



ISO CERTIFIED COMPANY



HDPE HIGH DENSITY POLYETHYLENE PIPES



HDPE PIPE & FITTINGS

PRODUCT OF
NATIONAL POLYMER INDUSTRIES LTD.



BUET

HDPE PIPE
HDPE COUPLER
HDPE DUCT PIPE

Test

Department of Mechanical Engineering
BUET, Dhaka

TEST REPORT OF HDPE DUCT PIPE

11/11/19

TEST RESULTS

Sl. No.	Test Name	Standard	Result	Remarks
1	Visual Inspection	ASME B31.12	Pass	
2	Dimensional Check	ASME B31.12	Pass	
3	Hydrostatic Test	ASME B31.12	Pass	

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ABOUT US :

National Polymer is one of the premier conglomerates in Bangladesh. It was founded in 1987 at Squibb Road, Tongi I/A, Tongi Gazipur with a view to provide piping solutions, building materials solutions and household solutions to its valued customers. Its plant area covers about 15 acres of land while its Corporate Headquarter is situated at NPOLY HOUSE: GA-99/3, Pragati Shoroni, Middle Badda, Dhaka-1212, Bangladesh. It conducts business countrywide, driven by the passion to be the best with a team of unique professionals.

National Polymer was officially incorporated in 26 June 1987 as a public Limited Company and started its commercial operations during the same year. Later it was listed with Dhaka Stock Exchange Ltd. (DSE) in 1991 & Chittagong Stock Exchange Ltd. (CSE) in 1995. Now it is growing up successfully in multiple sectors. Striving to implement the practical initiatives required for achieving its vision and guided by a relentless focus on values, the group maintains close relations with its target customer thereby guaranteeing quality HDPE Pipe, PE-100, PE-80 & PE-63 & Cable Ducts, uPVC, PPR, CPVC pipes and fittings, PVC Doors, Sheet, Fall Ceiling, Water Tank, Water Tap and Plastic Household Items & Furniture and also efficient service to its valued customers.

National Polymer believes in delivering operational excellence to meet commitments. For the progression of its mission, it has diversified products and growing to be one of the largest industrial conglomerates of the country. With diversification and Research and Development of products it has earned reputation among Bangladeshi people and also abroad as a manufacturer of premium quality products and services.

The Company maintains high standards of quality and is able to guarantee highly professional service to meet up the customers' demand. The Company's product quality has attained a level which paved the way for the Company to receive internationally acknowledged quality management system certification ISO 9001:2015 & 14001:2015, 45001:2018.

HIGH DENSITY POLYETHYLENE PIPES

POLYETHYLENE PIPE (PE PIPE)

PE pipe (polyethylene pipe) has been produced in the world since the mid-1950s. Since then, PE use and the number of applications for PE pipe (polyethylene pipe) has grown enormously, due to its versatility and the advantages it offers over iron, steel and cement systems.

WHY POLYETHYLENE PIPE (PE PIPE)

Properties and specifications of plastics - particularly polyethylene - has increased trends of their usage in industry only in short time after their production.

The flexibility of PE pipe (polyethylene pipe) allows cost savings in installation. Trenchless technology can avoid the need for open trenches and reduce the disturbance to the public and environment by pulling long lengths of polyethylene pipes through holes below ground bored by mechanical moles.

FEATURES: LONG LIFE

As against only a few years life of conventional pipes such as C.I., PVC, GI, Steel, Cement, etc, the calculated life of HDPE pipes & ducts is 50 years at normal working temperature and pressure.

TOUGH & STRONG

The pipes bear high impact resistance and are thus strong and resilient to withstand static and dynamic loads due to internal (fluid) as well as external (soil) pressures. Rough handling, traffic loads and even freezing conditions do not cause the pipe to break or crack.

LIGHT WEIGHT

As HDPE pipes & ducts are many times lighter than conventional pipes, transportation and installation is easy and very cost effective.

SMOOTH INNER SURFACE

In addition to the smooth external surface, the pipes & ducts have an extremely smooth inner surface too, thus offering very low frictional resistance to fluid flow. Further, the non-adhering characteristics of HDPE allow even solid particles to be carried along the fluids inside the pipes.



FLEXIBLE

HDPE pipes & ducts are extremely flexible and bend without cracking. This property enables long lengths of the small diameter pipe to be transported as coils thus saving on joints.

INERT TO CHEMICALS

The pipes possess excellent resistance to chemicals making them suitable for handling most of the corrosive acids and also alkalis. The pipes are completely neutral to chemicals and hence widely useful in chemical plants.

NON-HAZARDOUS

Due to its property of being non toxic and inert, HDPE is non hazardous. This enables HDPE pipes to be used for conveyance of potable water.

CORROSION RESISTANT

Resistance to electrolytic as well as galvanic corrosion make HDPE pipes & ducts best suited for underground installations.

LOWER THERMAL CONDUCTIVITY

The fluid transportation in HDPE PIPES remains at a more uniform temperature than in other types of pipes. This is due to the lower thermal conductivity of HDPE as a result of which the transfer of heat on the outer surface from the atmosphere is much slower. Further, due to the superior elongation property of HDPE PIPES., they can be used in very cold climatic conditions too, where there is any likelihood of the fluids freezing within the pipe. As the temperature goes down to subzero, the pipe simply expands to accommodate the volumetric expansion of the fluid. This excellent property is unlike in most other conventional pipes which would crack due to their rigidity.

HIGH ELECTRICAL RESISTANCE

As the dielectric strength of HDPE is very high; the pipes are extensively used as electrical conduits. No stray electrical currents can be transmitted from outside.

PE PIPE APPLICATIONS

- Urban and rural water supply networks
- Urban and rural sewage networks
- Drainage networks
- Fluid systems and industrial sewage
- Pressurized irrigation systems (Drip and sprinkler irrigation system)
- Moving irrigation systems
- Telecommunication cable coverings / optical fiber coverings
- Power cable covering
- Metal pipe covering
- Ventilation channels

PE ADVANTAGES

- Safety of potable water and long-term reliability
- Resistance to corrosion, tuberculation, deposits
- Flexibility to speed installations
- Freeze-break resistance
- Lightweight, easy to transport
- Low scrap value, avoiding jobsite theft
- Durability and toughness to survive jobsite installations
- No flame used for joining, with many fitting and joining options
- Recyclable, eco-friendly material
- Heat fusible for virtually leak-free performance

GENERAL CHARACTERISTICS

Appearance

When viewed without magnification, the internal & external surfaces of pipes shall be smooth, clean and free from scoring; cavities and other surface defects such as would prevent conformity of the pipe to this part of ISO 4427. The pipe ends shall be cut cleanly and square to the axis of the pipe.



COLOR

The pipes shall be either blue or black with blue strips. For coated pipes in accordance with Annex A, This applies to the coating.

Blue pipes or black pipes with blue stripes are intended for drinking water only.

For above-ground installations, all blue components and components with nonblack layers should be protected from direct UV light.

EFFECT ON WATER QUALITY

When used under the conditions for which they are designed, materials in contact with, or likely to come into contact with, drinking water shall not constitute a toxic hazard, shall not support microbial growth and shall not give rise to an unpleasant taste, to cloudiness or to discoloration of the water.

The concentrates of substances, chemicals and biological agents leached from materials in contact with drinking water, and measurements of the relevant organoleptic/physical parameters, shall not exceed the maximum values recommended by the World Health Organization (WHO) or as required by EC Council Directive 98/83/EC, whichever is the more stringent in each case.

MECHANICAL CHARACTERISTICS

Conditioning

Unless otherwise specified in the applicable test method, the best pieces shall be conditioned at $(23\pm 2)^\circ\text{C}$ prior to testing.

REQUIREMENTS

The test pieces shall be tested in accordance with Table 2 of Standard ISO 4427-2:2007. When tested using the test method and parameters specified therein, the pipe shall have mechanical characteristics conforming to the requirements of Table 2 of Standard ISO 4427-2:2007.

PHYSICAL CHARACTERISTICS

Conditioning

Unless otherwise specified in the applicable test method, the test pieces shall be conditioned at $(23\pm 2)^\circ\text{C}$ prior to testing.

Requirements

The test pieces shall be tested in accordance with Table 3 of Standard ISO 4427-2:2007. When tested using the test method and parameters specified therein, the pipe shall have physical characteristics conforming to the requirements of Table 3 of Standard ISO 4427-2:2007.



