



RELPIPE HDPE PIPE



TECHNICAL DATA SHEET

1. Technical details:

Pipe – grades	Range (in mm Ø)
HDPE Pipe (PE63 /PE80 /PE100) – As per IS 4984, IS 17425 , IS 14333 , EN , ISO, DIN , IS 14885 standards	Outer diameter (DN) - 20mm to 400mm SDR – 7.4 to 41 PN – 2.0 to 16.0 Bar

2. Typical Properties:

SPECIFICATION OF IS PIPES FOR ALL GRADES AS PER IS 4984: 2016

PE 63 Grade : 20 - 400mm Nominal OD, Nominal Pr. Rating : PN 2.0 To PN8
PE 80 Grade : 20 - 400mm Nominal OD, Nominal Pr. Rating : PN2.5 To PN20
PE 100 Grade : 20 – 400mm Nominal OD, Nominal Pr. Rating : PN3.0 To PN20

Sr. No	Parameter	Test Method No.	Unit	Specification Limits											
				Pressure Ratings (PN) - Bar											
				2	2.5	3	3.2	4	5	6	8	10	12.5	16	20
1	Visual Appearance	IS 4984	-	Internal and External surfaces of the pipes shall be smooth, clean and free from grooving and other defects											

				REFER ANNEXURE – I (For PE 63, PE80 & PE100 Grades)
2	Outer Diameter	IS 4984	mm	
3	Wall Thickness	--do--	mm	
4	Ovality	--do--	mm	
5	Reversion	IS 4984	%	Max 3
7	Density	IS 7328	Kg/m ³	940 - 960
8	Melt Flow Rate	IS 2530	gms/10mins	0.15 - 1.10
9	Oxidation Induction Time	IS 4984	Minutes	Min 20
10	Elongation at break	IS 4984	%	Min 350
11	Carbon Black Dispersion	IS 2530	--	Shall be Satisfactory
12	Carbon Black Content	IS 2530	%	2.5 ± 0.5
13 (a)	Hydrostatic Pressure Test Acceptance Test (@48hrs/3.8mpa/4.9mpa/5.7mpa/80°C)	IS 4984	Hours	No localized swelling or leakage during the test period
13 (b)	Hydrostatic Pressure Test For Joints Acceptance Test (@48hrs/3.8mpa/4.9mpa/5.7mpa/80°C)	IS 4984	Hours	No localized swelling or leakage during the test period
14	Tensile Strength for butt fusion	IS 4984	--	Failure mode should be ductile
15	Overall Migration Test	IS 9845 & IS 10146	Mg/dm ²	Max 10
16	Hydrostatic Pressure Test-Type Test (@100hrs/6.9mpa/8.6mpa/10.7mpa/80°C)	IS 4984	Hours	No localized swelling or leakage during the test period
17	Hydrostatic Pressure Test-Type Test (@165hrs/3.5mpa/4.5mpa/5.4mpa/80°C)	IS 4984	Hours	No localized swelling or leakage during the test period
18	Hydrostatic Pressure Test-Type Test (@1000hrs/3.2mpa/4.0mpa/5.0mpa/80°C)	IS 4984	Hours	No localized swelling or leakage during the test period
19	Slow Crack Growth Rate Test - Type Test (@500hrs/0.64mpa/0.8mpa/0.92mpa/80°C)	IS 4984	Hours	No localized swelling or leakage during the test period
20	Tensile strength at Yield	IS 4984	Mpa	>15
21	Elongation at Break	IS 4984	%	>350

Note: Sr.No 1 to 13(b) are considered as release parameters. If any parameter fails to meet the specification, necessary segregation (i.e defective pipes will be removed from the lot) and lot will be released accordingly.

Annexure – 1 – Dimension chart.

