

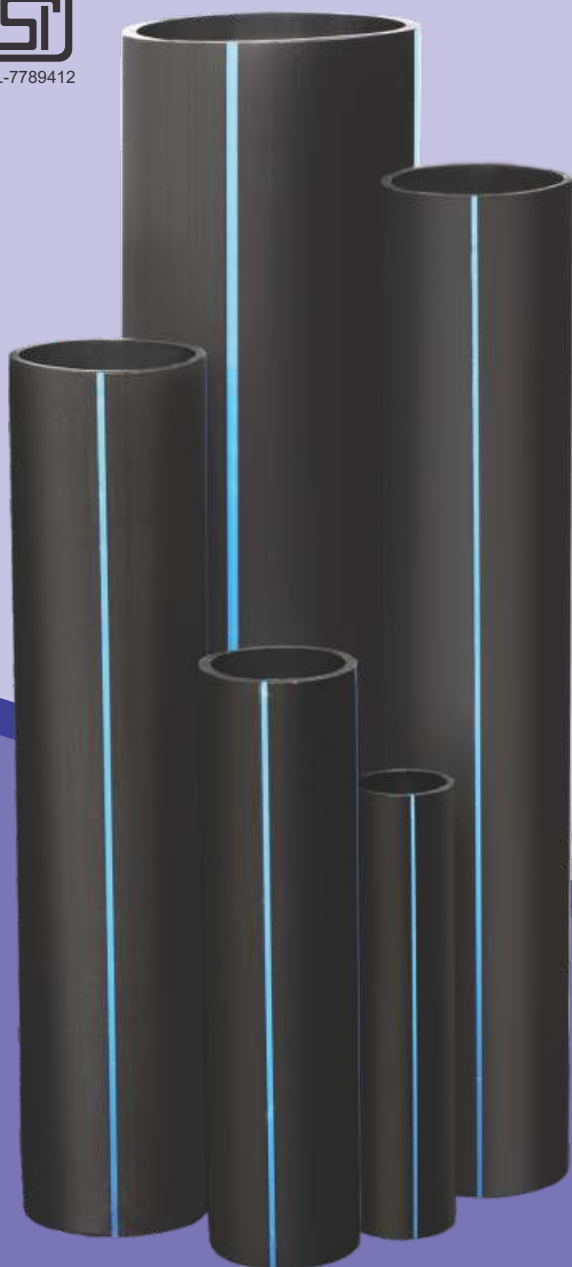
POLYETHYLENE Piping System

... The next generation piping

IS:4984

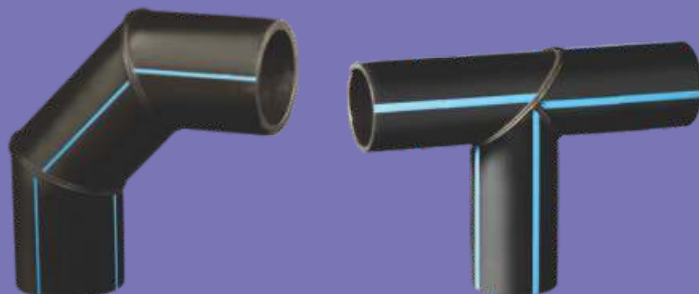


CML-7789412



The Supreme Industries Ltd. is an acknowledged leader of India's plastic industry. It is credited with pioneering several path breaking products and has gained a valuable experience in providing innovative and cost effective piping solutions. The Company has been a trend setter and a torch bearer in the transition from conventional to advanced plastic piping products in the country. The Company's objective is to meet the growing needs of its clientele in water and waste management and in infrastructure sector through a specially designed high performance range of piping products. The innovative product portfolio offered by Supreme is extensive in nature and applications. With its range of over 8000 products, the most comprehensive in the piping industry, Supreme caters to almost every conceivable need and application in piping.

Supreme offers complete range of Polyethylene (PE) pipes up to 800mm sizes for water supply, drainage, irrigation, bore well application and infrastructure projects. Supreme PE pipes are user friendly, simple and easy to fit and equipped with many outstanding features that assures long term system performance and low maintenance cost.



The system

Supreme polyethylene pipes are safe, long lasting and cost effective solution for potable water supply, irrigation and bore well application. Supreme HDPE pipes are manufactured from virgin raw material with the help of state of the art manufacturing facilities. Stringent tests on raw material and finished goods ensures the quality as per the national and international standards. Being a pioneer in bringing innovative piping products for varied applications, continuous improvement is a regular phenomenon at Supreme. All these activities are carried out with the help of experts in the field of Polymer. Supreme strongly believes in providing uncompromising quality products and services to delight the customers.

