SUDHAKAR

PIPES AND FITTINGS

ABOUT SUDHAKAR GROUP

SUDHAKAR is committed to manufacturing high-quality Plastic piping systems. Our products are not the only pipelines, but lifelines with the mission to achieve sustainable and profitable growth through innovation and world-class products. Our services add exceptional value to our customers and act as a solution provider for all types of piping systems.

SUDHAKAR HDPE PIPES PROFILE

Product: HDPE Pipes
Capacity: 48000 Metric Tonnes Per Annum
Mfg. Units: Suryapet Dist., Telangana; Ganjam Dist., Odisha; Nellore Dist., Andhra Pradesh.
Quality Control and Quality Assurance: High profile laboratory and machinery
Plant and Machinery: World-renowned manufacturing and testing facilities

Polyethylene pipes for water supply as per IS: 4984-2016

SUDHAKAR HDPE pipes are manufactured in accordance with the Bureau of Indian standards specification IS: 4984-2016 and other International standards. We manufacture in the range of

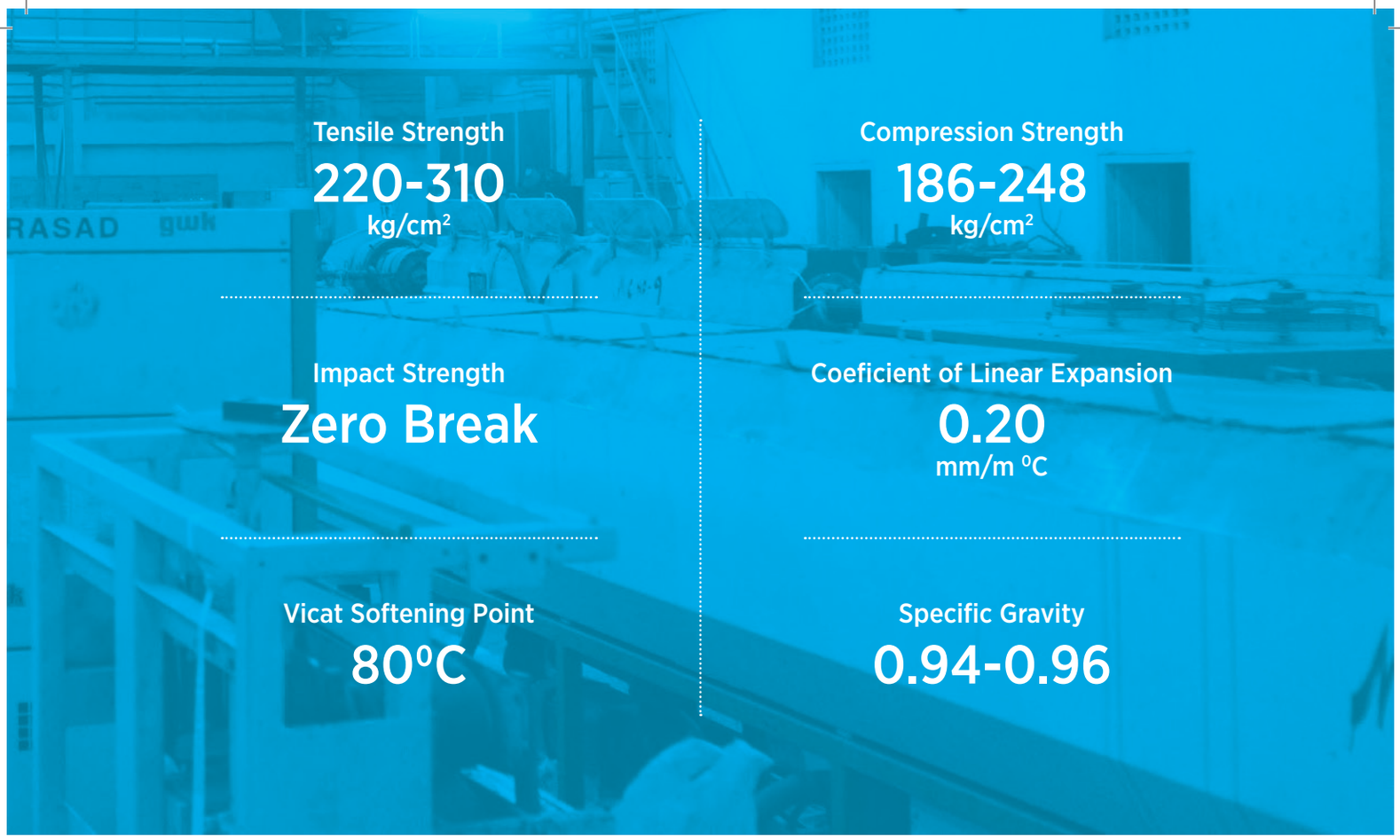
Material Grade	Size	Pressure rating Of pipes	Maximum permissible Working pressure
PE-63 PE-80 PE-100	20 mm to 630 mm	PN 2	0.2 Mpa
		PN 2.5	0.25 Mpa
		PN 3.0	0.30 Mpa
		PN 4	0.40 Mpa
		PN 5	0.50 Mpa
		PN 6	0.60 Mpa
		PN 6.3	0.63 Mpa
		PN 8	0.80 Mpa
		PN 10	1.00 Mpa
		PN 12.5	1.25 Mpa
		PN 16	1.60 Mpa
		PN 20	2.00 Mpa