HDPE Conduit Pipe

Item Name	Thickness
HDPE D/L Pipe 1/2" (Black & Blue)	2.00 - 2.20 mm
HDPE D/L Pipe 3/4" (Black & Blue)	2.20 - 2.40 mm
HDPE D/L Pipe 1.00" (Black & Blue)	2.20 - 2.40 mm
HDPE D/L Pipe 1.25" (Black & Blue)	2.20 - 2.40 mm
HDPE D/L Pipe 1.50" (Black & Blue)	2.40 - 2.60 mm
HDPE D/L Pipe 2.00" (Black & Blue)	3.00 - 3.40 mm



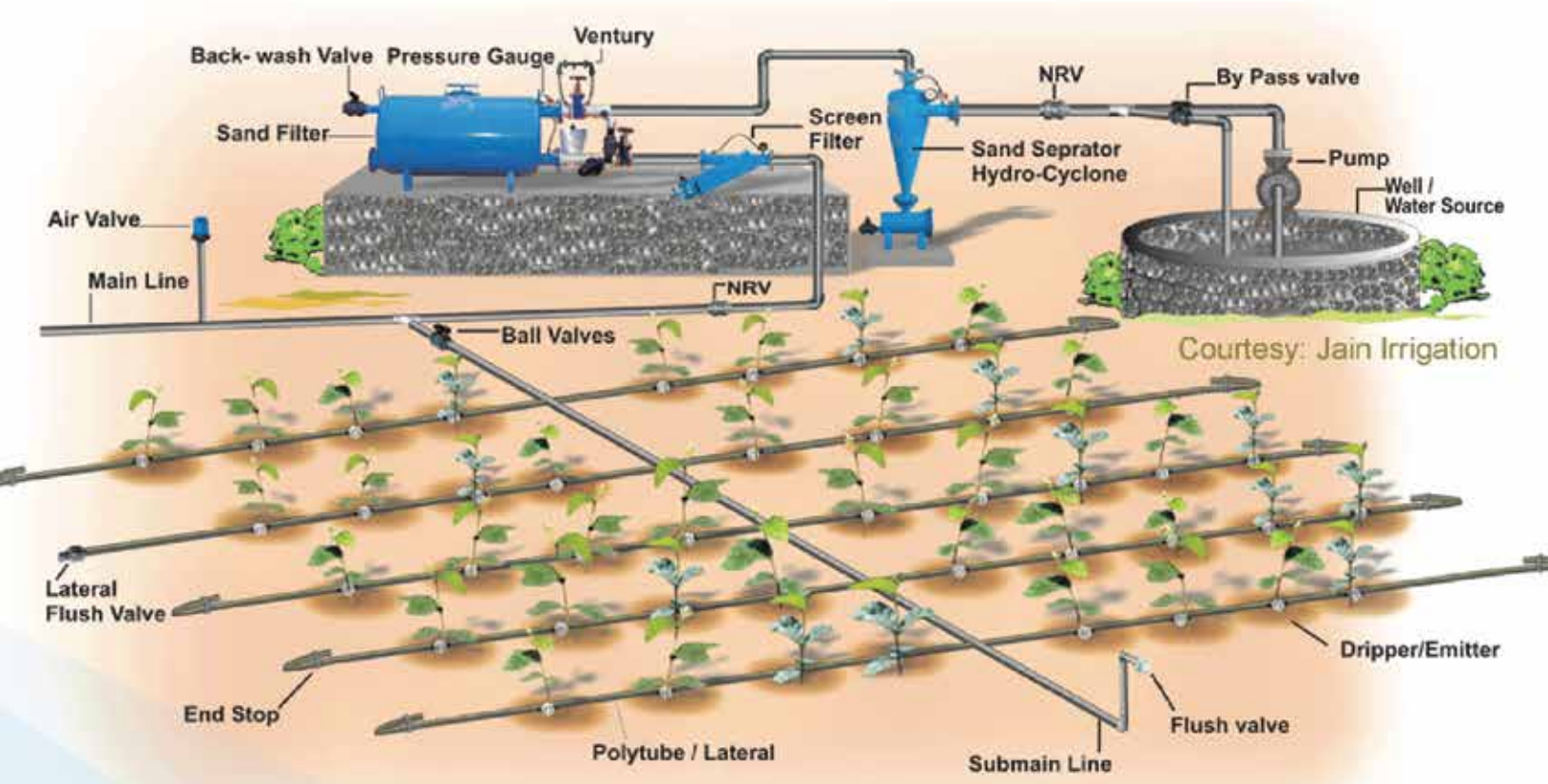
HDPE Coil Pipe

Item Name	Thickness
HDPE Coil Pipe 1/2"	2.00 - 2.20 mm
HDPE Coil Pipe 3/4"	2.20 - 2.40 mm
HDPE Coil Pipe 1.00"	2.20 - 2.40 mm
HDPE Coil Pipe 1.25"	2.20 - 2.40 mm
HDPE Coil Pipe 1.50"	2.50 - 2.60 mm
HDPE Coil Pipe 2.00"	4.00 mm

Drip Irrigation

Drip irrigation or trickle irrigation is a type of micro-irrigation system that has the potential to save water and nutrients by allowing water to drip slowly to the roots of plants, either from above the soil surface or buried below the surface. The goal is to place water directly into the root zone and minimize evaporation. Drip irrigation systems distribute water through a network of valves, pipes, tubing, and emitters.

National Polymer Group dripline technologies provide efficient, flexible and cost-effective solutions for a wide range of crops in diverse conditions, tailored to varied customer needs. Our extensive product range includes pressure-compensating driplines, traditional driplines, thin-walled driplines, button drippers and LayFlats.





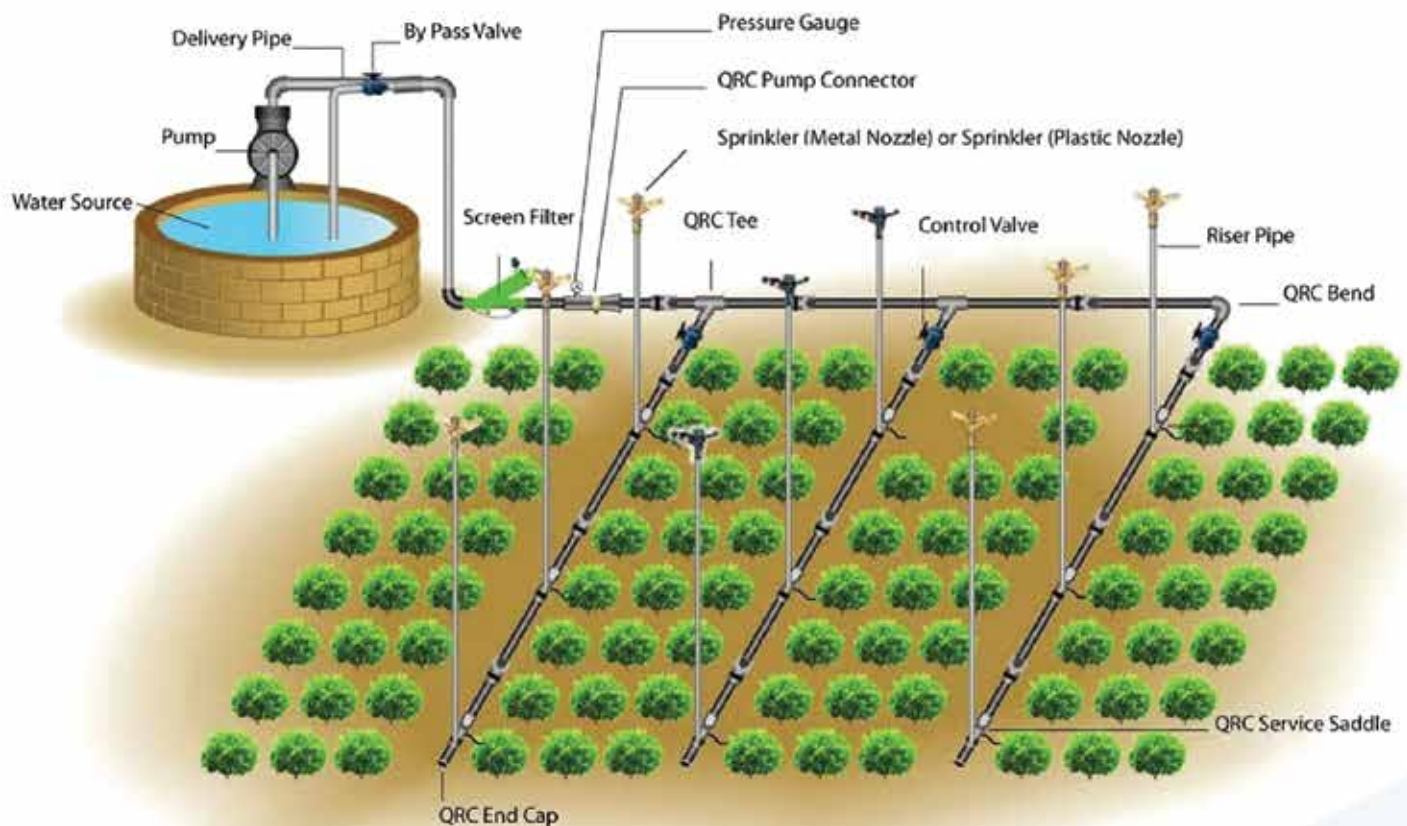
Advantages of Drip Irrigation Are:

- Fertilizer and nutrient loss is minimized due to localized application and reduced leaching.
- Water application efficiency is high if managed correctly.
- Field leveling is not necessary.
- Fields with irregular shapes are easily accommodated.
- Recycled non-potable water can be safely used.
- Moisture within the root zone can be maintained at field capacity.
- Soil type plays less important role in frequency of irrigation.
- Soil erosion is lessened.
- Weed growth is lessened.
- Water distribution is highly uniform, controlled by output of each nozzle.
- Labor cost is less than other irrigation methods.
- Variation in supply can be regulated by regulating the valves and drippers.
- Fertilization can easily be included with minimal waste of fertilizers.
- Foliage remains dry, reducing the risk of disease.
- Usually operated at lower pressure than other types of pressurized irrigation, reducing energy costs.