MAX OD MM	OD MM	TOL MM	OVALITY MM	WALL THICKNESS (MM) AND UNIT WEIGHTS (KG./MTR.)																											SDR									
				SDR 6			SDR 7.4			SDR 9			SDR 11			SDR 13.6			SDR 17			SDR 21			SDR 26			SDR 33				SDR 41			SDR					
				PE63			-			-			PN 8			PN 6			PN 5			PN 4			PN 3.2			PN 2.5				PN 2				PE63				
				PE80			PN 20			PN 16			PN 12.5			PN10			PN 8			PN 6			PN 5			PN 4				PN 3.2					PN 2.5			PE80
				PE100			-			PN 20			PN 16			PN 12.5			PN 10			PN 8			PN 6			PN 5				PN 4					PN 3.2			
CIRCUM MM		MIN	MAX	UWT	MIN	MAX	UWT	MIN	MAX	UWT	MIN	MAX	UWT	MIN	MAX	UWT	MIN	MAX	UWT	MIN	MAX	UWT	MIN	MAX	UWT	MIN	MAX	UWT	MIN	MAX	UWT	MIN	MAX	UWT	OD MM					
20.3	20																																			0.3	1.2	62.8	63.8	3.4
25.3	25	0.3	1.2	78.6	79.5	4.2	4.8	0.279	3.4	3.9	0.235	2.8	3.2	0.199	2.3	2.7	0.170	2.0	2.3	0.148	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25			
32.3	32	0.3	1.3	100.5	101.5	5.4	6.1	0.455	4.4	5.0	0.387	3.6	4.1	0.327	3.0	3.4	0.278	2.4	2.8	0.231	2.0	2.3	0.194	-	-	-	-	-	-	-	-	-	-	-	-	-	32			
40.4	40	0.4	1.4	125.7	126.9	6.7	7.5	0.705	5.5	6.2	0.603	4.5	5.1	0.510	3.7	4.2	0.430	3.0	3.4	0.355	2.4	2.8	0.293	2.0	2.3	0.246	-	-	-	-	-	-	-	-	-	-	40			
50.4	50	0.4	1.4	157.1	158.4	8.4	9.4	1.103	6.8	7.6	0.929	5.6	6.3	0.790	4.6	5.2	0.666	3.7	4.2	0.548	3.0	3.4	0.451	2.4	2.8	0.371	2.0	2.3	0.310	-	-	-	-	-	-	-	50			
63.4	63	0.4	1.5	197.9	199.2	10.5	11.7	1.735	8.6	9.6	1.478	7.0	7.8	1.239	5.8	6.5	1.053	4.7	5.3	0.874	3.8	4.3	0.719	3.0	3.4	0.576	2.5	2.9	0.490	-	-	-	-	-	-	-	63			
75.5	75	0.5	1.6	235.7	237.2	12.5	13.9	2.458	10.2	11.4	2.089	8.4	9.4	1.772	6.9	7.7	1.489	5.6	6.3	1.238	4.5	5.1	1.015	3.6	4.1	0.825	2.9	3.3	0.671	2.3	2.7	0.546	2.0	2.3	0.472	75				
90.6	90	0.6	1.8	282.8	284.7	15.0	16.6	3.533	12.2	13.6	2.997	10.0	11.1	2.526	8.2	9.2	2.131	6.7	7.5	1.773	5.3	6.0	1.436	4.3	4.9	1.183	3.5	4.0	0.974	2.8	3.2	0.786	2.2	2.6	0.633	90				
110.7	110	0.7	2.2	345.6	347.8	18.4	20.4	5.295	14.9	16.5	4.460	12.3	13.7	3.799	10.0	11.1	3.161	8.1	9.1	2.627	6.5	7.3	2.143	5.3	6.0	1.776	4.3	4.9	1.460	3.4	3.9	1.169	2.7	3.1	0.936	110				
125.8	125	0.8	2.5	392.8	395.3	20.9	23.1	6.827	16.9	18.7	5.749	13.9	15.4	4.870	11.4	12.7	4.100	9.2	10.3	3.385	7.4	8.3	2.770	6.0	6.7	2.270	4.9	5.5	1.877	3.8	4.3	1.476	3.1	3.6	1.227	125				
140.9	140	0.9	2.8	439.9	442.7	23.4	25.9	8.567	19.0	21.0	7.231	15.6	17.3	6.123	12.8	14.2	5.145	10.3	11.5	4.239	8.3	9.3	3.478	6.7	7.5	2.843	5.4	6.1	2.325	4.3	4.9	1.876	3.5	4.0	1.539	140				
161	160	1.0	3.2	502.7	505.9	26.7	29.5	11.166	21.7	24.0	9.441	17.8	19.7	7.978	14.6	16.2	6.708	11.8	13.1	5.534	9.5	10.6	4.539	7.7	8.6	3.728	6.2	7.0	3.050	4.9	5.5	2.425	4.0	4.5	1.994	160				
181.1	180	1.1	3.6	565.6	569.0	30.0	33.1	14.109	24.4	27.0	11.945	20.0	22.1	10.079	16.4	18.2	8.478	13.3	14.8	7.023	10.6	11.8	5.694	8.6	9.6	4.684	7.0	7.8	3.847	5.5	6.2	3.068	4.4	5.0	2.482	180				
201.2	200	1.2	4.0	628.4	632.2	33.4	36.9	17.454	27.1	30.0	14.744	22.3	24.7	12.493	18.2	20.2	10.456	14.8	16.4	8.664	11.8	13.1	7.033	9.6	10.7	5.804	7.7	8.6	4.709	6.1	6.9	3.788	4.9	5.5	3.051	200				
226.4	225	1.4	4.5	707.0	711.3	37.5	41.4	22.052	30.5	33.7	18.654	25.0	27.6	15.743	20.5	22.7	13.235	16.6	18.4	10.938	13.3	14.8	8.928	10.8	12.0	7.335	8.7	9.7	5.980	6.9	7.7	4.787	5.5	6.2	3.862	225				
251.5	250	1.5	5.0	785.5	790.2	41.7	46.0	27.230	33.8	37.3	22.964	27.8	30.7	19.449	22.8	25.2	16.337	18.4	20.4	13.474	14.8	16.4	11.014	12.0	13.3	9.043	9.7	10.8	7.402	7.6	8.5	5.866	6.1	6.9	4.767	250				
281.7	280	1.7	9.8	879.8	885.1	46.7	51.5	34.152	37.9	41.8	28.828	31.2	34.5	24.455	25.5	28.2	20.474	20.6	22.8	16.883	16.5	18.3	13.763	13.4	14.9	11.331	10.8	12.0	9.223	8.5	9.5	7.346	6.9	7.7	5.996	280				
316.9	315	1.9	11.1	989.7	995.7	52.5	57.9	43.199	42.6	47.0	36.463	35.0	38.6	30.838	28.7	31.7	25.907	23.2	25.7	21.397	18.6	20.6	17.439	15.0	16.6	14.239	12.2	13.6	11.738	9.6	10.7	9.320	7.7	8.6	7.532	315				
357.2	355	2.2	12.5	1115.4	1122.3	59.2	65.3	54.900	48.0	52.9	46.286	39.5	43.6	39.233	32.3	35.7	32.877	26.2	29.0	27.220	20.9	23.1	22.068	17.0	18.8	18.176	13.7	15.2	14.823	10.8	12.0	11.799	8.7	9.7	9.583	355				
402.4	400	2.4	14.0	1256.8	1264.3	66.7	73.5	69.662	54.1	59.7	58.804	44.5	49.1	49.789	36.4	40.2	41.726	29.5	32.6	34.505	23.6	26.1	28.079	19.1	21.2	23.053	15.4	17.1	18.782	12.2	13.6	15.040	9.8	10.9	12.147	400				
452.7	450	2.7	15.6	1413.9	1422.4	75.00	82.6	88.111	60.9	67.1	74.413	50.0	55.1	62.912	41.0	45.2	52.824	33.1	36.6	43.578	26.5	29.3	35.471	21.5	23.8	29.154	17.4	19.3	23.857	13.7	15.2	18.956	11.0	12.2	15.317	450				