SALIENT FEATURES AND ADVANTAGES

Lightweight | Toughness | Chemical resistance | Low Electrical and Heat Conductivity
Easy Jointing and Installation | Durability | Smooth Finish | Flexibility

Applications

- For Drinking Water Supply and Irrigation projects
- Tube well suction and delivery pipes
- Suction pipes for Jet & Submersible pumps
- Industrial pipelines for the transport of aggressive fluids like acids/gas/brine/ etc
- For use in effulgent treatment plants and sewerage treatment plants
- For supply of gaseous fuels
- Mines and Factories – for compressed air supply
- Air Conditioning & Ventilation Ducts
- Cable pipelines/Ducting pipelines



Tensile Strength
220-310
kg/cm²

Compression Strength
186-248
kg/cm²

Impact Strength
Zero Break

Coeficient of Linear Expansion
0.20
mm/m °C

Vicat Softening Point
80°C

Specific Gravity
0.94-0.96

IS: 4984 – 2016 High Density Polyethylene Pipes for Water Supply – Specification

WALL THICKNESS OF PIPES FOR MATERIAL GRADE PE-100

SIZE MM	PN 4 (SDR 33)		PN 5 (SDR 26)		PN 6 (SDR 21)		PN 8 (SDR 17)		PN 10 (SDR 13.6)		PN 12.5 (SDR 11)		PN 16 (SDR 9)		PN 20 (SDR 7.4)	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
20	-	-	-	-	-	-	-	-	-	-	1.9	2.2	2.3	2.6	2.7	3.1
25	-	-	-	-	-	-	-	-	1.9	2.2	2.3	2.6	2.8	3.2	3.4	3.8
32	-	-	-	-	-	-	1.9	2.2	2.4	2.7	2.9	3.3	3.6	4.1	4.4	4.9
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
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
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
75	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
90	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
110	3.4	3.8	4.3	4.8	5.3	5.9	6.5	7.3	8.1	9.0	10.0	11.1	12.3	13.6	14.9	16.5
125	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
140	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
160	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
180	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
200	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
225	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
250	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
280	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
315	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
355	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
400	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
450	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
500	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
560	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
630	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

WALL THICKNESS OF PIPES FOR MATERIAL GRADE PE-80

SIZE MM	PN 2.5 (SDR 41)		PN 3.2 (SDR 33)		PN 4 (SDR 26)		PN 5 (SDR 21)		PN 6 (SDR 17)		PN 8 (SDR 13.6)		PN 10 (SDR 11)		PN 12.5 (SDR 9)		PN 16 (SDR 7.4)		PN 20 (SDR 6)	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
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	5.3	5.9	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

WALL THICKNESS OF PIPES FOR MATERIAL GRADE PE-63

SIZE MM	PN 2 (SDR 41)		PN 2.5 (SDR 33)		PN 3.2 (SDR 26)		PN 4 (SDR 21)		PN 5 (SDR 17)		PN 6 (SDR 13.6)		PN 8 (SDR 11)	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
20	-	-	-	-	-	-	-	-	-	-	-	-	1.9	2.2
25	-	-	-	-	-	-	-	-	-	-	1.9	2.2	2.3	2.6
32	-	-	-	-	-	-	-	-	1.9	2.2	2.4	2.7	2.9	3.3
40	-	-	-	-	-	-	1.9	2.2	2.4	2.7	3.0	3.4	3.7	4.2
50	-	-	-	-	2.0	2.3	2.4	2.7	3.0	3.4	3.7	4.2	4.6	5.2
63	-	-	-	-	2.5	2.9	3.0	3.4	3.7	4.2	4.7	5.3	5.8	6.5
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
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
110	2.7	3.1	3.4	3.8	4.3	4.8	5.3	5.9	6.5	7.3	8.1	9.0	10.0	11.1
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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