Sprinkler Irrigation

Sprinkler irrigation is a method of applying irrigation water which is similar to natural rainfall. Water is distributed through a system of pipes usually by pumping. It is then sprayed into the air through sprinklers so that it breaks up into small water drops which fall to the ground. The pump supply system, sprinklers and operating conditions must be designed to enable a uniform application of water.



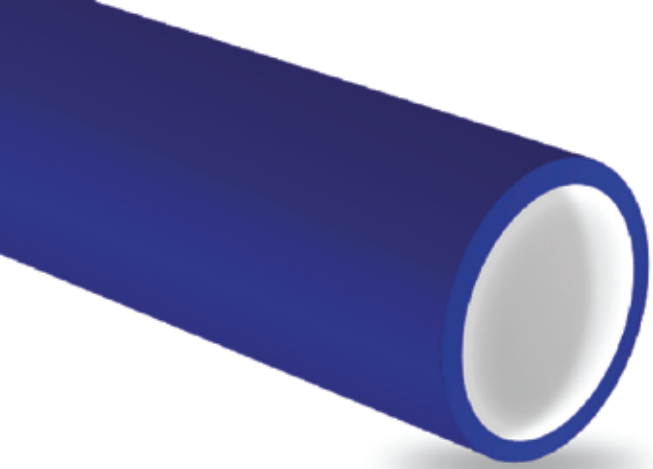
Layout of Sprinkler Irrigation System



Advantages of Sprinkler Irrigation System Are:

- Water measurement is easier than surface irrigation system.
- Less interference with cultivation and less land loss.
- Higher application efficiency.
- High and frequent application can be effectively accomplished.
- Easy mechanization and automation.





HDPE Duct Pipe

A) Plane or Smooth Wall:

It is a nonmetallic flexible conduit manufactured from High Density Polyethylene (HDPE) for use in underground and inner duct applications. Smooth wall offers superior protection, increases pathways of existing duct systems, allows extra network for future cabling needs, and is ideal for jetting cable. Available in a wide range of sizes, colors, and options.

Applications: Underground (direct bury), or placed inside existing duct finner duct)

Installation methods: Plowing, open/continuous trench, directional boring or pulled through existing conduits.

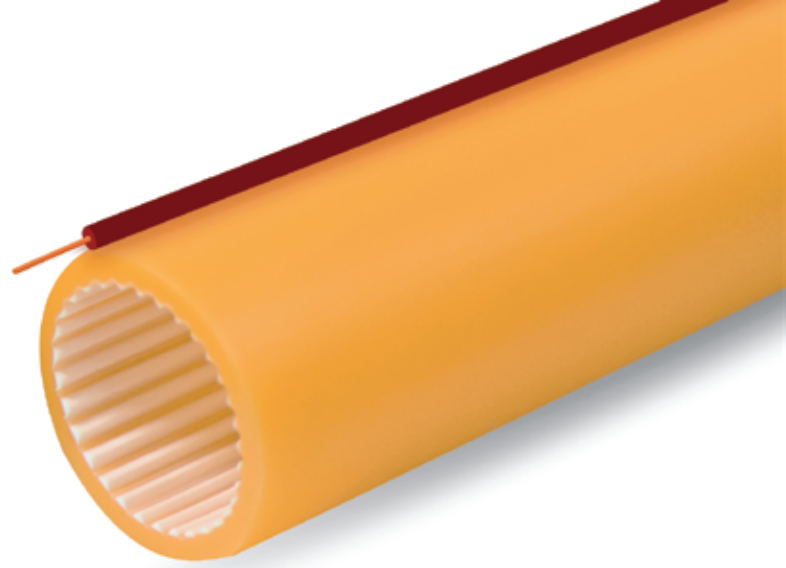
B) Ribbed Wall Inner Dia HDPE:

Ribbed Wall is perfect for pulling or jetting cable. Interior ribs reduce surface contact with cable during installation. It is a non metallic flexible duct manufactured from High Density Polyethylene (HDPE) for using in underground and inner duct applications. Ribbed Wall offers superior protection, increases pathways of existing duct systems, allowing additional channels for future cabling needs. Available in a wide range of sizes, colors, and options.

Applications: Underground (direct bury), or placed inside existing duct (inner duct)

Installation methods: Plowing, open/continuous trench, directional boring or pulled through existing conduits.





C) Traceable Duct/ Pin point :

Pin point is perfect for pulling or jetting cable as well as for accurate depth measurement and network tracking when maintenance is needed.

Interior straight or spiral ribs reduce surface contact with cable during installation. It is a flexible duct integrated Copper Tracer Wire manufactured from High Density Polyethylene (HDPE) for using in underground and inner duct applications. The nature of installation (underground) is very much difficult to verify the adherence to specifications. Navana pin point duct helps overcome such problems that could lead to faults and consequently costly repairs. The strength and quality of Telecom Network is highly dependent upon proper depth of installation as per design.

The co-extruded highly conductive copper wire coated in HDPE along with the length of the duct transmits a signal that can be easily received by a Duct Locator. The signals give the exact depth and location of duct.

Applications: Underground (direct bury), or placed inside existing duct (inner duct)

Installation methods: Plowline, open/continuous trench, directional boring or pulled through existing conduits.

Standard Dimensions

S.No.	Duct Size (m.m)	Outer Dia (m.m)	Wall Thickness (m.m)
01	25/21	25 + 0.3	2.0 ± 0.2
02	29/23	29 + 0.3	3.0 ± 0.2
03	32/26	32 ± 0.3	3.0 ± 0.2
04	32/27	32 + 0.3	2.5 ± 0.2
05	40/33	40 ± 0.4	3.5 ± 0.2
06	50/42	50 ± 0.5	4.0 ± 0.3
07	50/43	50 ± 0.5	3.5 ± 0.3
08	60/53	60 ± 0.6	3.5 ± 0.5
09	63/57	63 ± 0.6	3.0 ± 0.6
10	75/65	75 ± 0.7	5.0 ± 0.7
11	85/75	85 ± 0.8	5.0 ± 0.8
12	90/79	90 ± 0.9	5.5 ± 0.8
13	110/96	110 ± 1.0	7.0 ± 1.0

General Specification

S.No.	Particulars	Description
01	Per Sectional Length:	12, 150, 250, 500, 1000 meter or As per Customer Requirement.
02	Color	Blue, orange, green, pink, yellow, red, brown, purple, grey, black or any other colors.
03	Strip	Any color strips over duct.
04	Marking	Ledger printed sequential meter marking or as per customer requirement
05	Silicote Inner Layer	Permanently lubricated Silicote inner layer.

Technical Specification

S.No.	Item	Specification	ASTM Test Standard
01	Heat Reversion	930 to 958 kg/m ² at 27°	ASTM D1238
02	Crash Resistance	0.2 to 10 gms per 10 min at 190° under 5 kg load	IS 2530-1963
03	Tensile strength	Dimension shall not change by more than 3%	ISO 2505/ ASTM D1238
04	Elongation at break	Deflection with load not greater than 10%	ASTM D2412
05	Impact Test	Newton/mm ² Min. 20	ASTM F2160/ BS 2782
06	Appearance	%	ASTM F2160/ BS 2782
07	Lubricated layer	Duct shall not crack or split	ASTM D2693
08	Flattening test	No crack or split	
09	Lubricated layer Thickness	No swelling, leakage or bursting	ISO 1167
10	Minimum coil length	<0.06	
11	Color	> 30 min	
12	Hardness	Must have solid lubricant, clearly visible and white in color, uniform layer.	
13	Lubricated Layer thickness	Should be minimum 10% of wall thickness.	
14	Ash Content of Duct	<0.3%	
15	Operating Pressure During Blow	≥ 10 Bar	
16	Wall Thickness	As per customer's requirement	
17	Diameter	As per customer's requirement	

Spec. (D/d)	O.D. (mm)		Thickness (mm)		Ovality (%)		Bend Radius(mm)
	Nom.	Tolerance	Nom.	Tolerance	Before coiled	After coiled	
Ø40/33	40	+0.4	3.5	+0.35	≤2.5	≤3.5	400
		-0		-0			
Ø50/40	50	+0.4	5	+0.35	≤2.5	≤3.5	500
		-0		-0			
Ø63/54	63	+0.4	4.5	+0.35	≤2.5	≤3.5	630
		-0		-0			



HDPE Pipe Polyethylene Pipe for Water Supply / Drainage System

ISO 4427-2 : 2007 (E)

			SDR 6	SDR 7.4	SDR 9	SDR 11
			S 2.5	S 3.2	S 4	S 5
PE 40				PN 10	PN 8	
PE 63						PE 10
PE 80			PN 25	PN 20	PN 16	PN 12.5
PE 100				PN 25	PN 20	PN 16

