海丽管道
HAILI PIPE

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Company Profile

Shandong Haili PipeTechnology Co., Ltd was founded in 2013, It covers an area of 100,000 square meters, with a total investment of 65 million dollars, a registered per capita of 8 million dollars. The company's production base is located in the famous "Rose Country"- Pingyin County industrial park. and company headquarters is located in Jinan Harmony Square. Haili Pipe is a comprehensive professional company that is focused on research and development, production, and marketing of energy-saving environmental, new high-end buried pipes and related products.

Since its establishment, to solve urban waterlogging and urban construction, HailiPipe has been insisting on the combination of self-innovation and technology introduction, to provide leading and integrated water supply and drainage pipeline network solutions. Haili Pipe has introduced dozens of domestic and foreign advanced equipment and products ines and has successfully passed the ISO9001 quality management system certification, ISO14001 environmental management system certification, and OHS18001 occupational health and safety management certification and passed the national special equipment manufacturing license (TS) certification. The main products include HDPE polyolefin steel belt enhanced drainage pipe, glass fiber enhanced SMC molded plastic manhole/septic tank, HDPE water/gas pipe and mining pipe, HDPE spray irrigation pipe,uPVC/water, HDPE protecting pipe, FPPE trenchless specified pipe, etc. It covers the areas of rainwater collection sewage discharge, water diversion, water supply, reuse of reclaimed water, and industrial and gas and municipal infrastructure construction.

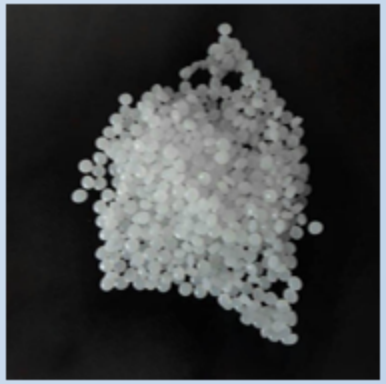
CONTENTS

PE Pipe Material/Equipment Manufacturers (Supplier List) Table

Material/Equipment	Name and Address of Manufacturer(Where Applicable)	Country of Origin	Name & Address of Suppliers(Including Country)	Make and model (Where Applicable)	Applications	Certifications	
						Quality Management System	HSE Management System
HDPE Pipes and Fittings for Distribution System and Raw Water Rising Main-Synthetic Resin/High-density Polyethylene (HDPE) Pipe Grade	Sinopec Shanghai Petrochemical Shanghai	China	Sinopec Chemical	YGH041T (PE100), 5310M, 6100M, 6360M, 6380M, 7600M, 7800M, D G D B2480, D G D B2480H, G H 051T、Q H B16A, Q H B16B, TR418, TR480, YEM-4803T(PE80), YEM -4902T(PE100), YGH 041, YG M 091	pressurized water pipes, fuel gas pipelines and other industrial pipes, non-pressure pipes such as double-wall corrugated pipes, hollow-wall winding pipes, silicon-core pipes, agricultural irrigation pipes and aluminum- plastics compound pipes crosslinked polyethylene pipes (PEX) for supplying cold and hot water	ISO 9001	GB/T 19001-2000 GB/T 24001-2004 GB/T 28001-2001
Sinopec PP pipe grade-PP pipe grade–propylene impact copolymer (PP-B) and propylene random copolymer (PP- R) used for water supply systems	Sinopec Shanghai Petrochemical Shanghai	China	Sinopec Chemical	4420 4240 B8101 C180C	water supply systems, heating systems and chemical piping systems	ISO 9001	GB/T 1040

HDPE Pipe Raw Material

The main component of HDPE pipes is polyethylene resin, a polymer material polymerized from ethylene monomer. Polyethylene resin can be divided into different grades according to density and molecular structure. Common ones include high-density polyethylene (HDPE) and linear low-density polyethylene (LLDPE).



PE Pipe Raw Material Data Sheet

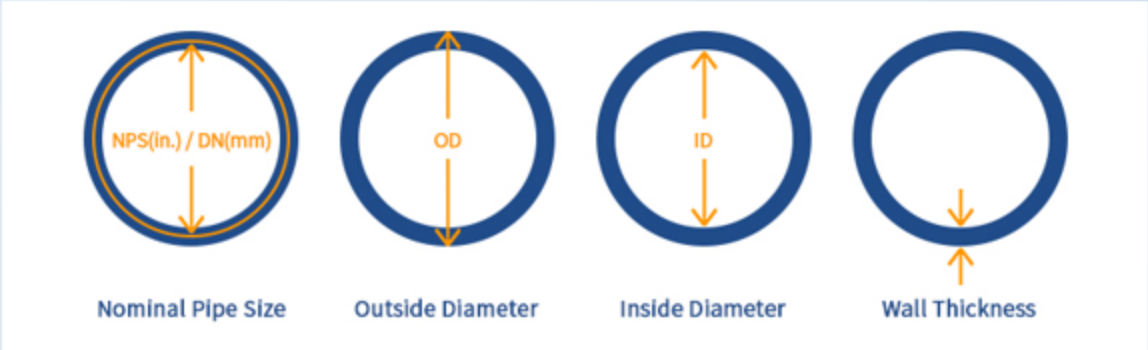
The resin is packaged in internally film-coated polypropylene woven bags, brown paper bags, or laminated polyethylene film bags. The net weight is 25 kg/bag. The resin should be stored in a drafty, dry warehouse and away from fire and direct sunlight. It should not be piled up in the open air. The material should not be transported together with sand, soil, scrap metal, coal, or glass during transportation. Transportation together with toxic, corrosive, and flammable substances is strictly prohibited.

Grades		YGH041	YGH041T (PE100)	YGH051T (PE80)	YGM091T (PE80)	PN049-030-122	PN043-090-122
MFR	g/10min	0.25	0.3	0.6	0.8	0.3(MI5)	0.9(MI5)
Density	g/cm3	0.95	0.959	0.956	0.951	0.949	0.94
Tensile Strength at yield	MPa≥	19	20	19	17	24	22
Tensile Strain at yield	%≥		7	8	8		
Tensile Modulus	MPa≥	860	860	860	500		1100
Elongation at break	%≥(23℃50mm/min)	580				1100	600
Certifications			SCG/RCP	SCG/RCP	SCG/RCP	300	
Manufacturers		Shanghai	Shanghai	Shanghai	Shanghai	SSTPC	SSTPC

