.52	3655.88	0.005475	1285.43	4627.55	0.004768	1586.39	5711.01	0.0042105	2289.24	8241.27	0.003454
2.7	1054.58	3796.49	0.005882	1334.87	4805.54	0.005122	1647.41	5930.68	0.004528	2377.29	8558.25	0.003716
2.8	1093.64	3937.11	0.006302	1384.31	4983.52	0.005488	1708.41	6150.32	0.004852	2465.34	8875.23	0.004018
2.9	1132.7	4077.72	0.006736	1433.75	5161.50	0.005867	1769.44	6369.99	0.005187	2553.39	9192.21	0.004346
3	1171.76	4218.34	0.007185	1483.19	5339.49	0.006258	1830.45	6589.62	0.005532	2641.43	9509.15	0.00469
3.2	1294.87	4499.54	0.008124	1582.07	5695.46	0.007076	1952.48	7028.93	0.0062556	2817.53	10143.11	0.005668
3.4	1327.99	4780.77	0.009119	1680.95	6051.42	0.007943	2074.51	7458.24	0.007023	2993.62	10777.04	0.006322
3.6	1406.11	5062	0.01017	1779.83	6407.39	0.008858	2196.54	7907.55	0.007832	3169.72	11411	0.007011
3.8	1484.22	5343.2	0.011287	1878.71	6763.36	0.009823	2318.57	8346.86	0.0085685	3345.82	12044.96	0.007734
4	1562.34	5624.43	0.01244	1977.59	7119.3	0.010836	2440.6	8786.16	0.009581	3521.91	12678.88	0.008492
4.2	1640.46	5905.66	0.013659	2076.46	7475.26	0.011898	2562.63	9225.47	0.01052	3698.01	13312.84	0.009285
4.4	1718.57	6186.86	0.014934	2175.34	7831.23	0.013008	2684.66	9665.47	0.011502	3874.1	13946.76	0.010113
4.6	1796.69	6468.09	0.016264	2274.22	8187.2	0.014167	2806.69	10104.09	0.012527	4050.2	14580.72	0.011203

The greatest thing a friend can do for you is bring you closer to ALLAH.

SUPPLEMENTARY EQUIPMENT, EXTRA PARTS & ASSURANCE CONDITION

Bright Water – Butt Welding machine is provided as a set including the main machine with necessary equipment, set includes.

- ❖ The main machine chassis
- ❖ Hydraulic system
- ❖ Heating system
- ❖ Clamps inserts for any diameter
- ❖ Reduction and flange clamping apparatus

Together with machine set a spare thermocouple is provided.

Bright Water Butt – Welding machine is guaranteed for 1 year from the date of sales to the end of use.

The date of sales has to be proven through invoice and delivery receipt along with other important documents.

Any fault regarding products are Bright Water responsibility.

BRIGHT WATER HDPE - PE/100 PIPES BUTT WELDING PARAMETERS

Nominal Daimeter (DN) mm	Wall Thickness (s)mm	Hieght Bulge (11)mm	Non-Pressure Heating Time (t2) sec	Change-Over Time (t3) sec	Pressure Built Up Time (t4) sec	Cooling Time (t5) min	Total Welding Time (t) min
16	3	0.5	30	5	5	6	6.7
20	3.4	0.5	34	5	5	6	6.7
25	4.2	0.5	42	5	5	6	6.9
32	5.4	1	54	5	5	7.4	8.5
40	6.7	1	67	6	6	9.5	10.8
50	8.3	1.5	83	7	7	11.6	13.2
63	10.5	1.5	105	7	7	14.2	16.2
75	12.5	2	125	8	8	16.6	18.9
90	15	2	150	9	9	19.4	22.2
110	18.3	2	183	10	11	23.2	26.6
125	20.8	2.5	208	11	12	25.1	29.9
140	23.3	2.5	233	11	13	28.9	33.2
160	26.6	3	266	12	14	32.7	37.6
180	29.9	3	299	13	15	36.6	42.1
200	33.2	3	332	15	17	40.5	46.6
225	37.4	3.5	374	18	22	52.1	59
250	41.5	3.5	415	19	23	54.7	62.3
280	46.5	3.5	465	19	24	57.8	66.3
315	52.3	4	523	22	26	62.3	71.8
355	59	4	590	27	30	69	79.8
400	56.7	4	667	33	33	76.7	88.9

