

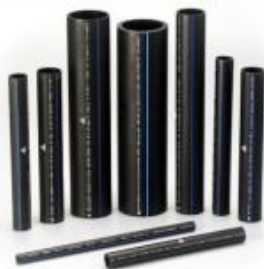


IS : 4984
IS : 14333
IS : 14151 Part-1, Part-2

RAJSHREE

HDPE PIPES

ISO CERTIFIED COMPANY 9001 : 2008



A PRODUCT OF RAJSHREE GROUP

APPLICATIONS

The advantageous properties of 'Rajshree' HDPE Pipes & Ducts make them suitable for numerous applications. Some of these are:

AGRICULTURE & IRRIGATION

- Flood Irrigation (Suction & Delivery pipes in pump sets)
- Sprinkler Irrigation (Crops, Lawns, Golf course, Gardens)
- Drip irrigation (Plantations, Orchards, Nurseries)

WATER SUPPLY

- Potable water supply
- Water mains
- Distribution
- Service Pipes

SEWAGE & INDUSTRIAL EFFLUENT DISPOSAL

- Domestic Sewage System
- Sanitary System
- Petrochemical Industry
- Fertilizer Industry

DUCTING

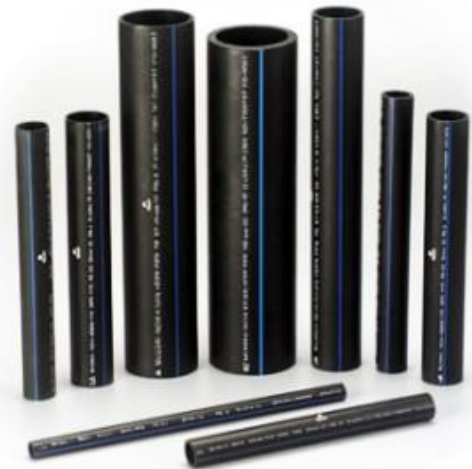
- Air-conditioning & Refrigeration
- Extraction of Fumes
- Telecommunication, as conduits for OFC

ELECTRICAL INSTALLATIONS

- Conduits for Cables

DRAINAGE PIPES

- Surface & Rain water
- Waste Water Mains
- Sub-soil water



The efficient use of 'Rajshree' HDPE Pipes is not limited to the above mentioned applications only. Its useful applications are diverse. For instance, when the need to carry water over a river arises, building a bridge for a surface pipeline would not be a cost effective solution. Further an underwater pipeline of other conventional materials would be susceptible to fracture on the undulating river bed and corrosion owing to salinity. 'Rajshree' HDPE pipes being flexible and chemically inert are the solution. The pipeline may be assembled, floated on the water, aligned and then sunk by merely filling it with water. That's the convenience in installation no other pipe can offer. These versatile pipes may also be used in cooking gas distribution networks, transportation of corrosive chemicals, chilled water & compressed air within a plant, transportation of products such as milk, food processing, edible oils etc.

FEATURES

LONG LIFE

As against only a few years life of conventional pipes such as C.I., PVC, GI, Steel, Cement, etc., the calculated life of HDPE pipes & ducts is 50 years at normal working temperature and pressure.

TOUGH & STRONG

The pipes bear high impact resistance and are thus strong and resilient to withstand static and dynamic loads due to internal (fluid) as well as external (soil) pressures. Rough handling, traffic loads and even freezing conditions do not cause the pipe to break or crack.

LIGHT WEIGHT

As HDPE pipes & ducts are many times lighter than conventional pipes, transportation and installation is easy and very cost effective.

SMOOTH INNER SURFACE

In addition to the smooth external surface, the pipes & ducts have an extremely smooth inner surface too, thus offering very low frictional resistance to fluid flow. Further, the non adhering characteristics of HDPE allow even solid particles to be carried along the fluids inside the pipes.

FLEXIBLE

HDPE pipes & ducts are extremely flexible and bend without cracking. This property enables long lengths of the small diameter pipe to be transported as coils thus saving on joints.

INERT TO CHEMICALS

The pipes possess excellent resistance to chemicals making them suitable for handling most of the corrosive acids and also alkalies. The pipes are completely neutral to chemicals and hence widely useful in chemical plants.

NON-HAZARDOUS

Due to its property of being non toxic and inert, HDPE is non hazardous. This enables HDPE pipes to be used for conveyance of potable water.

CORROSION RESISTANT

Resistance to electrolytic as well as galvanic corrosion make HDPE pipes & ducts best suited for underground installations.

LOWER THERMAL CONDUCTIVITY

The fluid transportation in HDPE PIPES remains at a more uniform temperature than in other types of pipes. This is due to the lower thermal conductivity of HDPE as a result of which the transfer of heat on the outer surface from the atmosphere is much slower. Further, due to the superior elongation property of HDPE PIPES., they can be used in very cold climatic conditions too, where there is any likelihood of the fluids freezing within the pipe. As the temperature goes down to subzero, the pipe simply expands to accommodate the volumetric expansion of the fluid. This excellent property is unlike in most other conventional pipes which would crack due to their rigidity.

HIGH ELECTRICAL RESISTANCE

As the dielectric strength of HDPE is very high, the pipes are extensively used as electrical conduits. No stray electrical currents can be transmitted from outside.