Grades		6100M	6380M	7600M	2300XM	K44-08-122	DGDB2480
MFR	g/10min	0.13	0.1	0.04	5.5	8.75(HLMI)	12
Density	g/cm3	0.954	0.949	0.948	0.949	0.944	0.946
Tensile Strength at yield	MPa≥	26	22	22.1	22.8	22	19
Tensile Strain at yield	%≥	750	800	726		800	
Flexural Modulusk	MPa≥	900	850	1000		810	900
Certifications		FDA	SCG/RCP	SCG/RCP	FDA		
Manufacturers		Yanshan	Yanshan	Yanshan	Shanghai	SSTPC	FREP

Grades		QHM22F	2480	2480 H	YEM-4803T	YEM-4902T	TR-480M	PN049-030-122
MFR	g/10min	11.4	12.5	10	0.3	0.23	0.5	0.3
Density	g/cm3	0.937	0.945	0.943	0.951	0.951	0.944	0.949
Tensile Strength at yield	MPa≥	20.2	20	19	24	24	20	23.5
Tensile Strain at yield	%≥	713	500	500		300	350	664
Flexural Modulusk	MPa≥				720	730	800	
Certifications				SCG/RCP	SCG/RCP	SCG/RCP	食品卫生	
Manufacturers		Qilu	Qilu	Qilu	Yangzi	Yangzi	Maoming	中韩石化

HDPE Water Pipe



Material: PE80 PE100
Pressure Rating:
SDR26-0.6Mpa
SDR21-0.8Mpa
SDR17-1.0Mpa
SDR13.6-1.25Mpa
SDR11-0.6Mpa
Size: 16mm~1600mm
Standard: GB/T13663-2000, IS04427-2007
Colors: Black with blue stripes, other colors are available upon request.

Advantages
• Non-toxic: No heavy metal additives, dirt, or secondary pollution caused by a bacterium.
• Corrosion Resistant: Resist chemical mediator corrosion and electron chemical corrosion.
• Low Flow Resistance: A smooth inner wall and low friction produce low flow resistance and high volume.
• Excellent Flexibility: Can be coiled.
• Easy Installation: Lightweight and can be carried and installed easily.
• Long service life: More than 50 years.
• Various connection types: Butt fusion joint, electrofusion joint.
• Recycled and environmental-friendly

HDPE Pipe Specification

The parameters of PE (polyethylene) pipes include various characteristics and specifications important for selecting, designing, and installing these pipes in different applications.
Here are some of the key parameters of PE pipes: NOD(Nominal Outside Diameter), the nominal outside diameter size of a pipe, usually measured in millimeters (mm) or inches (inch); NWT(Nominal Wall Thickness), the nominal wall thickness of a pipe, usually measured in millimeters (mm) or inches (inch); Nominal Pressure Rating, the nominal pressure rating of a pipeline indicates the maximum design working pressure that the pipeline can withstand. Common pressure levels include PN6, PN10, PN16, PN25, etc; Material Grade: The material grade of the PE pipe, such as PE80, PE100, etc. It denotes the specific type and quality of polyethylene material used in the pipe's construction, with each grade having different properties and performance characteristics.

Table 1 is the national standard parameters of PE100 pipes
Table 2 shows the parameters of PE80 pipes

GB/T13663.2-2018 PE100 grade water supply pipe specifications

Nominal OD	Maximum average OD	Material	SDR41		SDR33		SDR26		SDR21	
		Grade								
		PE100	0.4MPa		0.5MPa		0.6MPa		0.8MPa	
dn\mm	Grade A	Ovality mm	Nominal Wall Thickness (mm)	Weight Per Meter	Nominal Wall Thickness (mm)	Weight Per Meter	Nominal Wall Thickness (mm)	Weight Per Meter	Nominal Wall Thickness (mm)	Weight Per Meter
	mm			kg/m		kg/m		kg/m		kg/m
16	16.3	1.2	/	/	/	/	/	/	/	/
20	20.3	1.2	/	/	/	/	/	/	/	/
25	25.3	1.2	/	/	/	/	/	/	/	/
32	32.3	1.3	/	/	/	/	/	/	/	/
40	40.4	1.4	/	/	/	/	/	/	2.3	0.29
50	50.4	1.4	/	/	/	/	2.3	0.367	2.4	0.381
63	63.4	1.5	/	/	/	/	2.5	0.503	3	0.591
75	75.5	1.6	/	/	/	/	2.9	0.689	3.6	0.846
90	90.6	1.8	/	/	/	/	3.5	0.999	4.3	1.214
110	110.7	2.2	/	/	/	/	4.2	1.467	5.3	1.822
125	125.8	2.5	/	/	/	/	4.8	1.889	6	2.328
140	140.9	2.8	/	/	/	/	5.4	2.385	6.7	2.915
160	161	3.2	/	/	/	/	6.2	3.128	7.7	3.823
180	181.1	3.6	/	/	/	/	6.9	3.894	8.6	4.804
200	201.2	4	/	/	/	/	7.7	4.83	9.6	5.952
225	226.4	4.5	/	/	/	/	8.6	6.069	10.8	7.523
250	251.5	5	/	/	/	/	9.6	7.52	11.9	9.205
280	281.7	9.8	/	/	/	/	10.7	9.379	13.4	11.621

Table 1

Nominal OD	Maximum average OD	Material	SDR41		SDR33		SDR26		SDR21	
		Grade								
		PE100	0.4MPa		0.5MPa		0.6MPa		0.8MPa	
dn\mm	Grade A	Ovality mm	Nominal Wall Thickness (mm)	Weight Per Meter	Nominal Wall Thickness (mm)	Weight Per Meter	Nominal Wall Thickness (mm)	Weight Per Meter	Nominal Wall Thickness (mm)	Weight Per Meter
	mm			kg/m		kg/m		kg/m		kg/m
315	316.9	11.1	7.7	7.73	9.7	9.65	12.1	11.949	15	14.603
355	357.2	12.5	8.7	9.84	10.9	12.2	13.6	15.101	16.9	18.543
400	402.4	14	9.8	12.47	12.3	15.54	15.3	19.149	19.1	23.643
450	452.7	14	11	15.72	13.8	19.57	17.2	24.211	21.5	29.9
500	503	17.5	12.3	19.57	15.3	24.14	19.1	29.866	23.9	36.89
560	563.4	19.6	13.7	24.37	17.2	30.38	21.4	37.437	26.7	46.171
630	633.8	22.1	15.4	30.84	19.3	38.32	24.1	47.436	30	58.325
710	716.4	/	17.4	39.3	21.8	48.78	27.2	60.392	33.9	74.379
800	807.2	/	19.6	49.83	24.5	61.79	30.6	76.486	38.1	94.276
900	908.1	/	22	62.86	27.6	78.27	34.4	96.739	42.9	119.287
1000	1009	/	24.5	77.83	30.6	96.41	38.2	119.367	47.7	147.376
1200	1210.8	/	29.4	112.04	36.7	138.69	45.9	171.923	57.2	212.121
1400	1412.6	/	34.3	152.46	42.9	189.04	53.5	233.841	66.7	288.428
1600	1614.4	/	39.2	199.1	49	246.71	61.2	305.717	76.2	376.659
1800	1816.2	/	43.8	250.1	54.5	308.92	69.1	388.236	85.7	476.395
2000	2018	/	48.8	309.55	60.6	381.57	76.9	479.746	95.2	588.111
2250	2270.3	/	55	392.36	70	495.22	86	603.665	107.2	744.924
2500	2522.5	/	61.2	485.33	77.7	610.86	95.6	745.691	119.1	919.533