JOINTING METHODOLOGY

PERMANENT JOINTS

Heated Tool Welding (Butt Fusion)

Butt fusion jointing is normally used for HDPE pipes. The jointing method combines the advantages of cheapness & simplicity with joints of strength equaling that of the pipes

Butt Fusion Jointing

- Clean the pipe's ends.
- Clamp pipe ends tightly into the fusion machine and trim both the surfaces squarely by rotating the double-edged trimmer.
- Remove trimmer and check for square uniform alignments by pressing the pipe ends together.
- With pipe ends properly faced, insert the heater plate at 205°C. Watch for a proper melt bead formation uniformly around the circumference of both the pipe ends.
- Once the heating process is complete, quickly withdraw the heater plate ensuring that the plate does not rub against the molten pipe ends
- Press the melted pipe ends together using the specified jointing pressure forming a twin rollback fusion bead. Maintain pressure for sufficient time and allow the joint to cool further for another 30 minutes before exerting any stresses on newly fused joints.

Sleeve Welding (Electro Fusion Jointing)

Electro-fusion jointing of HDPE pipes done with an integral electrical heating coil embedded in the fitting. Welding is carried out by passing electricity through the coils. Acting as resistors, they dissipate heat and melt the surrounding material which expands causing the fittings to be fully fused to the pipe.

DETACHABLE JOINTS

Flanged Joint

Connect the pipe on line valve or utility on flanges of appropriate dimensions and slid over the pipe. Pipe and the end collars are butt-welded to the pipeline. With a proper gasket, there is no leakage from the flanged joints.

Quick-release Couplers

Where flow pressure is low and where dismantling and shifting are required often, pipes can be supplied with these couplers welded to the pipe end.

Insert Transition Joint

Connect the pipes to threaded pipes / utilities, serrated hose nipples. The pipe's end is heated in an oil bath at 130°C for softening and a wooden cone is used to flare the bore diameter that is required. This flared end receives the serrated portion of the nipple. Leakproof lapping is ensured with clip/clamp.

HANDLING, STORAGE AND TRANSPORTATION

SUDHAKAR HDPE pipes are coiled or cut into straight lengths depending on the diameter and client requirements. Proper care should be taken while transporting and storing these pipes.

The HDPE pipes should not be dragged, thrown or stacked on an uneven surface. Whenever loading is carried out, it is recommended to use cotton or nylon belts to avoid damage to the pipes. If metals slings are used, the pipes should be protected against scratches.

It is preferable to cover the pipes while transporting them over long distance involving exposure to the sun. Because of irregular heat distribution on the pipe circumference kinking or distortion might occur.

Coil should be stored horizontally, generally delivered by the factory. If it is necessary to transport them vertically, care should be taken to avoid any overloading or excess movement which may result in the deformation of the pipes.

Straight length should be stored on a flat clean surface without being allowed to bend in any direction.

If different class pipes are stacked together, then the higher class pipes which are more resistant to deformation should form the bottom layers.

The diameter of the coil should not be less than 25 times the outside diameter with a minimum of 60 cms.

Polyethylene Pipes for Sprinkler Irrigation IS: 14151 PN: 1 & 2

SUDHAKAR Polyethylene pipes for sprinkler irrigation are manufactured in the range of 40mm to 110mm for different working pressures 0.25 Mpa, 0.32 Mpa, 0.4 Mpa and 0.6 Mpa.