Nominal Size	Diameter, mm		Ovality Max	Wall Thickness, mm							
	dn Min	dn Max		e Min	e Max	e Min	e Max	e Min	e Max	e Min	e Max
16	16	16.3	1.2	3	3.4	2.3	2.7	2	2.3	-	-
20	20	20.3	1.2	3.4	3.9	3	3.4	2.3	2.7	2	2.3
25	25	25.3	1.2	4.2	4.8	3.5	4	3	3.4	2.3	2.7
32	32	32.3	1.3	5.4	6.1	4.4	5	3.6	4.1	3	3.4
40	40	40.4	1.4	6.7	7.5	5.5	6.2	4.5	5.1	3.7	4.2
50	50	50.4	1.4	8.3	9.3	6.9	7.7	5.6	6.3	4.6	5.2
63	63	63.4	1.5	10.5	11.7	8.6	9.6	7.1	8	5.8	6.5
75	75	75.5	1.6	12.5	13.9	10.3	11.5	8.4	9.4	6.8	7.6
90	90	90.6	1.8	15	16.7	12.3	13.7	10.1	11.3	8.2	9.2
110	110	110.7	2.2	18.3	20.3	15.1	16.8	12.3	13.7	10	11.1
125	125	125.8	2.5	20.8	23	17.1	19	14	15.6	11.4	12.7
140	140	140.9	2.8	23.3	25.8	19.2	21.3	15.7	17.4	12.7	14.1
160	160	161	3.2	26.6	29.4	21.9	24.2	17.9	19.8	14.6	16.2
180	180	181.1	3.6	29.9	33	24.6	27.2	20.1	22.3	16.4	18.2
200	200	201.2	4	33.2	36.7	27.4	30.3	22.4	24.8	18.2	20.2
225	225	226.4	4.5	37.4	41.3	30.8	34	25.2	27.9	20.5	22.7
250	250	251.5	5	41.5	45.8	34.2	37.8	27.9	30.8	22.7	25.1
280	280	281.7	9.8	46.5	51.3	38.3	42.3	31.3	34.6	25.4	28.1
315	315	316.9	11.1	52.3	57.7	43.1	47.6	35.2	38.9	28.6	31.6
355	355	357.2	12.5	59	65	48.5	53.5	39.7	43.8	32.2	35.6
400	400	402.4	14	-	-	54.7	60.3	44.7	49.3	36.3	40.1
450	450	452.7	15.6	-	-	61.5	67.8	50.3	55.5	40.9	45.1
500	500	503	17.5	-	-	-	-	55.8	61.5	45.4	50.1
560	560	563.4	19.6	-	-	-	-	62.5	68.9	50.8	56
630	630	633.8	22.1	-	-	-	-	70.3	77.5	57.2	63.1



SDR 13.6	SDR 17	SDR 21	SDR 26	SDR 33	SDR 41
S 6.3	S 8	S 10	S 12.5	S 16	S 20
PN 5	PN 4				
PN 8		PN 5	PN 4	PN 3.2	PN 2.5
PN 10	PN 8	PN 6	PN 5	PN 4	PN 3.2
PN 12.5	PN 10	PN 8	PN 6	PN 5	PN 4

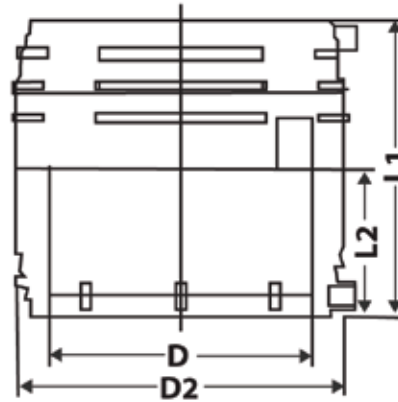
Wall Thickness,mm											
e Min	e Max	e Min	e Max	e Min	e Max	e Min	e Max	e Min	e Max	e Min	e Max
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
2	2.3	-	-	-	-	-	-	-	-	-	-
2.4	2.8	2	2.3	-	-	-	-	-	-	-	-
3	3.5	2.4	2.8	2	2.3	-	-	-	-	-	-
3.7	4.2	3	3.4	2.4	2.8	2	2.3	-	-	-	-
4.7	5.3	3.8	4.3	3	3.4	2.5	2.9	-	-	-	-
5.6	6.3	4.5	5.1	3.6	4.1	2.9	3.3	-	-	-	-
6.7	7.5	5.4	6.1	4.3	4.9	3.5	4	-	-	-	-
8.1	9.1	6.6	7.4	5.3	6	4.2	4.8	-	-	-	-
9.2	10.3	7.4	8.3	6	6.7	4.8	5.4	-	-	-	-
10.3	11.5	8.3	9.3	6.7	7.5	5.4	6.1	-	-	-	-
11.8	13.1	9.5	10.6	7.7	8.6	6.2	7	-	-	-	-
13.3	14.8	10.7	11.9	8.6	9.6	6.9	7.7	-	-	-	-
14.7	16.3	11.9	13.2	9.6	10.7	7.7	8.6	-	-	-	-
16.6	18.4	13.4	14.9	10.8	12	8.6	9.6	-	-	-	-
18.4	20.4	14.8	16.4	11.9	13.2	9.6	10.7	-	-	-	-
20.6	22.8	16.6	18.4	13.4	14.9	10.7	11.9	-	-	-	-
23.2	25.7	18.7	20.7	15	16.6	12.1	13.5	9.7	10.8	7.7	8.6
26.1	28.9	21.1	23.4	16.9	18.7	13.6	15.1	10.9	12.1	8.7	9.7
29.4	32.5	23.7	26.2	19.1	21.2	15.3	17	12.3	13.7	9.8	10.9
33.1	36.6	26.7	29.5	20.5	23.8	17.2	19.1	13.8	15.3	11	12.2
36.8	40.6	29.7	32.8	23.9	26.4	19.1	21.2	15.3	17	12.3	13.7
41.2	45.5	33.2	36.7	26.7	29.5	21.4	23.7	17.2	19.1	13.7	15.2
46.3	51.1	37.4	41.3	30	33.1	24.1	26.7	19.3	21.4	15.4	17.1

Electrofusion Fitting Series

Coupler

Size	D2	L1	L2
90	113	135	66.5
110	138	151	74.5
125	157	172	85
160	200	184	91
180	225	191	94.5
200	250	223	110.5
225	278	235	116.5
250	312	248	123
280	348	262	130
315	392	285	145
400	499	328	163
500	617	364	181

Specification



Drawing

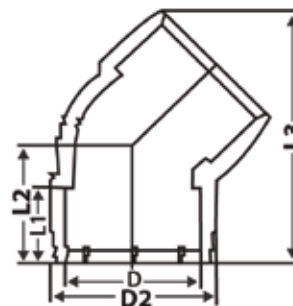


Picture

45 Degree Bend

Size	D2	L1	L2	L3
90	113	66.5	96	199
110	138	74.5	109	230
125	157	85	128	268.5
160	200	91	142.5	307.8
180	225	94.5	155	336.3
200	250	110.5	177	382.7

Specification



Drawing



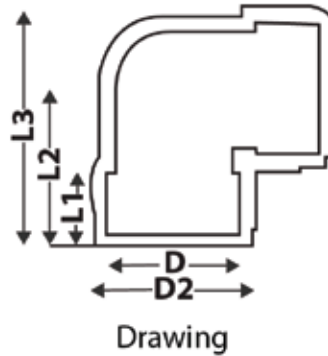
Picture

Electrofusion Fitting Series

90 Degree Bend



Picture



Drawing

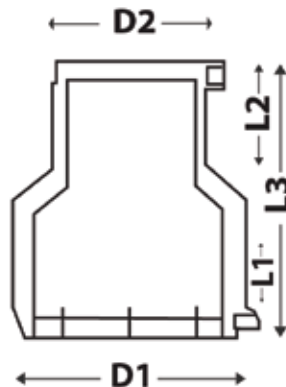
Size	D2	L1	L2	L3
90	113	66.5	124	180.3
110	138	74.5	145	214
125	157	85	165	243.2
160	200	91	194	294
180	225	94.5	210	322.6
200	250	110.5	240	365.6

Specification

Reducer



Picture



Drawing

Size	D1	D2	L1	L2	L3
75*63	96	79	62	56	135
75*50	96	63	62	43	126.5
90*63	113	79	66.5	56	144.5
90*50	113	63	66.5	43	131.5
90*63	113	52	66.5	43	133.5
110*90	138	113	74.5	66.5	162
110*63	138	79	74.5	56	153.5
110*50	138	63	75.6	43	143.5
125*110	157	138	85	74.5	180.5
160*110	200	138	91	74.5	197.5
160*90	200	113	91	66.5	191.5
160*63	200	79	91	56	190
200*169	250	200	110.5	91	236.5
200*110	250	138	110.5	74.5	225
200*90	250	113	110.5	66.5	224.3