Table 1

Nominal OD	Maximum average OD	Material	SDR17		SDR13.6		SDR11		SDR9	
		Grade								
		PE100	1.0MPa		1.25MPa		1.6MPa		2.0MPa	
dn\mm	Grade A	Ovality mm	Nominal Wall Thickness (mm)	Weight Per Meter	Nominal Wall Thickness (mm)	Weight Per Meter	Nominal Wall Thickness (mm)	Weight Per Meter	Nominal Wall Thickness (mm)	Weight Per Meter
	mm			kg/m		kg/m		kg/m		kg/m
16	16.3	1.2	/	/	/	/	/	/	2.3	0.105
20	20.3	1.2	/	/	/	/	2.3	0.136	2.3	0.136
25	25.3	1.2	/	/	2.3	0.174	2.3	0.174	3	0.219
32	32.3	1.3	2.3	0.228	2.4	0.237	3	0.285	3.6	0.336
40	40.4	1.4	2.4	0.301	3	0.365	3.7	0.441	4.5	0.523
50	50.4	1.4	3	0.463	3.7	0.563	4.6	0.684	5.6	0.811
63	63.4	1.5	3.8	0.738	4.7	0.896	5.8	1.08	7.1	1.294
75	75.5	1.6	4.5	1.041	5.6	1.27	6.8	1.509	8.4	1.818
90	90.6	1.8	5.4	1.497	6.7	1.819	8.2	2.186	10.1	2.623
110	110.7	2.2	6.6	2.228	8.1	2.695	10	3.242	12.3	3.897
125	125.8	2.5	7.4	2.841	9.2	3.472	11.4	4.206	14	5.026
140	140.9	2.8	8.3	3.567	10.3	4.348	12.7	5.242	15.7	6.314
160	161	3.2	9.5	4.656	11.8	5.676	14.6	6.881	17.9	8.222
180	181.1	3.6	10.7	5.889	13.3	7.203	16.4	8.697	20.1	10.402
200	201.2	4	11.9	7.267	14.7	8.835	18.2	10.725	22.4	12.863
225	226.4	4.5	13.4	9.218	16.6	11.219	20.5	13.575	25.2	16.281
250	251.5	5	14.8	11.296	18.4	13.82	22.7	16.695	27.9	20.009
280	281.7	9.8	16.6	14.191	20.6	17.316	25.4	20.93	31.3	25.152

Table 1

Nominal OD	Maximum average OD	Material	SDR17		SDR13.6		SDR11		SDR9	
		Grade								
		PE100	1.0MPa		1.25MPa		1.6MPa		2.0MPa	
dn\mm	Grade A	Ovality mm	Nominal Wall Thickness (mm)	Weight Per Meter	Nominal Wall Thickness (mm)	Weight Per Meter	Nominal Wall Thickness (mm)	Weight Per Meter	Nominal Wall Thickness (mm)	Weight Per Meter
	mm			kg/m		kg/m		kg/m		kg/m
315	316.9	11.1	18.7	17.971	23.2	21.947	28.6	26.494	35.2	31.819
355	357.2	12.5	21.1	22.873	26.1	27.826	32.2	33.634	39.7	40.413
400	402.4	14	23.7	28.906	29.4	35.286	36.3	42.699	44.7	51.262
450	452.7	14	26.7	36.623	33.1	44.696	40.9	54.069	50.3	64.905
500	503	17.5	29.7	45.251	36.8	55.151	45.4	66.717	55.8	79.978
560	563.4	19.6	33.2	56.689	41.2	69.193	50.8	83.581	62.5	100.345
630	633.8	22.1	37.4	71.799	46.3	87.457	57.2	105.898	70.3	126.977
710	716.4	/	42.1	91.246	52.2	111.287	64.5	134.743	79.3	161.656
800	807.2	/	47.4	115.702	58.8	141.164	72.6	170.878	89.3	205.11
900	908.1	/	53.3	146.359	66.2	178.837	81.7	216.296	/	/
1000	1009	/	59.3	180.886	72.5	217.817	90.2	265.555	/	/
1200	1210.8	/	67.9	249.158	88.2	317.618	/	/	/	/
1400	1412.6	/	82.4	351.918	102.9	432.131	/	/	/	/
1600	1614.4	/	94.1	459.337	117.6	564.446	/	/	/	/
1800	1816.2	/	105.9	581.288	/	/	/	/	/	/
2000	2018	/	117.6	717.308	/	/	/	/	/	/
2250	2270.3	/	/	/	/	/	/	/	/	/
2500	2522.5	/	/	/	/	/	/	/	/	/

Table 1

HDPE PIPE Specification PE80

Applicable Standard: GB/T 13663-2000										
Standard Size										
Nominal OD dn	SDR33		SDR21		SDR17		SDR13.6		SDR11	
	PN (MPa)									
	0.4		0.6		0.8		1.0		1.25	
	Nominal Wall Thickness (mm)	Weight Per Meter	Nominal Wall Thickness (mm)	Weight Per Meter	Nominal Wall Thickness (mm)	Weight Per Meter	Nominal Wall Thickness (mm)	Weight Per Meter	Nominal Wall Thickness (mm)	Weight Per Meter
	en, mm		en, mm		en, mm		en, mm		en, mm	
20	-	-	-	-	-	-	2.3	0.134	2.3	0.134
25	-	-	-	-	2.3	0.172	2.3	0.172	2.3	0.172
32	-	-	2.3	0.225	2.3	0.225	2.4	0.233	3.0	0.280
40	2.3	0.287	2.3	0.287	2.4	0.297	3.0	0.348	3.7	0.432
50	2.3	0.363	2.3	0.363	2.9	0.443	3.7	0.552	4.6	0.669
63	2.3	0.462	3.0	0.583	3.7	0.708	4.7	0.886	5.8	1.064
75	2.4	0.554	3.6	0.832	4.5	1.021	5.6	1.251	6.8	1.492
90	2.8	0.796	4.3	1.191	5.4	1.447	6.7	1.800	8.2	2.156
110	3.4	1.180	5.3	1.783	6.6	2.191	8.1	2.657	10.0	3.201
125	3.8	1.522	6.0	2.294	7.4	2.808	9.2	3.419	11.4	4.160
140	4.3	1.888	6.7	2.887	8.3	3.518	10.3	4.292	12.7	5.191
160	4.9	2.459	7.7	3.777	9.5	4.605	11.8	5.612	14.6	6.797
180	5.5	3.106	8.6	4.738	10.7	5.837	13.3	7.109	16.4	8.750
200	6.2	3.884	9.6	5.887	11.9	7.187	14.7	8.755	18.2	10.799
225	6.9	4.861	10.8	7.456	13.4	9.127	16.6	11.320	20.5	13.670