The pipes and fittings are available in complete range from 16mm to 800mm sizes. The pipes are available in PN 2 to PN 20 pressure class in PE 63, PE 80 and PE 100 grades. Supreme PE pipes are manufactured according to IS:4984 and ISO:4427. Supreme PE pipes are tested by WRC-NSF, UK, that endorses its suitability for potable water.

Features and benefits

- High reliability and proven service performance
- Resistance to low temperature
- High impact resistance
- Abrasion resistance
- Excellent flow characteristics
- Excellent chemical and corrosion resistance
- Excellent weld-ability
- Excellent UV resistance
- Wide variety of installation methods
- Easy, quick and economical installation
- Long service life
- Excellent water hammer resistance
- Ideal in shifting soil condition and earthquake prone areas

Pipes

Size range - 16mm to 800mm
Pressure class - SDR41 to SDR 6 (PN 2 to 20)
Grades - PE 63, PE 80, PE 100.



Fittings

All the compatible fittings are made available in handmade form to cater all system requirements.



Standards

Application	Grade	Applicable standard
Potable water mains, house connections	PE 63, PE 80 and PE 100	IS:4984, ISO:4427, DIN 8074/75, AS/NZS 4130
Rural and agricultural pipes	PE 63 and PE 80	IS:14151 (P-1)
Column pipes for submersible pumps in coil form	PE 63 and PE 80	IS:4984
Sprinkler and drip irrigation	PE 63 and above grade	IS:14151 Part - 1 and 2
Sewerage/Subsoil drainage	PE 80 and PE 100	IS:14333
Coal handling in mines	PE 80 and PE 100	IS:4984, IS:14333
Industrial applications	PE 63, PE 80 and PE 100	IS:4984, IS:14333
ID Pipes for submersible pump	PE 63 and PE 80	Company standard



Applications of HDPE Pipes

Water supply systems	Industrial	Environmental protection	Agriculture	Other
Transportation and distribution system	Effluents, chemicals and treated/untreated water disposal	Underground drainage and sewerage application/ rehabilitation of existing sewer	Column piping for submersible and jet pumps	Transportation of chemicals, solids, gas and oils
House service connection e.g. municipal water bodies, SEZ's, layout's, etc.	As hydro transport system for handling and conveyance of iron, coal and cement slurry in mines	Effluent and waste treatment plants	Suction and delivery pipes	Underwater pipelines/ desalination plants
	For conveyance of edible oil, fruit pulps, juices, milks and other food materials	Dust suppression piping systems in cement industry	Sprinkler irrigation system	
	As a ventilation and air conditioning duct	Sand slurry disposal pipes in dredging.	Lift irrigation	
		De-gassing pipes in water effluent marine outfalls	Insecticide spraying	

Standard dimension ratio (SDR) and corresponding wall thicknesses of pipes as per IS 4984:2016