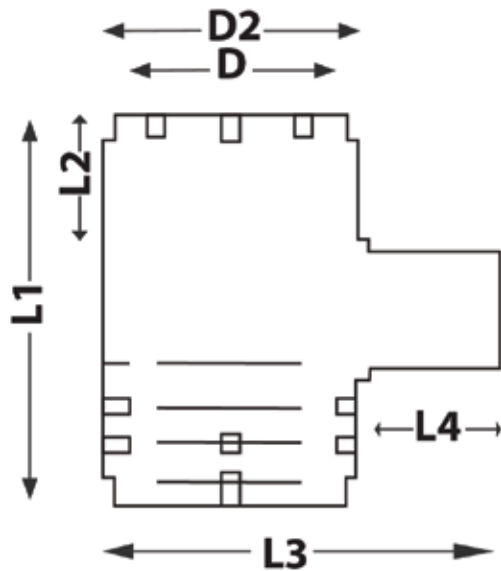
Specification

Electrofusion Fitting Series

Reducing Tee



Picture



Drawing

Size	D2	L1	L2	L3	L4
75*63	96	190	62	174	70
90*32	113	168	66.5	167	50
90*40	113	176	66.5	172	55
90*50	113	186	66.5	178	60
90*63	113	199	66.5	190.5	70
110*32	138	184	74.5	192.2	50
110*40	138	192	74.5	197.2	55
110*50	138	202	74.5	203	60
110*63	138	215	74.5	215.7	70
110*90	138	242	74.5	232	85
125*63	156	236	85	235	70
125*75	156	248	85	240	75
125*90	156	263	85	251	85
125*110	156	283	85	259	90
160*63	200	248	91	278	70
160*90	200	275	91	295	85
160*110	200	315	91	303	90
200*63	250	315	110.5	329	70
200*90	250	385	110.5	345	85
200*110	250	385	110.5	353	90
200*160	250	385	110.5	378	110

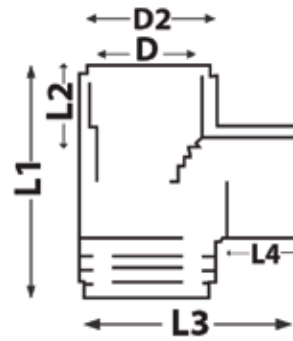
Specification

Electrofusion Fitting Series

Plane Tee

Size	D2	L1	L2	L3	L4
90	113	226	66.5	207	85
110	138	262	74.5	240	90
125	156	298	85	262	90
160	200	340	91	328	110
200	250	425	110.5	390	120

Specification



Drawing

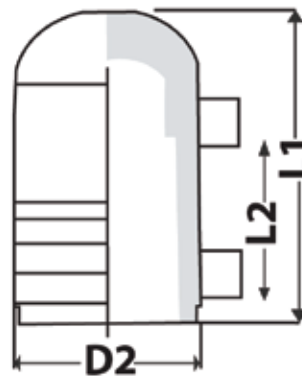


Picture

End Cap

Size	D2	L1	L2
90	113	111	66.5
110	138	132	74.5
125	157	158.4	85
160	200	168	91
200	250	201.6	110.5

Specification



Drawing



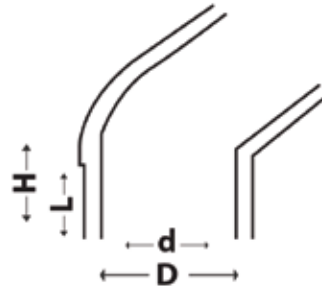
Picture

Spigot Fitting Series Sockets Fusion Fitting Series

45 Degree Bend

Size	D	H	L
90	73	108.1	80
110	89	115.9	82
160	130	145.7	98
200	161	179	115
250	200	210	133
315	255	248.4	153

Specification



Drawing

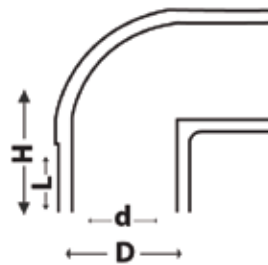


Picture

90 Degree Bend

Size	D	H	L
90	73	135	80
110	89	149	82
160	130	194	98
200	161	235	115
250	200	281	133
315	255	343	153

Specification



Drawing



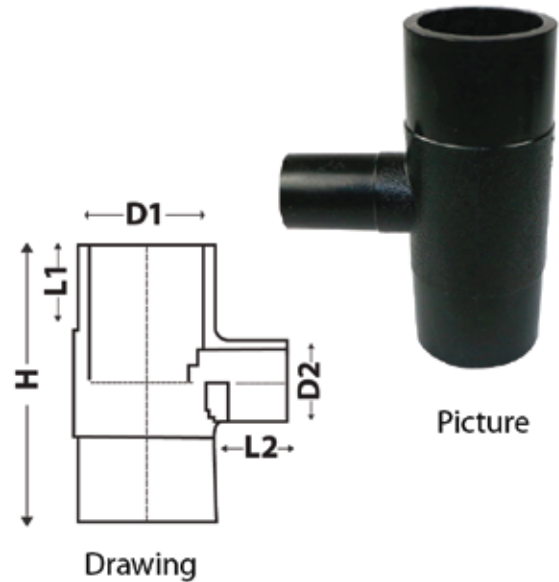
Picture

Spigot Fitting Series Sockets Fusion Fitting Series

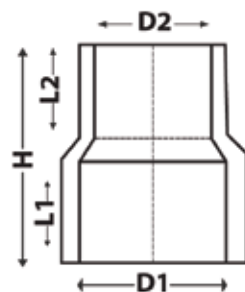
Reducing Tee

Size	D1	D2	L1	L2	H
110*90	89	73	82	80	277
160*63	130	47	98	63	288
160*75	130	58	98	70	300
160*90	130	73	98	80	315
160*110	130	89	98	82	336
200*110	161	89	115	85	379
200*160	161	130	115	101	429
250*160	200	130	133	101	472
250*200	200	161	133	115	512
315*200	255	161	153	115	564
315*250	255	200	153	133	615

Specification



Reducer



Size	D1	D2	L1	L2	H
110*90	89	73	82	80	175
160*63	130	47	98	63	206
160*75	130	58	98	70	213
160*90	130	73	98	80	233
160*110	130	89	98	82	218
200*110	161	89	112	82	273
200*160	161	130	112	98	239
250*160	200	130	130	98	280
250*200	200	161	130	112	280
315*200	255	161	153	115	326
315*250	255	200	153	133	326

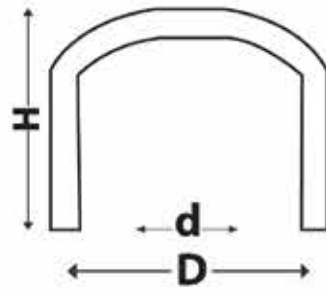
Specification

Spigot Fitting Series Sockets Fusion Fitting Series

End Cap



Picture



Drawing

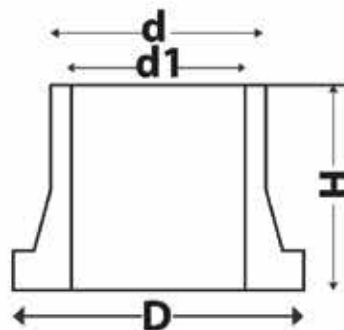
Size	d	H
90	73	95
110	89	101
160	130	125
200	161	146
250	200	172
315	255	203

Specification

Flange



Picture



Drawing

Size	D	d1	L
90	138.5	73	120
110	158.5	89	125
160	212.5	130	150
200	268.5	161	190
250	321	200	200
315	371	255	200

Specification

Spigot Fitting Series Sockets Fusion Fitting Series

Saddle Clamp



Picture

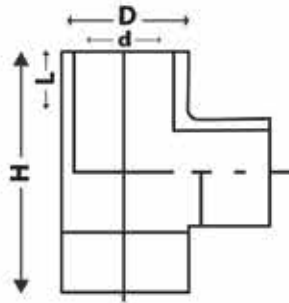
Size	Size	Size
75° 1/2"	90° 1"	160° 3/4"
75° 3/4"	110° 1/2"	160° 1"
75° 1"	110° 3/4"	200° 1/2"
90° 1/2"	110° 1"	200° 1 ^{3/4} "
90° 3/4"	160° 1/2"	200° 1"

Specification

Plane Tee



Picture



Drawing

Size	D	H	L
90	73	270	80
110	89	298	82
160	130	388	98
200	161	469	115
250	200	562	133
315	255	681	153

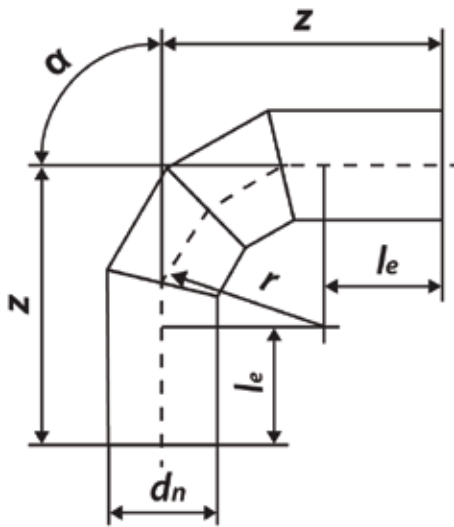
Specification

Fabricated Fitting Series Segmented Bends

90 Degree Bend



Picture



Drawing

Normal outside diameter d_n	Minimum tubular length of fittings $L_{e, min}$	Normal bend radius r	Normal branch length z	Normal angle of fittings α
90	150	135	300	Tolerance of $\pm 2^\circ$ and the maximum tolerance for pipe bends shall be $\pm 5^\circ$
110	150	165	380	
125	150	188	400	
140	150	210	440	
160	150	240	480	
180	150	270	530	
200	150	300	560	
225	150	338	590	
250	250	375	730	
280	250	420	750	
315	300	477	900	
355	300	533	1000	
400	300	600	1050	
450	300	675	1150	
500	300	750	1300	
560	300	840	1350	
630	350	945	1600	