Table 2

Applicable Standard: GB/T 13663-2000										
Standard Size										
Nominal OD dn	SDR33		SDR21		SDR17		SDR13.6		SDR11	
	PN (MPa)									
	0.4		0.6		0.8		1.0		1.25	
	Nominal Wall Thickness (mm)	Weight Per Meter	Nominal Wall Thickness (mm)	Weight Per Meter	Nominal Wall Thickness (mm)	Weight Per Meter	Nominal Wall Thickness (mm)	Weight Per Meter	Nominal Wall Thickness (mm)	Weight Per Meter
	en, mm		en, mm		en, mm		en, mm		en, mm	
250	7.7	6.017	11.9	9.107	14.8	11.198	18.4	13.925	22.7	16.846
280	8.6	7.511	13.4	11.510	16.6	14.329	20.6	17.487	25.4	21.103
315	9.7	9.545	15.0	14.476	18.7	18.150	23.2	22.146	28.6	26.754
355	10.9	12.095	16.9	17.718	21.1	23.088	26.1	28.090	32.2	33.940
400	12.3	15.367	19.1	23.870	23.7	29.217	29.4	35.624	36.3	43.101
450	13.8	19.379	21.5	30.182	26.7	37.031	33.1	45.161	40.9	54.621
500	15.3	23.854	23.9	37.296	29.7	45.766	36.8	55.757	45.4	67.376
560	17.2	30.667	26.7	46.708	33.2	57.307	41.2	69.934	50.8	84.462
630	19.3	38.705	30.0	59.002	37.4	72.596	46.3	88.416	57.2	107.008
710	21.8	49.273	33.9	75.157	42.1	92.166	52.2	112.360	-	-
800	24.5	62.364	38.1	95.264	47.4	116.868	58.8	142.598	-	-
900	27.6	79.150	42.9	120.598	53.3	147.882	-	-	-	-
1000	30.6	97.514	47.7	149.051	59.3	182.802	-	-	-	-

Table 2

PE Pipe Physical Properties

Property		Value	Unit	Test Method	Test Specimen
Density at 23 °C		0.958	g/cm³	ISO 1183	10mm x 10mm x 4mm
Viscosity Number		380	ml/g	ISO 1628-3	0.1% solution of granules in decahydronaphthalene
Melt Flow Rate	MFR 190/5	0.23	g/10min	ISO 1133	granules sample weight 3g to 6g
	MFR 190/21.6	6.5	g/10min		
Tensile Properties	Yield Stress	26	N/mm²	ISO 527, Test Rate 50 mm/min	ISO 3167, 4mm thick (test specimen no. 3, 4mm thick according to DIN 53 455
	Enlonggation at Yield Stress	10	%	ISO 527, Test Rate 50 mm/min	
	Tensile modulus of Elasticity (secant between 0.05& 0.25% strain)	900	N/mm²	SO 527	
	Tensile Creep Modulus (1 hour value)	650	N/mm²	ISO 899, Test Load 2 N/mm²	
	Tensile Creep Modulus (1000 hour value)	350	N/mm²		
Flexural Properties	Flexural Creep Modulus (1 min value)	1100	N/mm²	DIN 54852-Z4 σb=2 N/mm²	110mm x 10mm x 4mm loaded flat
	Flexural Stress (3.5% deflection)	20	N/mm²	ISO 178, Test Rate 2 mm/min	80mm x 10mm x 4mm
Stiffness inTorsion		180	N/mm²	DIN 53447	60mm x 6.35mm x 3mm
Hardness	Ball Indentation Hardness	41	N/mm²	ISO 2039 part 1 Test Load 132N	4mm sheet
	Shore Hardness D (3 sec value)	61	~	ISO 868	6mm sheet
	Shore Hardness D (15 sec value)	59	~		
Notched Impact Strength acN (test specimen from compression moulded sheet)	at 23 °C	20	kJ/m²	ISO 179/1eA	80mm x 10mm x 4mm
	at -30 °C	10	kJ/m²		
Vicat softening Point VST/B/50		67	°C	ISO 306	4mm sheet
Oxidation Induction Time	200 °C in O	>=60	min	ISO TR 10837	granules

Comparison with Other Plastic Materials

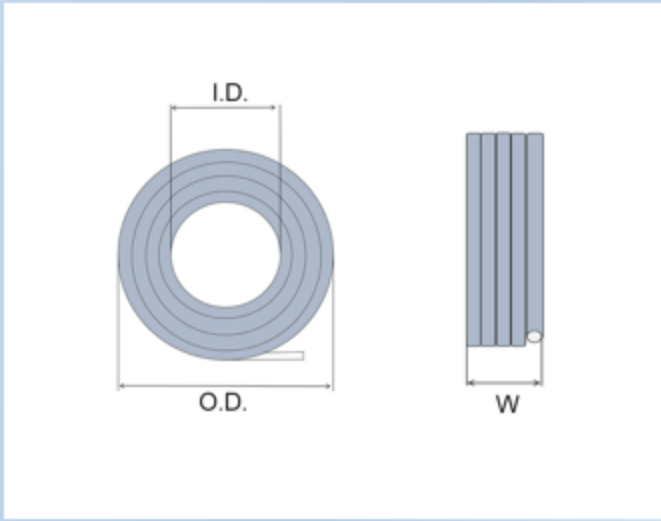
Property	HDPE	PP	PVC	PVC-C*	PB*
Surface feel	Waxy	Waxy	Smooth	Smooth	Waxy
Appearance (water pipes)	Black	Pale grey-beige	Blue	Grey-beige	Black
Sound produced when dropped	Medium clatter	High clatter	High clatter	High clatter	Dull thud
Combustibility and appearance of flame	Bright flame: Drops continue to burn after falling	Bright flame: Drops continue to burn after falling	Carbonises in flame: Extinguishes away from flame	Carbonises in flame: Extinguishes away from flame	Bright flame; Drops continue to burn after falling
Odour of smoke after flame is extinguished	Like candles	Like resin	Pungent like hydrochloric acid	Pungent like hydrochloric acid	Like candles but more acrid than HDPE
Nail test (impression made by fingernail)	Impression possible	Very light impression possible	Impression not possible	Impression not possible	Impression easily poduced
Special features					Smears when sawn
Floats in water	Yes	Yes	No	No	Yes
Notch sensitivity	No	Slight	Yes	Yes	Yes
Weather resistance	Stabilised, good	Stabilised, good	Stabilised, good	Stabilised, good	Stabilised, good
Method of permanent jointing	Fusion	Fusion	Solvent cement	Solvent cement	Fusion
Suitable for mechanical jointing	Yes	Yes	Yes	Yes	Yes
Stress crack sensitivity with regard to jointing with safe media, e.g water	Some	Slight	None	None	None
Linear expansion mm/m/°C	0.2	0.15	0.08	0.07	0.12
Thermal conductivity kcal/mh°C	0.4	0.19	0.14	0.14	0.2
Specific heat kcal/mh°C	0.42	0.4	0.23	0.23	0.47
Specific weight kg/cm²	0.955	0.905	0.142	1.5	0.92
Tensile strength at 20°C kp/cm²	240	320	550	550	200
Modulus of elasticity at 20 °C kp/cm²	8000	15000	30000	30000	5000