BRIGHT WATER HDPE - PE/100 PIPES BUTT WELDING PARAMETERS

Nominal Daimeter (DN) mm	Wall Thickness (s)mm	Hieght Bulge (11)mm	Non-Pressure Heating Time (t2) sec	Change-Over Time (t3) sec	Pressure Built Up Time (t4) sec	Cooling Time (t5) min	Total Welding Time (t) min
50	2.4	0.5	24	5	5	6	6.6
63	3	0.5	30	5	5	6	6.7
75	3.6	0.5	36	5	5	6	6.8
90	4.3	0.5	43	5	5	6	6.9
110	5.3	1	53	5	5	7.3	8.3
125	6	1	60	6	6	8.4	9.6
140	6.7	1	67	6	6	9.5	10.8
160	7.7	1.5	77	6	6	10.8	12.3
180	8.6	1.5	86	7	7	11.9	13.6
200	9.6	1.5	96	7	7	13.1	15
225	10.8	1.5	108	8	8	14.6	16.6
250	11.9	1.5	119	8	8	15.9	18.1
280	13.4	2	134	8	9	17.6	20.1
315	15	2	150	9	9	19.4	22.2
355	16.9	2	169	9	10	21.6	27.7
400	19.1	2.5	191	10	11	24.1	27.6
450	21.5	2.5	215	11	12	26.9	30.8
500	23.9	2.5	239	11	13	29.6	34
560	26.7	3	267	12	14	32.8	37.7
630	30	3	300	13	16	36.7	42.2
710	33.9	3.9	509	15	24	41.3	50.5
800	38.1	4.3	572	18	27	52.6	62.8
900	42.9	4.8	644	19	30	55.6	67.1
1000	47.7	5.3	716	20	33	58.6	71.4
1200	57.2	6.2	858	25	39	67.2	82.6
1400	66.7	7.2	1001	33	45	76.7	94.7
1600	76.2	8.1	1143	42	51	87.5	108.1

BRIGHT WATER HDPE - PE/100 PIPES BUTT WELDING PARAMETERS

Nominal Daimeter (DN) mm	Wall Thickness (s)mm	Hieght Bulge (11)mm	Non-Pressure Heating Time (t2) sec	Change-Over Time (t3) sec	Pressure Built Up Time (t4) sec	Cooling Time (t5) min	Total Welding Time (t) min
40	2.4	0.5	24	5	5	6	6.6
50	3	0.5	30	5	5	6	6.7
63	3.8	0.5	38	5	5	6	6.8
75	4.5	1	45	5	5	6	6.9
90	5.4	1	54	5	5	7.4	8.5
110	6.6	1	66	6	6	9.4	10.7
125	7.4	1.5	74	6	6	10.5	11.9
140	8.3	1.5	83	7	7	11.6	13.2
160	9.5	1.5	95	7	7	13	14.8
180	10.7	1.5	107	7	7	14.4	16.5
200	11.9	1.5	119	8	8	15.9	18.1
225	13.4	2	134	8	9	17.6	20.1
250	14.8	2	148	9	9	19.2	22
280	16.6	2	166	9	10	21.3	24.3
315	18.7	2	187	10	11	23.7	27.1
355	21.1	2.5	211	11	12	26.4	30.3
400	23.7	2.5	237	11	13	29.4	33.7
450	26.7	3	267	12	14	32.8	37.7
500	29.7	3	297	13	16	36.4	41.8
560	33.2	3	332	15	17	40.5	46.6
630	37.4	3.5	374	18	22	52.1	59
710	42.1	4.7	632	19	24	55.1	66.3
800	47.4	5.2	711	20	27	58.4	71
900	53.3	5.8	800	22	30	63.3	77.5
1000	59.3	6.4	890	27	33	69.3	85.1
1200	70.6	7.6	1059	36	39	81.3	100.2
1400	82.4	8.7	1236	45	45	93.3	115.4
1600	94.1	9.9	1412	54	51	105.3	130.6

Every test is a blessing every blessing is a Test.

BRIGHT WATER HDPE - PE/100 PIPES BUTT WELDING PARAMETERS

Nominal Daimeter (DN) mm	Wall Thickness (s)mm	Hieght Bulge (11)mm	Non-Pressure Heating Time (t2) sec	Change-Over Time (t3) sec	Pressure Built Up Time (t4) sec	Cooling Time (t5) min	Total Welding Time (t) min
40	3	0.5	30	5	5	6	6.7
50	3.7	0.5	37	5	5	6	6.8
63	4.7	1	47	5	5	6.3	7.3
75	5.6	1	56	5	5	7.8	8.9
90	6.7	1	67	6	6	9.5	10.8
110	8.1	1.5	81	6	6	11.3	12.9
125	9.2	1.5	92	7	7	12.6	14.4
140	10.3	1.5	103	7	7	14	15.9
160	11.8	1.5	118	8	8	15.8	18
180	13.3	2	133	8	9	17.5	20
200	14.7	2	147	9	9	19.1	21.8
225	16.6	2	166	9	10	21.3	24.3
250	18.4	2	184	10	11	23.3	26.7
280	20.6	2.5	206	10	12	25.8	29.6
315	23.2	2.5	232	11	13	28.8	33.1
355	26.1	3	261	12	14	32.1	36.9
400	29.4	3	294	13	16	36	41.4
450	33.1	3	331	15	17	40.4	46.4
500	36.8	3	368	16	19	44.8	51.5
560	41.2	3.5	412	19	23	54.5	62.1
630	46.3	3.5	463	19	24	57.7	66.1
710	52.2	5.7	783	22	24	62.2	76
800	58.8	6.4	882	27	27	68.8	84.4
900	76.2	7.1	993	32	30	76.2	93.8
1000	73.5	7.9	103	39	33	84.4	104

