RELPIPE HDPE XFLO™ PIPE

Reliance POLYMERS

TECHNICAL DATA SHEET

1. Technical details:

Pipe – grades	Range (in mm Ø)
HDPE Pipe (PE63 /PE80 /PE100) – Equivalent to IS 4984, IS 17425 standards	Outer diameter (DN) - 20mm to 110mm PN – 2.0 to 16.0 Bar

2. Typical Properties:

Technical Specifications for HDPE XFLO™ Pipes for Water Supply

PE 63 Grade : 20 - 110mm Nominal OD, Nominal Pr. Rating : PN 2.0 To PN8
PE 80 Grade : 20 - 110mm Nominal OD, Nominal Pr. Rating : PN2.5 To PN20
PE 100 Grade : 20 – 110mm Nominal OD, Nominal Pr. Rating : PN3.0 To PN20

Acceptance Tests : for Product Release

Sl.No.	Technical Requirements	Test Method	UoM	Specified Values / Requirements	Sampling Plan	No.of Samples	Remarks
a.	Length of Pipe	-	Mtr.	Straight length / coil as per customer requirement and coil ability chart	Daily	Each Coil / Pipe	a) These tests to be considered as immediate Release

b.	Coiling	-	-	Minimum bending radius 16 times nominal diameter of Pipe	Daily	Each Coil / Pipe	strategy for Dispatch. b) Failure of any of the test would need to rejection of lot. Same si to be segregated and balance to be reoffered for inspection. 2nd failure would lead to complete rejection of the Lot.
c.	Marking	-	-	- Hot Embossing with base white preferably or any other color as agreed by customer - Marking at Every Meter - Marking Information such as Manufacturer's Name / Trade Mark, Designation of Pipe (PE63 / PE80 / PE100), Lot Number / Batch Number	Daily	Each Coil / Pipe	
d.	Visual Appearance	QAP-QA-3.609	-	- Smooth Internal & External surfaces, Clean and free from grooving and other defects (Slight shallow longitudinal grooves allowed, till wall thickness remains within the limit). - End cut clean and square with the pipe axis. Maximum Out of squareness range are 2mm for DN 20 to DN75, 3mm for DN90 to DN125, 4mm for DN140 to DN180, 5mm for DN200 to DN280 & 7mm for above DN280.	Daily	Each Coil / Pipe	
e.	Dimensions of Pipes	QAP-QA-3.609		Refer Page 2 & 3	Daily	Each Coil / Pipe	
	a) Outside Diameter		mm				
	b) Wall thickness		mm				
	c) Ovality		mm				

f.	Reversion	QAP-QA-3.610	%	Max 3		1 Sample/Lot	
g.	Carbon Black Content	QAP-QA-3.616	%	2.5±0.5		1 Sample/Lot	
h.	Carbon Black Dispersion	QAP-QA-3.617	-	Satisfactory		1 Sample/Lot	

Type Tests :

i.	Melt Flow Rate	QAP-QA-3.630	gms/10mins	0.2 - 1.1	Once in a week	1 random Sample	
j.	Density	QAP-QA-3.629	Kg/m3	>940.0	Once in a week	1 random Sample	
k.	Internal Creep Rupture Test (PE63- 3.8mpa/80^{0}C/48Hrs PE80-4.9mpa/80^{0}C/48Hrs PE100-5.7mpa/80^{0}C/48Hrs)	QAP-QA-3.615	Hours	Sample shall not show leakage or swelling and shall not burst during the test period	Once in a Month	1 random Sample	
l.	Overall Migration	QAP-QA-3.619	Mg/dm2	Max 10	Once in a week	1 random Sample	

(Note : a) Any failure Type tests will accompany with suitable communication with customer (if the dispatch of that lot is over) in consultation with Marketing for forward action.

b) Before Dispatch – Resampling to be done and if result is found OK, the lot to be released with segregation of failed pipe / coil no. If the result of resampling is not OK.– The lot is to be rejected.)