3. Shelf Life :

The typical benchmark for HDPE life expectancy is 50 years as per Various standards.

4. Typical Processing Conditions :

Processing temperature: 180 – 240 OC

Processing parameters mentioned above are for reference only and not to be considered as specifications. They may vary based on the product to be manufactured.

5. Applications :

Water supply (Potable / General purpose), Sprinkler irrigation, Sewerage and Chemical and effluent disposal,

6. Regulatory Information :

The constituents of Black Masterbatch, & the antioxidant additive present in master batch used for manufacturing of Pipes complies the positive list of constituents of Polyethylene, in contact with foodstuff pharmaceutical & drinking water as per Clause no 5.3 (IS 4984:2016 amendment II Clause 5.3b) and does not constitute a toxic hazard, does not support microbial growth and does not give rise to unpleasant taste or odour, cloudiness discoloration of the water.

7. Storage Recommendations:

The storage area should have a relatively smooth, level surface free of stones, debris or other materials that could damage the pipe or fittings. Where adequate ground conditions do not exist or when a bed cannot be prepared, the pipe may be placed on planking evenly spaced along the pipe length.

HDPE has a certain ability to resist ultraviolet light. However, with the extension of time and the increase of UV intensity, HDPE will gradually degrade

For outdoor storage : HDPE pipe is durable and suitable for outdoor storage. However, special care should be taken when temperatures drop below freezing. When HDPE pipe is exposed to freezing conditions, the flexibility of the pipe tends to reduce, which means it's more likely to break if handled improperly.

8. Recycling :

The addition of not more than 5 percent of the manufacturer's own rework material conforming to this standard is permissible. No other rework material shall be used.

9. After end of Use / Disposal :

HDPE plastic can be recycled up to 10 times before its quality is compromised. Most recycled HDPE is combined with virgin pellets to maintain the high quality of plastic. HDPE is always checked at the recycling centre to ensure its quality before processing, so it's worth always recycling any HDPE waste.

(Note : Specifications are derived from respective Standards followed for manufacturing of Pipes.)