BRIGHT WATER HDPE - PE/100 PIPES BUTT WELDING PARAMETERS

Nominal Daimeter (DN) mm	Wall Thickness (s)mm	Hieght Bulge (11)mm	Non-Pressure Heating Time (t2) sec	Change-Over Time (t3) sec	Pressure Built Up Time (t4) sec	Cooling Time (t5) min	Total Welding Time (t) min
32	3	0.5	30	5	5	6	6.7
40	3.7	0.5	37	5	5	6	6.8
50	4.6	1	46	5	5	6.2	7.1
63	5.8	1	58	6	6	8.1	9.2
75	6.8	1	68	6	6	9.7	11
90	8.2	1.5	82	6	6	11.4	13
110	10	1.5	100	7	7	13.6	15.5
125	11.4	1.5	114	8	8	15.3	17.4
140	12.7	2	127	8	8	16.8	19.2
160	14.6	2	146	9	9	19	21.7
180	16.4	2	164	9	10	21	24.1
200	18.2	2	182	10	11	23.1	26.5
225	20.5	2.5	205	10	12	25.7	29.5
250	22.7	2.5	227	11	13	28.2	32.4
280	25.4	2.5	254	12	14	31.3	36
315	28.6	3	286	13	15	35.1	40.3
355	32.2	3	322	14	17	39.3	45.2
400	36.3	3	363	16	19	44.2	50.8
450	40.9	3.5	409	18	23	54.3	61.8
500	45.4	3.5	454	19	24	57.1	65.4
560	50.8	4	508	21	25	60.8	70
630	57.2	4	572	25	29	67.2	77.6
710	64.5	7	968	31	32	74.5	91.7

BRIGHT WATER HDPE - PE/100 PIPES BUTT WELDING PARAMETERS

Nominal Daimeter (DN) mm	Wall Thickness (s)mm	Hieght Bulge (11)mm	Non-Pressure Heating Time (t2) sec	Change-Over Time (t3) sec	Pressure Built Up Time (t4) sec	Cooling Time (t5) min	Total Welding Time (t) min
25	3	0.5	30	5	5	6	6.7
32	3.6	0.5	36	5	5	6	6.8
40	4.5	1	45	5	5	6	6.9
50	5.6	1	56	5	5	7.8	8.9
63	7.1	1.5	71	6	6	10.1	11.5
75	8.4	1.5	84	7	7	11.7	13.3
90	10.1	1.5	101	7	7	13.7	15.6
110	12.3	2	123	8	8	16.3	18.7
125	14	2	140	9	9	18.3	20.9
140	15.7	2	157	9	10	20.2	23.2
160	17.9	2	179	10	11	22.7	26.1
180	20.1	2.5	201	10	11	25.3	29
200	22.1	2.5	224	11	12	27.9	32
225	25.2	2.5	252	12	14	31.1	35.7
250	27.9	3	279	13	15	34.3	39.4
280	31.3	3	313	14	16	38.3	44
315	35.2	3	352	15	18	42.9	49.3
355	39.7	3.5	397	18	22	53.6	60.9
400	44.7	3.5	447	19	24	56.7	64.9
450	50.3	4	503	20	25	60.3	69.4
500	55.8	4	558	24	28	65.8	76
560	62.2	4	622	29	31	72.2	83.6