PE Pipe Roll Specification

These pipes are manufactured from three different designated materials viz: PE 63, PE 80, and PE 100. In these tables, we can see that SANS ISO 4427 has grouped the different pressure classes, produced from different material designations, under a common heading known as the Standard Diameter (Dimension) Ratio or SDR. The minimum wall thicknesses specified are not exactly that which would be derived from a calculation using Barlow's formula or the SDR but are the rounded-up values of the highest minimum wall thickness calculated for any size and class in the SDR group.

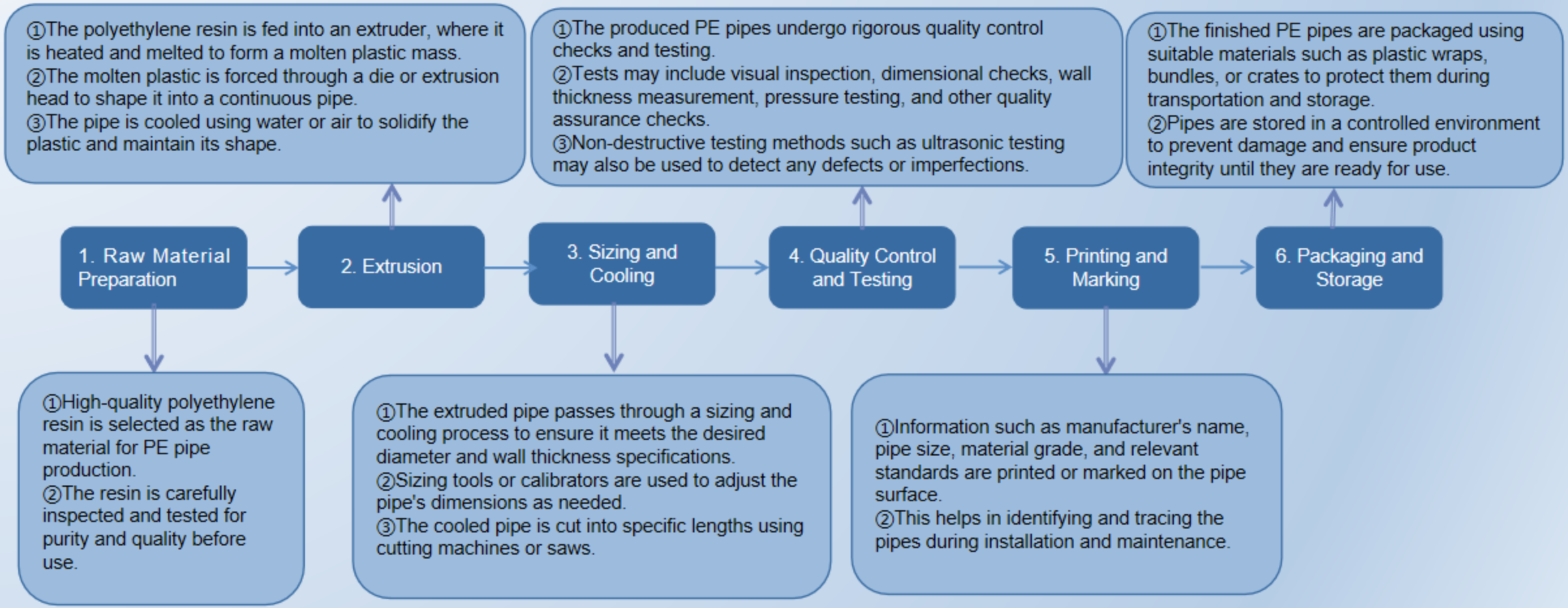
The data on this page are for reference only. It should not be used in place of the advice from a licensed Professional Engineer. Nominal pressure (PN) is based on C=1,25 and an operating temperature of 20°C. Weight is calculated using DN and Minimum wall plus 6% for use in estimating fluid flow. Actual ID will vary. When designing components to fit the pipe ID, refer to pipe dimensions and tolerances in the applicable pipe manufacturing specification. To obtain pressure in psi, multiply the bar by 14.5 (1 bar≈14.5 psi).

Coil Dimensions						
		I.D.	O.D.		Width(W)	
		mm	mm	mm	mm	mm
O.D.	SDR's	Coil Length - metres				
mm		50/100m	50m	100m	50m	100m
16	7.4/9/11	600	n/a	860	n/a	180
20	7.4/9/11/13.6	600	n/a	860	n/a	180
25	7.4/9/11/13.6/17	600	n/a	890	n/a	200
32	7.4/9/11/13.6/17	700	n/a	1090	n/a	220
40	7.4/9/11/13.6/17/26	700	n/a	1090	n/a	220
50	7.4/9/11/13.6/17/26	1300	1410	1560	150	220
63	7.4/9/11/13.6/17/26	1300	1780	1960	190	280
75	7.4/9/11/13.6/17	1300	1780	1960	190	280
90	7.4/9/11	2500	3100	3300	270	360
90	13.6/17/21	1800	2360	2540	360	450
110	7.4/9/11	2500	3160	n/a	330	n/a
110	13.6/17/21	2200	2860	n/a	400	n/a