Specification

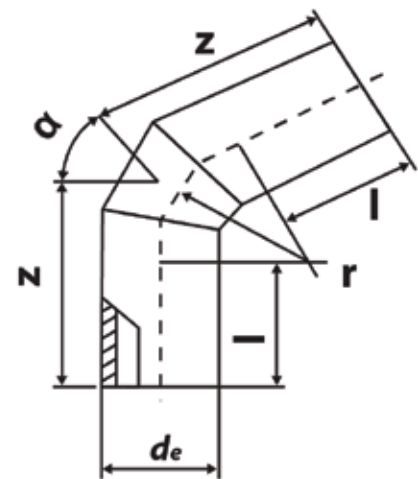
Fabricated Fitting Series Segmented Bends

45 Degree Bend

Norminal outside diameter d_n	Minimum tubular length of fittings $L_{e, min}$	Norminal bend radius r	Norminal branch length z	Norminal angle of fittings α
90	150	135	220	Tolerance of $\pm 2^\circ$ and the maximum tolerance for pipe bends shall be $\pm 5^\circ$
110	150	165	240	
125	150	188	250	
140	150	210	270	
160	150	240	330	
180	150	270	350	
200	150	300	360	
225	150	338	380	
250	250	375	490	
280	250	420	510	
315	300	477	560	
355	300	533	630	
400	300	600	670	
450	300	675	750	
500	300	750	900	
560	300	840	950	
630	350	945	1000	



Picture

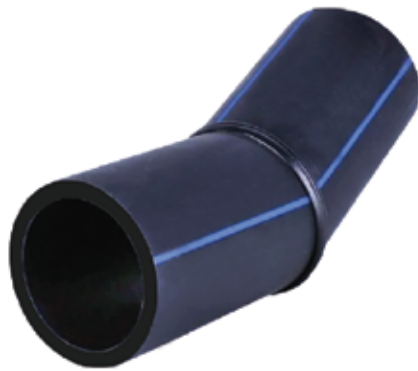


Drawing

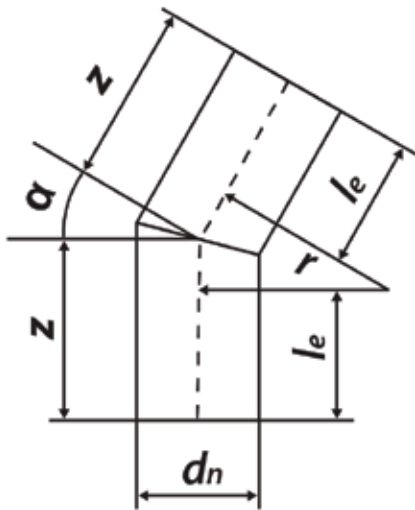
Specification

Fabricated Fitting Series Segmented Bends

30 Degree Bend



Picture



Drawing

Normal outside diameter d_n	Minimum tubular length of fittings $L_{e, min}$	Normal bend radius r	Normal branch length z	Normal angle of fittings α
90	150	135	135	Tolerance of $\pm 2^\circ$ and the maximum tolerance for pipe bends shall be $\pm 5^\circ$
110	150	165	193	
125	150	188	199	
140	150	210	204	
160	150	240	212	
180	150	270	220	
200	150	300	228	
225	150	338	237	
250	250	375	347	
280	250	420	359	
315	300	477	423	
355	300	533	437	
400	300	600	455	
450	300	675	474	
500	300	750	544	
560	300	840	567	
630	350	945	595	

Specification

Fabricated Fitting Series Segmented Bends

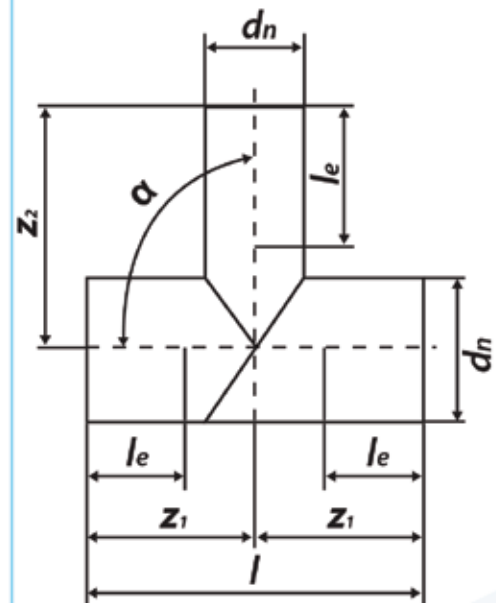
Plane Tee

Norminal outside diameter d_n	Minimum tubular length of fittings $L_{e, min}$	Norminal bend radius L	Norminal branch length Z_2	Norminal angle of fittings $\alpha=90^\circ$
90	150	500	250	Tolerance of $\pm 2^\circ$ and the maximum tolerance for pipe bends shall be $\pm 5^\circ$
110	150	500	250	
125	150	500	250	
140	150	500	250	
160	150	500	250	
180	150	600	300	
200	150	600	300	
225	150	600	300	
250	250	750	375	
280	250	1176	588	
315	300	1200	600	
355	300	1360	680	
400	300	1400	700	
450	300	1450	725	
500	300	1600	800	
560	300	1660	830	
630	350	1730	866	

Specification



Picture



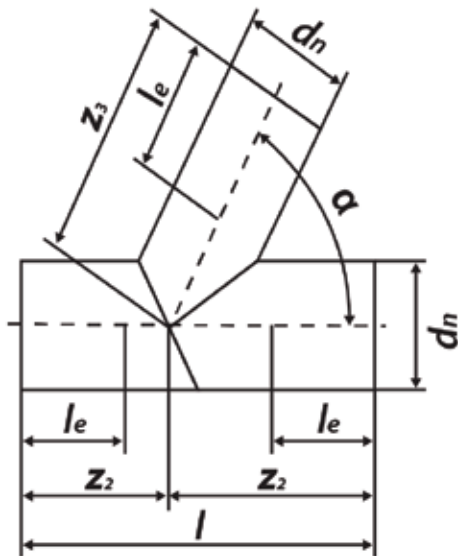
Drawing

Fabricated Fitting Series Segmented Bends

Y-Tee



Picture



Drawing

Normal outside diameter d_n	Minimum tubular length of fittings $L_{e, min}$	Normal bend radius r	Normal branch length Z_3	Normal angle of fittings $\alpha=60^\circ$
90	150	700	430	Tolerance of $\pm 2^\circ$ and the maximum tolerance for pipe bends shall be $\pm 5^\circ$
110	150	700	430	
125	150	750	450	
140	150	780	480	
160	150	850	520	
180	150	950	590	
200	150	960	590	
225	150	1080	660	
250	250	1150	710	
280	250	1250	750	
315	300	1350	820	
355	300	1450	880	
400	300	1550	950	
450	300	1850	1200	
500	300	2050	1400	
560	300	2100	1400	
630	350	2200	1500	

Specification



Butt Fusion Welding

Size	PN	SDR	Heater Plate Temperature	Heating Time	Joint Pressure	Cooling Time	Bead Size, mm	
MM	Bar		Deg C	Sec	MPa	MPa	Min	Max
75	10	17	220	80	1.5	120	8	15
90	10	17	220	90	1.5 - 2.0	180	8	15
110	10	17	220	120	2.0 - 2.5	220	9	16
160	10	17	220	240	2.5 - 3.0	240	9	16
200	10	17	220	240	2.5 - 3.0	240	10	17
250	10	17	220	240	2.5 - 3.0	240	10	17
315	10	17	220	600	3.0 - 3.5	450	14	23
400	10	17	220	600	3.0 - 3.5	480	15	24
450	10	17	220	600	3.5 - 4.0	600	16	25
500	10	17	220	600	4.0 - 4.5	600	16	25

HDPE Butt Fusion Jointing

Butt-fusion procedure For HDPE pipes & Fittings

Butt Fusion is the most important and widely used method of connection for HDPE pipes larger than 110 mm. It is a method of jointing pipe ends by way of heating and cooling under pressure, resulting in pipe joints as strong as the pipe itself.

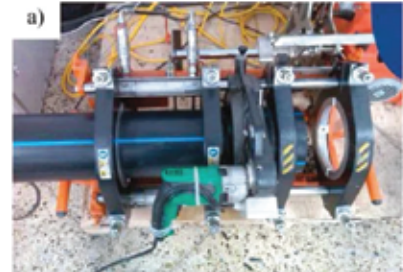
The principle of butt fusion is to heat the pipe ends to a designated temperature (200-220 C) under pressure for a specified amount of time, then the pipe ends are fused together under pressure for a period of time.

A preparation before welding is necessary. Get ready of the pipes & fittings, and correct butt welding machine as per pipe dimension. Insert two pipes ends on both side of the machine clamps, adjust the alignment of pipe line by tightening or losing bronze nuts on the top aluminum clamps, and clean outside and inside pipe surface.

The major procedure of butt welding including 4 steps:

a). Milling process

Insert the facing tool or trimmer between the two pipe ends into the lock position on the welding machine, Start the facing tool or trimmer by turning on the control switch. Slowly approach the pipe ends towards the facing tool or trimmer by controlling the directional valve on hydraulic control unit while keeping control pressure a little higher. The cutter will cut the surface of both pipe ends making them clean, plane and parallel.