BRIGHT WATER HDPE - PE/100 PIPES BUTT WELDING PARAMETERS

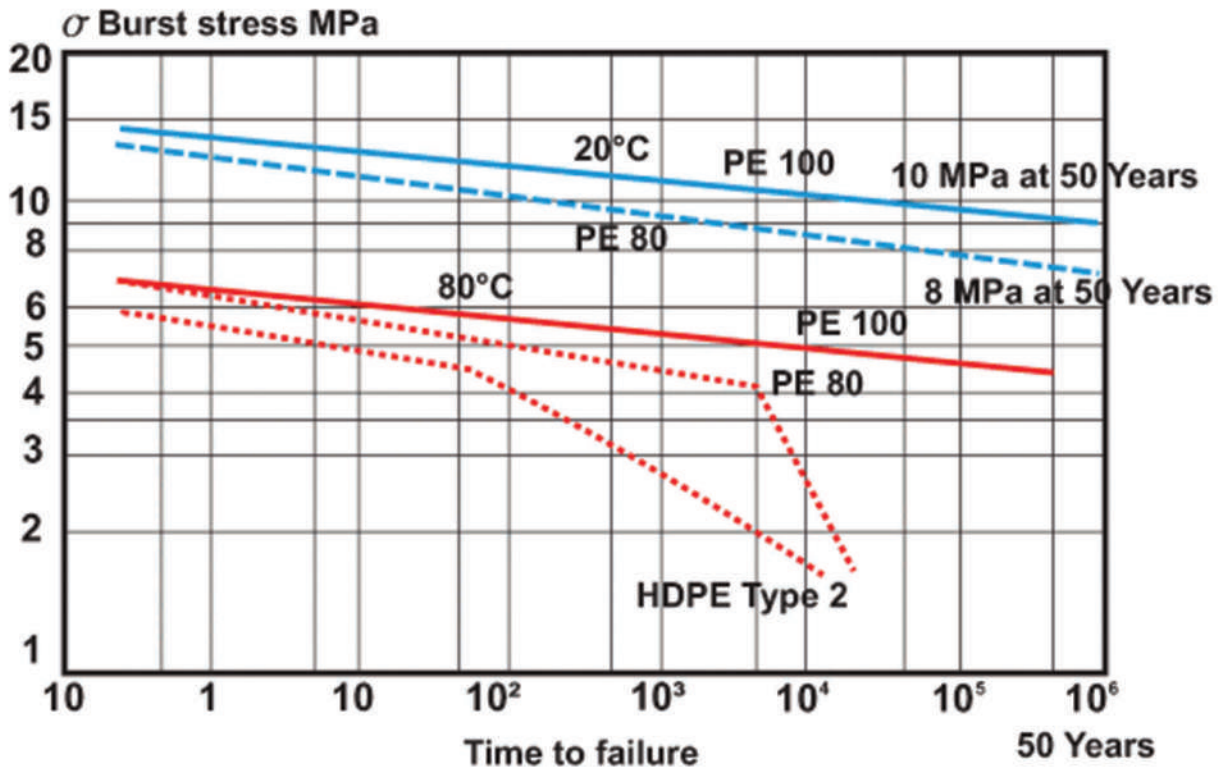
Nominal Daimeter (DN) mm	Wall Thickness (s)mm	Hieght Bulge (11)mm	Non-Pressure Heating Time (t2) sec	Change-Over Time (t3) sec	Pressure Built Up Time (t4) sec	Cooling Time (t5) min	Total Welding Time (t) min
20	3	0.5	30	5	5	6	6.7
25	3.5	0.5	35	5	5	6	6.8
32	4.4	0.5	44	5	5	6	6.9
40	5.5	1	55	5	5	7.8	8.7
50	6.9	1	69	6	6	9.8	11.2
63	8.6	1.5	86	7	7	11.9	13.6
75	10.3	1.5	103	7	7	14	15.911
90	12.3	2	123	8	8	16.3	8.7
110	15.1	2	151	9	9	19.5	22.4
125	17.1	2	171	9	10	21.8	25
140	19.2	2.5	192	10	11	24.2	27.8
160	21.9	2.5	219	11	12	27.3	31.3
180	24.6	2.5	246	12	13	30.4	34.9
200	27.4	3	274	13	15	33.7	38.7
225	30.8	3	308	14	16	37.7	43.3
250	34.2	3	342	15	18	41.7	47.9
280	38.3	3.5	383	18	22	52.7	59.7
315	43.1	3.5	431	19	23	55.7	63.6
355	48.5	3.5	485	20	25	59.1	67.9
400	54.7	4	547	24	27	64.7	74.7
450	61.5	4	615	29	31	71.5	82.7

Balance your dunya around your Deen. It's All a matter of priorities.

SERVICE LIFE OF PE PIPES

The production design of PE 100 pipes is done for a service life of 50 years. So the minimum service life of PE 100 pipes is 50 years.

The curve in the figure below the change in the phy properties PE 100 pipes in time.



STORAGE

Pipe in packages should be kept on a working, plane surface, and outside should be supported by support of safety the height of the stacked packages should not exceed 3m. The separate pipes which are not in packages should be stacked as a pyramid not higher than 1m, and the bottom layer of pipes should be fixed by wedges. In some places under the bottom pipes it is necessary to place wooden bars on distance of 1m. pipes in reels should in a horizontal position, especially in warm weather, and on a firm, smooth surface. It is necessary. That the bottom reel was steady, the height of the stacked reels should not exceed 2.5m at all.



One who remembers ALLAH is never AloneLY.

TRADEMARK
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