SDR	SDR 41		SDR 33		SDR 26		SDR 21		SDR 17		SDR 13.6		SDR 11		SDR 9		SDR 7.4		SDR 6	
Nominal Pressure (PN) Bar																				
PE 63	PN2		PN 2.5		PN 3.2		PN 4		PN 5		PN 6		PN 8		-		-		-	
PE 80	PN 2.5		PN 3.2		PN 4		PN 5		PN 6		PN 8		PN 10		PN 12.5		PN 16		PN 20	
PE 100	PN 3		PN 4		PN 5		PN 6		PN 8		PN 10		PN 12.5		PN 16		PN 20		-	
Nominal OD	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	2.1	2.2	2.5	2.7	3.1
20	-	-	-	-	-	-	-	-	-	-	-	-	1.9	2.2	2.3	2.6	2.7	3.1	3.4	3.8
25	-	-	-	-	-	-	-	-	-	-	1.9	2.2	2.3	2.6	2.8	3.2	3.4	3.8	4.2	4.7
32	-	-	-	-	-	-	-	-	1.9	2.2	2.4	2.7	2.9	3.3	3.6	4.1	4.4	4.9	5.4	6.0
40	-	-	-	-	-	-	1.9	2.2	2.4	2.7	3.0	3.4	3.7	4.2	4.5	5.1	5.4	6.0	6.7	7.5
50	-	-	-	-	2.0	2.3	2.4	2.7	3.0	3.4	3.7	4.2	4.6	5.2	5.6	6.3	6.8	7.6	8.4	9.3
63	-	-	-	-	2.5	2.9	3.0	3.4	3.7	4.2	4.7	5.3	5.8	6.5	7.0	7.8	8.6	9.6	10.5	11.7
75	1.9	2.2	2.3	2.6	2.9	3.3	3.6	4.1	4.5	5.1	5.6	6.3	6.9	7.7	8.4	9.3	10.2	11.3	12.5	13.9
90	2.2	2.5	2.8	3.2	3.5	4.0	4.3	4.8	5.3	5.9	6.7	7.5	8.2	9.1	10.0	11.1	12.2	13.5	15.0	16.6
110	2.7	3.1	3.4	3.8	4.3	4.8	5.9	6.6	6.5	7.3	8.1	9.0	10.0	11.1	12.3	13.6	14.9	16.5	18.4	20.3
125	3.1	3.5	3.8	4.3	4.8	5.4	6.0	6.7	7.4	8.2	9.2	10.2	11.4	12.7	13.9	15.4	16.9	18.7	20.9	23.1
140	3.5	4.0	4.3	4.8	5.4	6.0	6.7	7.5	8.3	9.2	10.3	11.4	12.8	14.2	15.6	17.3	19.0	21.0	23.4	25.8
160	3.9	4.4	4.9	5.5	6.2	6.9	7.7	8.6	9.5	10.6	11.8	13.1	14.6	16.2	17.8	19.7	21.7	24.0	26.7	29.5
180	4.4	4.9	5.5	6.2	7.0	7.8	8.6	9.6	10.6	11.8	13.3	14.7	16.4	18.1	20.0	22.1	24.4	26.9	30.0	33.1
200	4.9	5.5	6.1	6.8	7.7	8.6	9.6	10.7	11.8	13.1	14.7	16.3	18.2	20.1	22.3	24.6	27.1	29.9	33.4	36.8
225	5.5	6.2	6.9	7.7	8.7	9.7	10.8	12.0	13.3	14.7	16.6	18.4	20.5	22.7	25.0	27.6	30.5	33.7	37.5	41.4
250	6.1	6.8	7.6	8.5	9.7	10.8	12.0	13.3	14.7	16.3	18.4	20.3	22.8	25.2	27.8	30.7	33.8	37.3	41.7	46.0
280	6.9	7.7	8.5	9.5	10.8	12.0	13.4	14.8	16.5	18.3	20.6	22.8	25.5	28.2	31.2	34.4	37.9	41.8	46.7	51.5
315	7.7	8.6	9.6	10.7	12.2	13.5	15.0	16.6	18.6	20.6	23.2	25.6	28.7	31.7	35.0	38.6	42.6	47.0	52.5	57.9
355	8.7	9.7	10.8	12.0	13.7	15.2	16.9	18.7	20.9	23.1	26.1	28.8	32.3	35.6	39.5	43.6	48.0	52.9	59.2	65.2
400	9.8	10.9	12.2	13.5	15.4	17.0	19.1	21.1	23.6	26.1	29.5	32.6	36.4	40.1	44.5	49.1	54.1	59.6	66.7	73.5
450	11.0	12.2	13.7	15.2	17.3	19.1	21.5	23.8	26.5	29.3	33.1	36.5	40.9	45.1	50.0	55.1	60.9	67.1	75.0	82.6
500	12.2	13.5	15.2	16.8	19.3	21.3	23.9	26.4	29.5	32.6	36.8	40.6	45.5	50.2	55.6	61.3	67.6	74.5	83.4	91.8
560	13.7	15.2	17.0	18.8	21.6	23.9	26.7	29.5	33.0	36.4	41.2	45.4	50.9	56.1	62.3	68.6	75.7	83.4	93.4	102.8
630	15.4	17.0	19.1	21.1	24.3	26.8	30.0	33.1	37.1	40.9	46.4	51.1	57.3	63.1	70.0	77.1	85.2	93.8	105.0	115.6
710	17.3	19.1	21.6	23.9	27.3	30.1	33.9	37.4	41.8	46.1	52.2	57.5	64.6	71.2	78.9	86.9	96.0	105.7	118.4	130.3
800	19.5	21.6	24.3	26.8	30.8	34.0	38.1	42.0	47.1	51.9	58.9	64.9	72.8	80.2	88.9	97.9	108.2	119.1	-	-

* Pressure ratings marked in red color are not covered under ISI mark

Joining techniques

Supreme Polyethylene pipes can be joined by different means, some of the joining techniques are as given below:

- Butt fusion
- Electro fusion
- Socket fusion
- Compression joint
- Flanged joint
- Coupling joint

Length and packaging

Size range (mm)	Coil length (m)
20 - 50	100, 200, 500, 1000
63 - 75	100, 200, 300
90 - 110	50, 100, Straight length of 6 - 12m
125 - 800	Straight length 6 - 12m

Water hammer resistance

HDPE can withstand repetitive pressure surges that exceed the static pressure rating of the pipe giving it excellent resistance to water hammer events. In DI pipe, anticipated surge pressures are the highest. Surge pressure in PE is 44% less than in PVC and 81% less than in DI. PE withstands surges up to 150-200 % of design pressure.