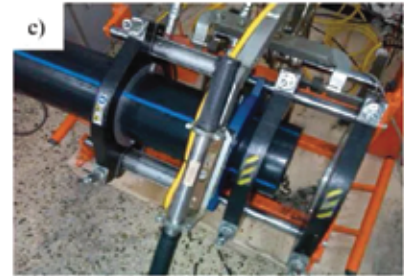
b). Effect after milling

Remove the facing tool or trimmer from welding machine to the support frame and clear the facing scraps from pipe ends. Inspect the ends, they must be clean and plane; otherwise repeat the step 3 – 5 again. During the clearing and inspection, avoid any contact with the surface of pipe ends

c). Heating Process

Check the heating plate temperature on the setting range; cleaning both heating plate side with cleaning agent and insert its back to support while waiting for welding operation to start.

To start with the welding process, begin with the alignment stage by inserting the heating plate between the two pipe ends, moving both pipe ends close together until contact with the heating plate. Start the build up pressure to the alignment pressure level ($P1 + \text{drag pressure}$), maintain the pressure until there are welding seam appear. In this stage, the uniform bead should had been created between the heating plate throughout the whole circumference of both pipe ends. Continue to the heating-up stage by reducing pressure and maintaining the heating-up pressure level ($P2$) along heating-up time ($T2$)



d). Cooling Process

Open both pipe ends, carefully remove the heating plate without touching the melted area and see to it that the removing time should not be longer than the changeover time ($T3$), insert heating plate to the support. Immediately increase pressure up to the joining pressure level ($P3 + \text{drag pressure}$) within the joining pressure built-up time ($T4$). Uniform beads must be created throughout the whole circumference of the pipe joints. Maintain or Keep the joining pressure constant throughout the cooling time ($T5$) or until the welding joint cools down. Avoid forced cooling down by applying water.



HDPE Pipe Polyethylene Pipe for Dredging System

Dredging work becomes more & more popular today, the HDPE pipe has been the most ideal option for the transportation under pressure of liquids, with a mixture of water and inert such as clay, silt, sand, gravel and solids of large size. HDPE Dredge Pipes are made by High Density Polyethylene material and can be produced in various dimensions. The dredge pipes are manufactured and welded with two HDPE flange adapter and two steel flanges, which also called as "HDPE flanged pipe", from which two pipes can be connected together easily by flanges and covered with floaters to keep on floating above the sea. Dredger pipes are preferred for agricultural applications, dredge of mud, mining projects. Dredge HDPE Pipes are using together with floaters filled by Polyurethane (foam) material. Some projects need to use with rubber hoses for the river or ocean dredger applications.



HDPE Dredging Solution:

Flange Ring Measurement								Bolt Specification	Washer Specification
SL	Size	MS Ring Plate (ΦOD)	MS Ring Plate (ΦID)	MS Plate Thickness (ΦIT)	No. of Hole	Hole (ΦD)	Hole to Hole Distance (ΦD)	Nut & Bolt Size (Full Thread) OD X Length (Free Length)	Washer Size OD X ID X Thick
01	450	595	464	25 ± 2	20	25 ± 1	551	22 X 180	45 X 23 X 2.5
02	500	678	520	25 ± 2	20	28 ± 1	624	25 X 200	50 X 25.5 X 2.5
03	560	738	580	25 ± 2	20	28 ± 1	684	25 X 200	50 X 25.5 X 2.5
04	630	808	650	25 ± 2	20	28 ± 1	754	25 X 200	50 X 25.5 X 2.5
05	710	888	730	25 ± 2	20	28 ± 1	834	25 X 200	50 X 25.5 X 2.5



Rubber Hose Specification

Inner Diametet (ΦD)	PCD (ΦD1)	MS Ring Outer Dia (ΦOD)	Length (L)	Thickness (T)	Working Pressure
mm / inch	mm	mm	mm	mm	bar
450 / 18	626	680	2000	25	10
520 / 20	700	764	2000	25	10



Pe Floater Technical Parameter

Item	Case Function Target	Item	Inside Technical Index
Raw material	Linear Polyethylene Resign	Filing Material	Polyethylene Foam
Tensil Strength	≥ 12 MPa		
Elongation at Breaking	≥ 10%	Breaking Strength	0.18 - 0.24 MPa
		Elongation at Breaking	4 - 6%
Bending Strength	≥ 15.7 MPa	Compressive Strength	0.10 - 0.24 MPa
		Heat - Resistance	60°C - 80°C

LAB Test Arrangement :

We are maintaining the high tech lab test facilities and ensure the good quality products for our customers. Below is a list of tests currently offered by Bengal Plastic pipes Ltd. These tests are performed in accordance with:

- * Tensile Test
- * Hydrostatic pressure test. (Result show in computerize).
- * Opacity Test.
- * Impact Test.
- * Density Test.
- * Heat Reversion Test



Test Report (BSTI)

Page 45 of 45

BANGLADESH STANDARDS AND TESTING INSTITUTION
Ministry of Industries
15/A, Tejgaon Industrial Area, Dhaka-1215
E-mail Address: bsi@bsi.gov.bd, Phone: 88001 88100

TEST REPORT

Test Report No: 211554

Customer's Reference No: 20170603015224311879	Lab. Reference No: 31,01,04,06,08,09,10,11,2016,09/2017
Date of receipt: 06-12-2017	Date of testing: 13-12-2017
Identification of test item: PE (2016011215) 110 mm dia HDPE Pipe (PN-8), PE 100 (casted on surface) Brand Name: National Polymer Supplied By: MEN, ZY & CE Lda, Dhaka, (Bangladesh)	Sampling place: Not mentioned
Name and address of customer: Executive Engineer, DPIS, Roadside Division, Savar, Dhaka	Test method used: BS EN ISO 4427-1 & 2:2014

Condition of the test item: Sample is received in good condition with sealed and signed.

Sl No.	Description of Tests	Standard Limits	Test results
1.	Colour	Black for colour pipe or black or black with blue edges	Black with blue edges
2.	Minimum outside diameter in mm	Min ^o 110.0 & Max ^o 110.7	110.1
3.	Out of roundness (ovality) in mm	Max ^o 2.2	4.2
4.	Wall thickness in mm	Min ^o 5.1 & Max ^o 5.6	5.8
5.	Empirical burst pressure with change of length in percent (for pipe method)	Min ^o 3.2	3.5
6.	Hydrostatic strength at 20°C	No failure of any test piece during test period	No failure occurred

Note: This test report is not treated as a CM Certificate.


 Md. Masum Rahman
 Asst. Director (QA, Physical)
 BSTI, Dhaka


 MD. GOLAM AZAM
 Dy. Director (Physical)
 BSTI, Dhaka

N.B.

1) The results represent values which apply to the sample tested and supplied to the laboratory.
2) This report shall not be used for legal or contractual purposes, but is prepared as a guide to the information required for the assessment process.

Page 45 of 45

BANGLADESH STANDARDS AND TESTING INSTITUTION
Ministry of Industries
15/A, Tejgaon Industrial Area, Dhaka-1215
E-mail Address: bsi@bsi.gov.bd, Phone: 88001 88100

TEST REPORT

Test Report No: 211555

Customer's Reference No: 20170603015224311879	Lab. Reference No: 31,01,04,06,08,09,10,11,2016,09/2017
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Identification of test item: PE (2016011215) 110 mm dia HDPE Pipe (PN-8), PE 100 (casted on surface) Brand Name: National Polymer Supplied By: MEN, ZY & CE Lda, Dhaka, (Bangladesh)	Sampling place: Not mentioned
Name and address of customer: Executive Engineer, DPIS, Roadside Division, Savar, Dhaka	Test method used: BS EN ISO 4427-1 & 2:2014

Condition of the test item: Sample is received in good condition with sealed and signed.

Sl No.	Description of Tests	Standard Limits	Test results
1.	Colour	Black for colour pipe or black or black with blue edges	Black with blue edges
2.	Minimum outside diameter in mm	Min ^o 110.0 & Max ^o 110.7	110.1
3.	Out of roundness (ovality) in mm	Max ^o 2.2	5.8
4.	Wall thickness in mm	Min ^o 5.1 & Max ^o 5.6	7.4
5.	Empirical burst pressure with change of length in percent (for pipe method)	Min ^o 3.0	3.0
6.	Hydrostatic strength at 20°C	No failure of any test piece during test period	No failure occurred

Note: This test report is not treated as a CM Certificate.


 Md. Masum Rahman
 Asst. Director (QA, Physical)
 BSTI, Dhaka


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 BSTI, Dhaka

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Page 02 of 02

BANGLADESH STANDARDS AND TESTING INSTITUTION
Ministry of Industries
MOI, Govt. of Bangladesh
(Physical Testing Wing)
17/A, Tropic Industrial Area, Dhaka-1208
Mail Address: 60/1, Tejgaon, Dhaka, Bangladesh

TEST REPORT

Test Report No: 211550

Customer's Reference No: 41.203.7940.004.022.4.1.1.1 (17)	Lab's Reference No: 34.05.041.00.00.011.2019.00
Date of receipt: 09-12-2021	Date of testing: 13-12-2021
Identification of test item: PE (201921-02) 225 mm dia HDPE Pipe (PN-6; PE 100 (excellent on sample)) Brand Name: National Polymer Supplied by: M/S. ZF & CO (PVT), Dhaka, Dhaka	Sampling place: Not mentioned
Name and address of customer: Executive Engineer, DPHE National Division, Southdak	Test method used: BS EN 1227-1 & 2: 2014

Condition of the test item: Sample is mentioned in good condition with sealed and signed.