PE Pipe Production Process

The production process of PE (polyethylene) pipes typically involves several stages to ensure the quality and consistency of the final product.
Here is a general outline of the PE pipe production process:



PE Pipe Welding

PE Pipe Welding Methods

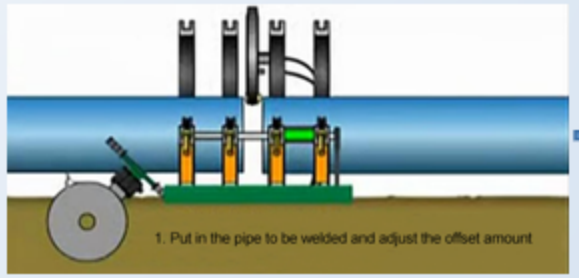
Methods for welding PE (polyethylene) pipes generally include two main techniques: butt fusion welding and electrofusion welding. Here is a brief description of both methods:

1. Buttfusion welding
Preparation:
First prepare tools and materials such as PE pipes, hot melt welding machines, welding rods, pipe cutters, cleaning cloths, etc. that need to be welded.
Pipeline preparation:
Use a pipe cutter to cut the PE pipe to the required length, and clean the cut and pipe surface to ensure the surface is clean and free of impurities.
Hot melt welding machine preparation:
Turn on the hot melt welding machine and adjust the welding temperature and time.
Welding process:
Butt the PE pipes that need to be connected, use a hot melt welding machine to heat the welding area, melt the end of the PE pipe, and at the same time insert the preheated welding rod (welding material) into the welding area. Wait for the welding material to melt and combine with the PE pipe, then cool and solidify to complete the welding.

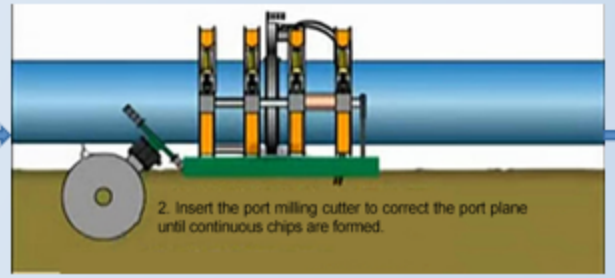
2. Electrofusion welding
Preparation:
Similar to hot melt welding, tools and materials such as PE pipes, electrofusion welding machines, welding wires, pipe cutters, cleaning cloths, etc. need to be prepared.
Pipeline preparation:
Cut the PE pipe and clean the surface.
Electrofusion welding machine preparation:
Turn on the electrofusion welding machine and adjust the welding parameters.
Welding process:
Use an electrofusion welding machine to heat the welding wire, place the heated welding wire on the PE pipe interface, let it melt and connect with the PE pipe.

Before performing any welding work, be sure to comply with relevant safety operating procedures and standards to protect yourself and those around you. In addition, for the two methods of hot melt welding and electrofusion welding, operators need to have certain professional knowledge and skills. It is recommended to undergo relevant training and accumulate experience in actual operations to ensure welding quality and safety. If you encounter a complex welding task or are unsure how to proceed, seek help from a professional welding engineer or technician.

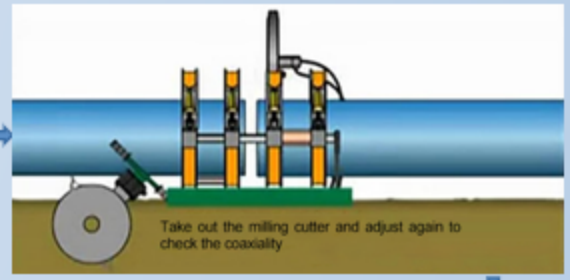
PE Pipe Buttfusion Welding Steps



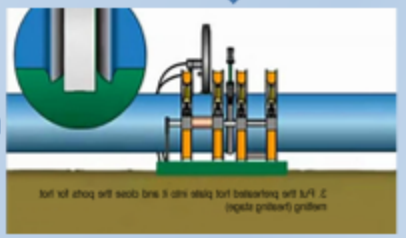
1. Put in the pipe to be welded and adjust the offset amount



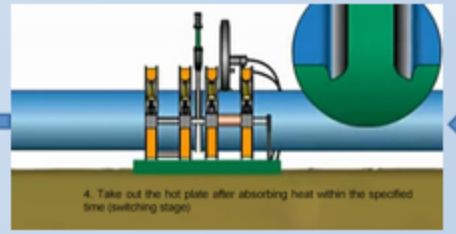
2. Inset the port milling cutter to correct the port plane until continuous chips are formed



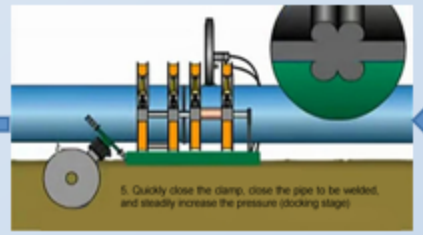
Take out the milling cutter and adjust again to check the coaxiality



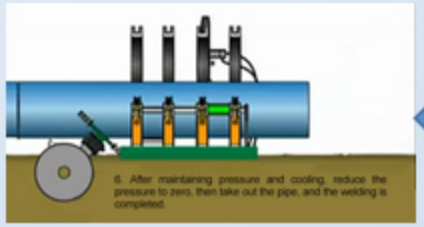
3. Put the preheated hot plate into it and close the ports for hot melting (heating stage)



4. Take out the hot plate after absorbing heat within the specified time (switching stage)



5. Quickly close the clamp, close the pipe to be welded, and steadily increase the pressure (docking stage)



6. After maintaining pressure and cooling, reduce the pressure to zero, then take out the pipe, and the welding is completed.

Welding Process

PE pipe welding

1. Fix the PE pipes and parts to be welded on the docking machine, and use clamps according to the pipe size. Use a brush and cotton cloth to remove the oxide layer, oil dirt, and dust from the pipe mouth.
2. The connecting ends of the two pieces to be connected should extend out of the welding machine clamp by a certain free length, and the two corresponding pieces to be connected should be aligned so that they are on the same axis. The wrong edge should not exceed 10% of the wall thickness.
3. The end faces are planed with a milling cutter to make the butt end faces smooth, flat, clean, and vertical. Note: Start the milling cutter first, then slowly turn the feed hand wheel. When continuous cutting occurs, remove the milling cutter disc and align the two butt joints by adjusting the tightness of the clamp (rotating the pipe if necessary).