When PE is used, piping system components are subjected to a significantly lower surge.

Butt-Welding (procedure)

Check the Wall Alignment and Gap

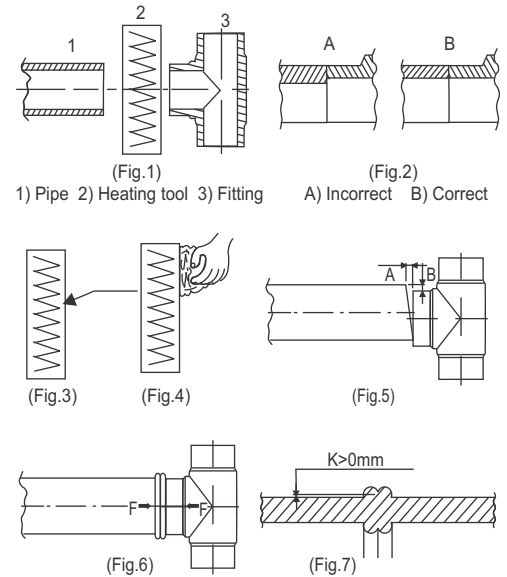
The alignment of the two parts should be checked at the same time. A possible misalignment on the outside must not exceed 10% of the thickness of the wall (Fig 5). If this limit is exceeded, a better clamping position is to be sought by rotating the pipe. In such a case, however, the surface must be re-planed. Important - The welding surfaces must be planed immediately prior to the jointing.

Once it has attained the fusion temperature, position the heating element in the butt-welding machine. Press the parts to be joined against the heating element with the force required for equalization until the entire circumference of each of the jointing faces rests completely against it and a bead has formed. Reduce the equalization pressure almost to zero. The heating time listed in the table below is measured from this moment.

Leave parts in the butt-welding jointing machine at welding pressure until the end of the cooling period. Once the heating period has elapsed, remove the parts from heating element, which should then be removed without touching the jointing surfaces and push the parts together immediately. The change over time must not exceed the value listed in the table. Pay particular attention during jointing that the parts be moved together swiftly until the surface are about to touch. Then they should be moved together so that they are in contact along the entire circumference. Next the pressure should be increased rapidly to the present jointing within the period of time specified in the table below. This pressure must be necessary, especially shortly after the jointing pressure has been attained. (Fig 6) The jointing parts must stay in the welding machine under jointing pressure until the end of the cooling period specified in the table.

Welding bead checks

A bead should form around the entire circumference of the pipe. Jointing of two-lip point should be above the pipe circumference means always being positive. (Fig 7)



Recommended values for the heated tool butt-welding of pipes and fittings

Wall thickness (mm)	Height of bead (mm)	Heating time (sec)	Changeover time max (sec)	Time to reach full jointing (sec)	Cooling time under joining pressure (min)
up to 4.5	0.5	45	5	5	6
4.5 - 7	1.0	45-70	5-6	5-6	6-10
7 - 12	1.5	70-120	6-8	6-8	10-16
12-19	2.0	120-190	8-10	8-11	16-24
19-26	2.5	190-260	10-12	11-14	24-32
26-37	3.0	260-370	12-16	14-19	32-45
37-50	3.5	370-500	16-20	19-25	45-60
50-70	4.0	500-700	20-25	25-35	60-80

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The Supreme Industries Ltd. (Plastic Piping Division)

Corporate Office: 1161/1162, Solitair Corporate Park, Building No. 11,167, Guru Hargovindji Marg, Chakala, Andheri Ghatkopar Link Road, Andheri (East) Mumbai - 400 093. India. Tel: 91-22-67710000, 40430000

Regd. Office: 612 Raheja Chambers, Nariman Point, Mumbai 400 021. India. Tel.: (022) 22851656, 22820072
E-mail: pvc-pipes@supreme.co.in Website: www.supreme.co.in

Export Division: Tel: 91-22-6771 0126 / 4043 0126; Fax: 6771 0130

Overseas Office: Sharjah, UAE. Tel# +971 6 557 4484; Fax# +971 6 557 4485

CIN: L35920MH1942PLC003554

Branch Offices Tel.

Ahmedabad : 079-30028371
Bangalore : 080-30913715
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