Sl No.	Description of Tests	Standard Limits	Test results
1.	Colour	Shall be either blue or black or black with blue stripes	Black with blue stripes
2.	Mean outside diameter in mm	Min ^{225.84} Max ^{226.4}	226.1
3.	Out of roundness (eccentricity) in mm	Max ^{0.7}	0.4
4.	Pipe wall thickness in mm	Min ^{10.8} & Max ^{12.0}	12.9
5.	Longitudinal tear resistance and Change of length in percent (at 20% extension)	Min. ³ > 3	0.5
6.	Hydrostatic strength @ 20°C at 1.00 MPa	No failure of any test piece during test period	No failure occurred

Note: This test report is not treated as a CE Certificate.

15/12/21
Md. Masum Farid
Asst. Director (QA, Physical)
 BDTI, Dhaka

Md. GOLAM AZAM
Dy. Director (Physical)
 BDTI, Dhaka

N.B.

1) The results reported above pertain only to the sample tested and supplied to the Laboratory.
2) This report shall remain valid as long as the sample is kept in good condition. It is reproduced or passed on to a 3rd party, without the consent of the Laboratory, is not authorized and is void.

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BANGLADESH STANDARDS AND TESTING INSTITUTION
Ministry of Industries
MOI, Govt. of Bangladesh
(Physical Testing Wing)
17/A, Tropic Industrial Area, Dhaka-1208
Mail Address: 60/1, Tejgaon, Dhaka, Bangladesh

TEST REPORT

Test Report No: 211557

Customer's Reference No: 41.203.7940.004.022.4.1.1 (17)	Lab's Reference No: 34.05.041.00.00.011.2019.00
Date of receipt: 09-12-2021	Date of testing: 13-12-2021
Identification of test item: PE (201921-02) 225 mm dia HDPE Pipe (PN-6; PE 100 (excellent on sample)) Brand Name: National Polymer Supplied by: M/S. ZF & CO (PVT), Dhaka, Dhaka	Sampling place: Not mentioned
Name and address of customer: Executive Engineer, DPHE National Division, Southdak	Test method used: BS EN 1227-1 & 2: 2014

Condition of the test item: Sample is mentioned in good condition with sealed and signed.

Sl No.	Description of Tests	Standard Limits	Test results
1.	Colour	Shall be either blue or black or black with blue stripes	Black with blue stripes
2.	Mean outside diameter in mm	Min ^{225.84} & Max ^{226.4}	225.5
3.	Out of roundness (eccentricity) in mm	Max ^{0.5}	1.1
4.	Pipe wall thickness in mm	Min ^{11.44} & Max ^{14.0}	13.8
5.	Longitudinal tear resistance and Change of length in percent (at 20% extension)	Min. ³ > 3	0.5
6.	Hydrostatic strength @ 20°C at 1.00 MPa	No failure of any test piece during test period	No failure occurred

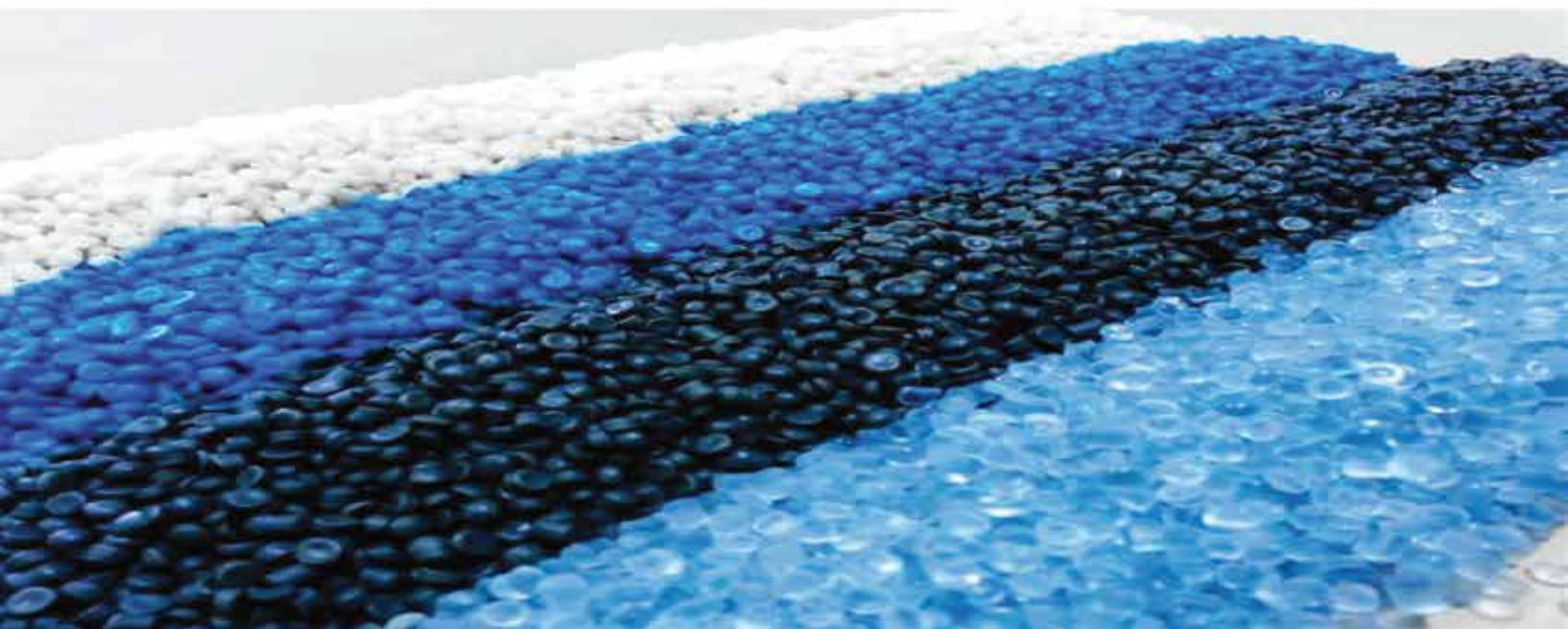
Note: This test report is not treated as a CE Certificate.

15/12/21
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Our Customer



DPHE



BTCL



BMDA



DPDC



DESCO



ZTE Corporation

Our Customer



Walton Hi-Tech Industries PLC.



CEM Engineering



ABM Water Company Ltd.



Sazin Construction Ltd.



Rony Enterprise



Power System Development Company Ltd.

HDPE



ISO | 14001:2015 | Certificate





ISO | 45001: 2018 | Certificate

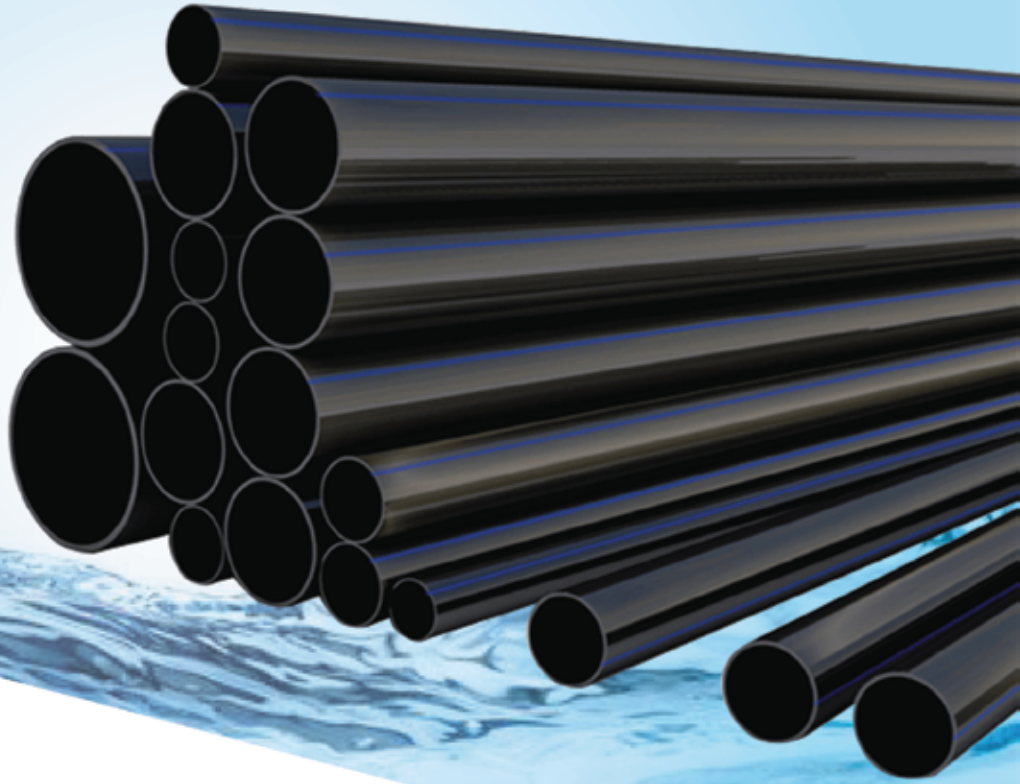




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