Endothermic phase

The heating plate automatically heats until the green indicator light lights up or reaches the set temperature. The pipes and fittings to be welded are closed to heat the end faces. The feed handwheel stops feeding when the two end faces are pressurized and reach the corresponding flange, maintaining the heat-absorbing state. Separate the PE pipe and pipe fittings from the heating plate, and then bring the two heated end surfaces together and butt them together. (See the endothermic schedule) The two heated pipe openings melt. When heated to a molten state, the endothermic process is completed. When the ambient temperature is 20°C, the heating time is specified at 10 × thickness (mm) seconds, and the welding surface is required to be flat and the convex height reaches the required value.
Note: At this stage, the flange must meet the specified requirements, and the pressure must be maintained to absorb heat. You cannot continue to increase the pressure!

Remove the electric heating plate template

When the heat absorption process is completed, remove the electric heating plate and quickly start pressurizing (see the docking pressure gauge). The operation should be completed within 10 seconds with proficiency: especially when the ambient temperature is low, shorten it as much as possible. The end surface cools very quickly and the docking speed is slow. Directly affects the quality of welding.

Cooling interface

After the interface is completed, the counterpart should be stabilized on the fixture and allowed to cool naturally. Generally speaking, small diameters below DN110 need to be cooled for more than 20 minutes, and diameters above DN110 need to be cooled for more than half an hour. Also, judge based on the feel. If the temperature is not very hot, it proves that the cooling time has been reached. The other end can be paired and the hot-melt interface can be matched. After opening the clamp, remove the clamp and inspect the appearance of the fusion joint. The circumferential height and width of the hot-melt joint should be uniform and beautiful, and the height and width should be appropriate.

PE Pipe Welding Heat Absorption Temperature Table

Wall Thickness(mm)	Pipe Heat Absorption Time(s)	Maximum Time Allowed for Switching(s)	Boost Cooling Time	Cooling Time(min)
<4.5	45	5	5	6
4.5~7	45~70	5~6	5~6	6~10
7~12	70~120	6~8	6~8	10~16
12~19	120~190	8~10	8~11	16~24
19~26	190~260	10~12	11~14	24~32
26~37	260~370	12~16	14~19	32~45
37~50	370~500	16~20	19~25	45~60
50~70	500~700	20~25	25~35	60~80

Buttweld Time and Pressure Tables

Outside Diameter	SDR	Wall Thickness (min)	Bead up interface stress	Initial bead size(approx)	Soak Time	Min soak interface stress	Max Plate removal time	Fusion and cooling interface stress	Cooling time in clamps	Cooling time out of clamps	Cooling time for coiled pipe in clamps	Typical final overall bead width(MM)	
mm		mm	Mpa	mm	sec	Mpa	sec	Mpa	min	min	min	min	max
90	26	3.5	0.15	2	95	0	10	0.15	10	5	15	8	15
90	17.6	5.1	0.15	2	110	0	10	0.15	10	5	15	8	15
90	11	8.2	0.15	2	140	0	10	0.15	10	5	15	9	16
110	26	4.2	0.15	2	100	0	10	0.15	10	5	15	8	15
110	17.6	6.3	0.15	2	125	0	10	0.15	10	5	15	9	16
110	11	10	0.15	2	160	0	10	0.15	10	5	15	10	17
125	26	4.8	0.15	2	110	0	10	0.15	10	5	15	8	15
125	17.6	7.1	0.15	2	130	0	10	0.15	10	5	15	9	16
125	11	11.4	0.15	2	175	0	10	0.15	10	5	15	10	17
160	26	6.2	0.15	2	120	0	10	0.15	10	5	15	9	16
160	17.6	9.1	0.15	2	150	0	10	0.15	10	5	15	9	16
160	11	14.6	0.15	2	205	0	10	0.15	10	5	15	11	18
180	26	6.9	0.15	2	130	0	10	0.15	10	5	15	9	16
180	17.6	10.2	0.15	2	160	0	10	0.15	10	5	15	10	17
180	11	16.4	0.15	2	225	0	10	0.15	10	5	15	11	18
225	26	8.6	0.15	2	145	0	10	0.15	10			9	16
225	17.6	12.8	0.15	2	190	0	10	0.15	10			10	17
225	11	20.5	0.15	2	265	0	10	0.15	10			11	18

Table 1

Outside Diameter	SDR	Wall Thickness (min)	Bead up interface stress	Initial bead size(approx)	Soak Time	Min soak interface stress	Max Plate removal time	Fusion and cooling interface stress	Cooling time in clamps	Cooling time out of clamps	Cooling time for coiled pipe in clamps	Typical final overall bead width(MM)	
mm		mm	Mpa	mm	sec	Mpa	sec	Mpa	min	min	min	min	max
250	26	9.6	0.15	2	155	0	10	0.15	10			9	16
250	17.6	14.2	0.15	2	200	0	10	0.15	10			10	17
280	26	10.7	0.15	2	170	0	10	0.15	10			13	22
280	17.6	15.9	0.15	2	220	0	10	0.15	10			14	23
315	26	12.1	0.15	2	180	0	10	0.15	10			13	22
315	17.6	17.9	0.15	2	240	0	10	0.15	10			14	23
-	Tolerance		±0.02		±3			±0.02					

Table 1

Outside Diameter	SDR	Wall Thickness (min)	Bead up interface stress	Initial bead size(approx)	Soak Time	Min soak interface stress	Max Plate removal time	Fusion interface stress (after 10 sec)	Cooling interface stress (after 10 sec)	Cooling time in clamps	Cooling time out of clamps	Typical final overall bead width(MM)	
mm		mm	Mpa	mm	sec	Mpa	sec	Mpa	min	min	min	min	max
250	11	22.7	0.15	2	285	0	10	0.15	0.025	15	7.5	15	24
280	11	25.4	0.15	3	315	0	10	0.15	0.025	15	7.5	16	25
315	11	28.6	0.15	3	345	0	10	0.15	0.025	15	7.5	17	26
355	26	13.6	0.15	3	195	0	10	0.15	0.025	10	5	13	22
355	17.6	20.1	0.15	3	260	0	10	0.15	0.025	15	7.5	15	24
355	11	32.3	0.15	3	385	0	10	0.15	0.025	15	7.5	18	27
400	26	15.3	0.15	3	215	0	10	0.15	0.025	10	5	14	23
400	17.6	22.7	0.15	3	285	0	10	0.15	0.025	15	7.5	15	24
400	11	36.4	0.15	3	425	0	10	0.15	0.025	20	10	18	27
450	26	17.2	0.15	3	235	0	10	0.15	0.025	10	5	14	23
450	17.6	25.6	0.15	3	315	0	10	0.15	0.025	15	7.5	16	25
450	11	41	0.15	3	470	0	10	0.15	0.025	20	10	19	28
500	26	17.2	0.15	3	250	0	10	0.15	0.025	10	5	15	24
500	17.6	25.6	0.15	3	345	0	10	0.15	0.025	15	7.5	16	25
500	11	41	0.15	3	515	0	10	0.15	0.025	20	10	20	29
560	26	21.4	0.15	3	275	0	10	0.15	0.025	15	7.5	15	24
560	17.6	31.7	0.15	3	380	0	10	0.15	0.025	15	7.5	17	26
560	11	50.8	0.15	3	570	0	10	0.15	0.025	20	10	22	31