c) Lot : One Lot = Maximum 24 Hrs. continuous Production of one grade (i.e one SAP code) under similar set of processing condition and same Input materials or Any change in size (Pipe Type or Diameter or Pressure class or Stripe Color or any combination of all)

3. Dimension Chart :

Standard Dimension chart is as below (Customized dimensions can be made)

DN	Type	PN 2.5			PN 4			PN 6			PN 8			PN 10			PN 12.5			PN 16		
		Min	Max	Wt. (kg/m)	Min	Max	Wt. (kg/m)	Min	Max	Wt. (kg/m)	Min	Max	Wt. (kg/m)	Min.	Max.	Wt. (Kg/m)	Min.	Max.	Wt. (Kg/m)	Min.	Max	Wt. (Kg/m)
20	PE 63	-	-	-	-	-	-	-	-	-	-	-	-	2.3	2.8	0.134	2.8	3.3	0.156	3.4	4.0	0.182
	PE 80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.3	2.8	0.134	2.8	3.3	0.155
	PE 100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.3	2.8	0.133
25	PE 63	-	-	-	-	-	-	-	-	-	2.3	2.8	0.173	2.8	3.3	0.202	3.4	4.0	0.238	4.2	4.9	0.281
	PE 80	-	-	-	-	-	-	-	-	-	-	-	-	2.3	2.8	0.172	2.8	3.3	0.200	3.5	4.1	0.243
	PE 100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.3	2.8	0.173	2.9	3.4	0.208
32	PE 63	-	-	-	-	-	-	2.3	2.8	0.226	3.0	3.5	0.282	3.6	4.2	0.330	4.4	5.1	0.390	5.4	6.2	0.458
	PE 80	-	-	-	-	-	-	-	-	-	2.4	2.9	0.231	3.0	3.5	0.282	3.6	4.2	0.329	4.5	5.2	0.397
	PE 100	-	-	-	-	-	-	-	-	-	-	-	-	2.4	2.9	0.234	2.9	3.4	0.274	3.7	4.3	0.338
40	PE 63	-	-	-	2.0	2.4	0.251	2.8	3.3	0.340	3.7	4.3	0.434	4.5	5.2	0.514	5.5	6.3	0.607	6.7	7.6	0.709
	PE 80	-	-	-	-	-	-	2.3	2.8	0.288	3.0	3.5	0.350	3.7	4.3	0.433	4.5	5.2	0.514	5.6	6.4	0.616
	PE 100	-	-	-	-	-	-	-	-	-	2.4	2.9	0.299	3.0	3.5	0.360	3.7	4.3	0.434	4.6	5.3	0.523
50	PE 63	-	-	-	2.4	2.9	0.378	3.5	4.1	0.530	4.6	5.3	0.673	5.6	6.4	0.797	6.8	7.7	0.935	8.4	9.5	1.109
	PE 80	-	-	-	2.3	2.8	0.365	2.9	3.4	0.445	3.8	4.4	0.549	4.6	5.3	0.670	5.6	6.4	0.794	6.9	7.8	0.946
	PE 100	-	-	-	-	-	-	2.3	2.8	0.365	3.0	3.5	0.458	3.7	4.3	0.554	4.6	5.3	0.673	5.7	6.5	0.808
63	PE 63	2.0	2.4	0.403	3.0	3.5	0.586	4.4	5.1	0.835	5.8	6.6	1.062	7.0	7.9	1.249	8.6	9.7	1.487	10.5	11.8	1.745
	PE 80	-	-	-	2.5	3.0	0.500	3.6	4.2	0.692	4.7	5.4	0.859	5.8	6.6	1.061	7.0	7.9	1.249	8.7	9.8	1.497
	PE 100	-	-	-	-	-	-	2.9	3.4	0.569	3.8	4.4	0.728	4.7	5.4	0.883	5.7	6.5	1.047	7.1	8.1	1.270
75	PE 63	2.3	2.8	0.557	3.6	4.2	0.836	5.3	6.1	1.191	6.9	7.8	1.500	8.4	9.5	1.783	10.2	11.5	2.100	12.5	14.0	2.469
	PE 80	-	-	-	2.9	3.4	0.683	4.3	5.0	0.987	5.6	6.4	1.221	6.9	7.8	1.499	8.4	9.5	1.783	10.4	11.7	2.132
	PE 100	-	-	-	-	-	-	3.5	4.1	0.816	4.5	5.2	1.026	5.6	6.4	1.249	6.8	7.7	1.482	8.5	9.6	1.796
90	PE 63	2.8	3.3	0.800	4.3	5.0	1.197	6.3	7.2	1.695	8.2	9.3	2.144	10.0	11.2	2.539	12.2	13.7	3.010	15.0	16.7	3.546
	PE 80	2.3	2.8	0.673	3.5	4.1	0.988	5.1	5.9	1.402	6.7	7.6	1.742	8.2	9.3	2.143	10.0	11.2	2.540	12.5	14.0	3.069
	PE100	-	-	-	-	-	-	4.1	4.8	1.149	5.4	6.2	1.474	6.7	7.6	1.788	8.2	9.3	2.145	10.2	11.5	2.592
110	PE 63	3.4	4.0	1.186	5.3	6.1	1.793	7.7	8.7	2.518	10.0	11.2	3.178	12.3	13.8	3.817	14.9	16.6	4.479	18.4	20.5	5.314
	PE 80	2.7	3.2	0.952	4.3	5.0	1.477	6.3	7.2	2.102	8.2	9.3	2.589	10.0	11.2	3.178	12.3	13.8	3.817	15.2	17.0	4.558
	PE 100	-	-	-	-	-	-	5.0	5.7	1.689	6.6	7.5	2.189	8.1	9.2	2.643	10.0	11.2	3.178	12.4	13.9	3.841