Selection of HDPE Pipes for Submersible Pumps

Maximum allowable weight the pipes can withstand when under internal pressure is in kgs PE 80 GRADE

PE-80 Pipe of PN 6						
Depth of bore in meters						
0	40	50	60	70	80	90
Maximum allowable weight in kgs						
40	100	88	76	63	51	39
50	154	135	115	96	77	57
63	239	208	117	148	116	85
75	339	296	252	208	165	121
90	479	416	353	290	227	164
110	720	626	532	438	344	250

*Maximum allowable bore depth of PN 6 rated pipe

PE-80 pipe of PN 8							
Depth of bore in meters							
0	60	70	80	90	100	110	120
Maximum allowable weight in kgs							
32	75	67	59	51	43	35	27
40	113	101	88	76	64	51	39
50	179	160	141	121	102	82	63
63	275	244	213	183	152	121	90
75	389	345	301	256	214	171	127
80	553	491	429	365	302	240	177
110	828	735	641	547	454	360	266

*Maximum allowed bore depth for PN 8 rated pipe

PE-80 pipe of PN 10							
Depth of bore in meters							
0	60	75	90	105	120	135	150
Maximum allowable weight in kgs							
25	61	54	46	39	32	25	17
32	99	87	76	64	52	40	28
40	152	133	115	96	78	59	41
50	234	205	176	147	119	89	60
63	369	323	277	231	185	139	90
75	520	455	389	324	259	194	129
90	741	647	553	459	366	271	177
110	1093	953	813	672	352	392	252

*Maximum allowable bore depth for PN 10 rated pipe

PE-80 of PN 12.5							
Depth of bore in meters							
0	60	80	100	120	140	160	180
Maximum allowable Weight in kgs							
20	51	45	39	33	27	21	14
25	76	67	57	47	38	28	16
32	125	109	93	77	62	46	30
40	194	169	144	120	95	70	46
50	299	260	222	183	145	106	68
63	466	405	344	283	222	160	99
75	668	561	495	408	321	235	148
80	947	822	697	512	447	323	198
110	1427	1241	1054	868	681	495	308

*Maximum allowable bore depth for PN 12.5 rated pipes

Permanently Lubricated HDPE Telecom Ducts

SUDHAKAR's Permanently Lubricated HDPE Ducts/ Pipes are manufactured as per the Department of Telecommunications TEC Specifications.

Applications: Underground Optical Fiber Cable Conduits for Telecommunication Network

Duct Size	32mm/26mm	40mm/33mm	50mm/42mm
OD of the Pipe	32mm (+0.3mm)	40mm (+0.4mm)	50mm (+0.5mm)
Wall Thickness of the Pipe	3.0mm (+/- 0.2mm)	3.5mm (+/- 0.2mm)	4.0mm (+/- 0.3mm)
Max. size of OFC to pass through Blowing technique	12mm	16mm	21mm
Standard Coil Length	1000 Mtrs (Lesser Coil lengths as per requirement)		
Colour of the Duct	Green, Orange, Blue, Yellow, Brown, Violet, Grey and Red		
Rope Insertion	Rope insertion is optional. PP Rope with minimum of 4mm Thickness can be provided on demand		

INSTALLATION PROCEDURE

Trench preparation

The width of the trench at the crown of the pipes shall be as narrow as possible but not less than the outside diameter of the pipe plus 300mm to allow proper compaction of the side fill material. Provided the excavated trench bottom is reasonably even and free from sharp objects etc. which could cause abrasion to the pipe surface. No special bedding material is necessary for the laying of HDPE pipes

Pipe laying

HDPE pipes can be welded or joined by compression fittings on the ground and can then be snaked into the trench easily. While no anchoring is required for buried HDPE pipes lines, it is advisable to anchor at valves blank ends etc.All temporary pipe supports, levelling pages etc. must be removed from beneath the pipe prior to back-filling.

Side filling

In order to develop reaction from side fill which is necessary for flexible pipes to sustain top loads, some deformation of the cross-section of the pipe must occur. It is generally considered that the maximum vertical deflection of the pipe should be within 5% of the pipes outside diameter, but considering the flexibility and toughness of HDPE pipes, a higher deflection will not affect the long term performance of the pipeline.

Backfilling

The material used in the backfilling of trenches for HDPE pipes does not need to be a special graded one. Selected excavated material which is suitable for normal compaction may be used.

Depth of cover

It is generally considered that the maximum depths of cover for HDPE pipes are

500 mm
for the location with no wheel load

600 mm
for the location with light vehicle loads

800 mm
for the location with heavy vehicle loads

Manufacturing Units:

Sudhakar PVC Products Pvt. Ltd.

Balaram Thanda, Near Industrial Estate, Suryapet, Telangana - 508 213.

Plant Locations: Suryapet | Ballari | Brahmapur | Muppireddypally | Yeguvarajupalem | Ujjain

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