Table 2

Outside Diameter	SDR	Wall Thickness (min)	Bead up interface stress	Initial bead size(approx)	Soak Time	Min soak interface stress	Max Plate removal time	Fusion interface stress (after 10 sec)	Cooling interface stress (after 10 sec)	Cooling time in clamps	Cooling time out of clamps	Typical final overall bead width(MM)	
mm		mm	Mpa	mm	sec	Mpa	sec	Mpa	min	min	min	min	max
630	26	24.1	0.15	3	300	0	10	0.15	0.025	15	7.5	16	25
630	17.6	35.7	0.15	3	420	0	10	0.15	0.025	15	7.5	18	27
630	11	57.2	0.15	3	635	0	10	0.15	0.025	20	12.5	23	32
710	17.6	40.2	0.15	3	465	0	10	0.15	0.025	20	10	19	28
800	26	30.6	0.15	3	370	0	10	0.15	0.025	20	7.5	17	26
800	17.6	45.3	0.15	3	515	0	10	0.15	0.025	20	10	20	29
900	26	34.6	0.15	3	405	0	10	0.15	0.025	20	10	18	27
900	17.6	50.9	0.15	3	570	0	10	0.15	0.025	20	10	22	31
1000	26	38.4	0.15	3	445	0	10	0.15	0.025	20	10	19	28
1000	17.6	56.6	0.15	3	630	0	10	0.15	0.025	25	12.5	23	32
	Tolerance		±0.02		±3			±0.02	±0.01				

Table 2

PE Pipe Electrofusion Welding

Operating steps for electrofusion welding of PE pipes

1. Prepare PE water supply pipes, supporting electrofusion pipe fittings, electrofusion welding machines, scrapers, oily markers, etc.
2. Flatten the pipe end, measure and mark the depth or welding area of the pipe fitting on the pipe with a marker.
3. Before welding, you need to use a scraper to clean the oxide layer in the welding area of the PE water supply pipe.
4. The welding surfaces of pipes and fittings must be absolutely clean, dry, and free of oil. If conditions permit, you can use alcohol to clean the welding surface.
5. Insert the welded end of the pipe to the limiting shoulder of the pipe fitting or the depth marked on the PE pipe in step 2. The pipe fitting must be installed with the pipe under stress-free conditions. In special cases, if the pipe is not inserted into the pipe fitting in a straight line, that is to say, the pipe and the pipe fitting are not coaxial, in this case, a special straightener is needed to fix the pipe and pipe fitting to reduce the stress of the pipe being inserted into the pipe fitting.
6. Insert the output electrode of the welding machine into the electrode post of the pipe fitting, start the electrofusion welding machine, and accurately input the welding time, voltage, current, and other parameters calibrated on the pipe fitting. Or directly scan the barcode to enter the welding parameters.
7. Press the confirmation button, and the welding machine will display the welding parameters again. After complete confirmation, press the start button to start welding. After the welding is completed, an automatic alarm will appear and the welding process is completed.
8. Before the cooling time is over, the pipe should not be moved, stepped on, or cut. The output cable can be removed without affecting the cooling and welding of the PE pipe and preparation for the next welding can begin.

PE pipe electrofusion welding quality inspection

1. There is no smoke or other abnormalities during the welding process
2. Keep pipes and fittings straight
3. The observation columns have all been fully protruded.
4. No solution flows out, and the electric heating wire is not obviously extruded and displaced.

PE Pipe Electrofusion Welding Operating Steps

1. Flatten the pipe end, measure and mark the depth or welding area of the pipe fitting on the pipe with a marker.

2. Before welding, you need to use a scraper to clean the oxide layer in the welding area of the PE water supply pipe.

3. The welding surfaces of pipes and fittings must be absolutely clean, dry, and free of oil. If conditions permit, you can use alcohol to clean the welding surface.

4. Insert the welded end of the pipe to the limiting shoulder of the pipe fitting or the depth marked on the PE pipe in step 2. The pipe fitting must be installed with the pipe under stress-free conditions. In special cases, if the pipe is not inserted into the pipe fitting in a straight line, that is to say, the pipe and the pipe fitting are not coaxial, in this case, a special straightener is needed to fix the pipe and pipe fitting to reduce the stress of the pipe being inserted into the pipe fitting.

5. Insert the output electrode of the welding machine into the electrode post of the pipe fitting, start the electrofusion welding machine, and accurately input the welding time, voltage, current, and other parameters calibrated on the pipe fitting. Or directly scan the barcode to enter the welding parameters.

6. Press the confirmation button, and the welding machine will display the welding parameters again. After complete confirmation, press the start button to start welding. After the welding is completed, an automatic alarm will appear and the welding process is completed.

7. Before the cooling time is over, the pipe should not be moved, stepped on, or cut. The output cable can be removed without affecting the cooling and welding of the PE pipe and preparation for the next welding can begin.


海丽管道
Haili pipeline

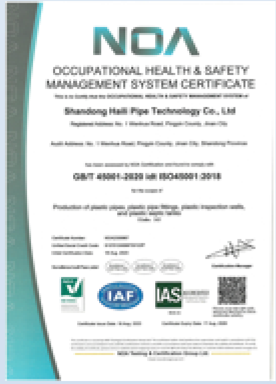
PE Pipe Production Equipment

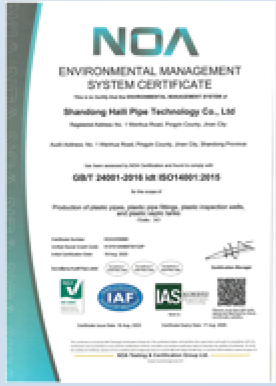
HDPE PIPE Applications

HDPE (High-Density Polyethylene) pipes find extensive applications across various industries and sectors due to their versatile properties and benefits. Here are some common applications of HDPE pipes

1. Water Supply and Distribution 2. Sewage and Wastewater Systems 3. Irrigation and Agriculture 4. Industrial Applications 5. Gas Distribution 6. Telecommunication and Cable Protection 7. Environmental Protection 8. Geothermal Systems

Certificates





海丽管道
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