ID BASED POLYETHYLENE PIPE SPECIFICATIONS

PE63 **PN 4**

ID	MAX OD	OD	CIRCUM		PRESSURE CLASS	WALL THICKNESS IN MM		UNIT WT
MM	**MM**	**MM**	**MIN**	**MAX**	**KG/CM2**	**MIN**	**MAX**	**KG/MTR**
40	45.2	44.4	139.5	142.0	4.0	2.2	2.6	0.305
50	56.4	55.4	174.1	177.2	4.0	2.7	3.2	0.469
63	70.8	69.8	219.3	222.5	4.0	3.4	3.9	0.730
75	84.2	83.0	260.8	264.6	4.0	4.0	4.6	1.023

WALL THICKNESS & UNIT WEIGHT FOR SPRINKLER XFLO PIPES

MAX OD MM	O/D MM	TOL MM	OVALITY MM	CIRCUM MM		WALL THICKNESS (MM) AND UNIT WEIGHTS (KG./MTR.)											
						CL-1 (0.25MPa)			**CL-2 (0.32 MPa)**			**CL-3 (0.40 MPa)**			**CL-4 (0.60MPa)**		
				MIN	MAX	MIN	MAX	UWT	MIN	MAX	UWT	MIN	MAX	UWT	MIN	MAX	UWT
40.4	40	+0.4	1.4	125.7	126.9	-	-	-	-	-	-	-	-	-	2.3	2.8	0.288
50.5	50	+0.5	1.4	157.1	158.7	-	-	-	-	-	-	2.0	2.4	0.317	2.9	3.4	0.445
63.6	63	+0.6	1.5	197.9	199.8	-	-	-	2.0	2.4	0.403	2.5	2.9	0.491	3.8	4.4	0.728
75.7	75	+0.7	1.6	235.7	237.8	2.0	2.4	0.483	2.5	2.9	0.589	3.0	3.4	0.693	4.5	5.2	1.026
90.8	90	+0.8	1.8	282.8	285.3	2.2	2.6	0.634	2.9	3.4	0.825	3.5	4.1	0.988	5.3	6.1	1.449
111.0	110	+1.0	2.2	345.6	348.8	2.7	3.2	0.952	3.4	3.9	1.171	4.2	4.8	1.432	6.5	7.4	2.160

4. Shelf Life :

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

5. 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.

6. Applications :

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

7. 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.

8. 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.

9. 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.

10. 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.)