Why Prefer HDPE Pipes & Ducts over other Conventional Pipes

There are hosts of technical & economic advantages in using HDPE pipes & Ducts as compared to other conventional pipes

- Life span more than 50 years.
- No corrosion & abrasion, no scale formation. Inert to chemicals & hence can carry acidic & alkaline fluids.
- Leak free joints, no repairs needed.
- Longer lengths, minimum joints and fittings. Sizes upto 50 mm outer dia supplied in coil length upto 1000 mtrs.
- Flexible, no additional joints needed at bends. Easy to coil & transport.
- Light weight, no heavy equipments needed for installation, easy to handle & transport.
- Food grade suitability - can be used to transport milk, edible oils etc..
- Lower Surge Pressure - As compared to other conventional pipes, the HDPE piping system components are subjected to a much lower surge pressure.
- Lowest frictional losses, lower pumping costs.
- Zero Maintenance
- Re-usable : HDPE pipes can be easily dismantled from a particular location & application & can be easily re-used at different locations.

About HDPE (High Density Poly-Ethylene) Pipes

HISTORY OF THE PIPE/DUCT INDUSTRY

In the earlier days, the commonly used piping material was M.S., R.C.C., Cement, etc. As the time advanced, these materials proved to be costly in handling, installation and maintenance. This led to the discovery of pipes/ducts made from plastic materials. The plastic industry today is the bedrock of modern industrial civilization. One of the most dynamic and high potential industrial sectors, it has lately come to acquire more dimensions than it was ever expected. Having invaded practically every sector from Agriculture to Aviation, Transportation to Telecommunication and from Consumer Durables to Construction, plastic has become an integral part of our daily life, so much so that we are literally living in a plastic age —plastic pipes being part of this revolution.

In the sphere of piping engineering, the advent of pipes made of plastic material is acknowledged internationally as the latest, most economical and reliable way of fluid and gas transportation, ducting for Optical Fibre Cables in Telecom sector and other cable ducting.

Since plastic was accepted as the most suited Piping & Ducting material, the Engineers and Technologists kept on their efforts to develop more and more reliable plastic material which ultimately led to the discovery of High Density Poly-Ethylene (HDPE) as the best suited plastic material. Today, HDPE is very popularly used and recommended by Field Engineers and Consultants due to its strength, high flow efficiency, low cost of operation and maintenance, longevity and a host of other unique salient features. Thanks to HDPE, a revolutionary thermoplastic, all the shortcomings of pipes as a medium for the flow of fluids, ducting for optical fibre and other cables etc have now been overcome. "Rajshree" pipes & ducts are manufactured by Rajshree Technoplast Pvt. Ltd., a company that started with a humble beginning two decades ago. Today, it is catering to the needs of various segments of our society and industry, viz; Telecommunications, Agriculture & Irrigation, Water Supply and a host of other applications.

About PLB HDPE Telecom Ducts

PLB-HDPE DUCTS AS CONDUITS FOR OFC

With advances in technology in modern day Telecommunications, over a period of time, it became very important to upgrade the HDPE pipes to be used particularly for Telecom applications. The Optical Fibre Cables used for Telecommunications being very delicate and sensitive, it became necessary to modify the HDPE Pipes to be used as conduits for optical fibre cables. This led to the development of Permanently Lubricated (PLB) HDPE Ducts.

'Rajshree' was one of the first very few manufacturers to acquire technology and equipment for establishing complete manufacturing facility for PLB-HDPE Ducts.

At 'Rajshree', PLB-HDPE Ducts are manufactured using ultra-violet (UV) stabilized grade of HDPE with required Anti Oxidant content and other recommended additives. The inner layer of ducts is duly silicon coated which minimizes the friction between OFC and the duct during the process of blowing the cable into the ducts, thus providing smooth installation of OFC in the duct without damaging the cable fibres.

Jointing of HDPE Pipes

Very simple jointing techniques are offered for both Permanent & Detachable joints.

PERMANENT JOINTS

These are achieved by butt welding employing fusion. Clean, leak-proof and permanent joints can be made by following the steps below:

- Cleanly cut the pipes as required
- Remove fibrous material and chamfer inner edges using a rough file.
- Bring the cut surfaces together and check alignment
- Heat welding mirror to 210 degree C, bring the cut surfaces to be joined into contact with mirror. The material will melt.
- Allow weld rims to form
- Remove the mirror, bring the heated pipe ends together under a slight pressure and permit them to fuse together.

DETACHABLE JOINTS

► FLANGED JOINTS

- Slip the flanges over the edges of the pipes to be joined.
- Weld the collar (pipe end) to the pipes.
- Bring the flange faces together and tighten with nuts and bolts.

► INSERT JOINTS

- Prepare an oil bath at about 130 deg C. and immerse the pipe ends in it for 15 minutes.
- Use a wooden conical plug to flare the ends.
- Push the serrated portion of the nipple into the flared end and tighten with jubilee clip

► QUICK RELEASE COUPLERS

- These are ideal for projects which involve frequent dismantling and shifting, e.g. in Agriculture, where large areas are to be irrigated economically by using smaller pipe lengths. The couplers are duly butt welded and are readily available.

HDPE Pipes : Specifications

Specification: IS 4984:1995 with latest amendments

Material Grade :

PE 63 : All dimension are in mm

OD	PN 2.5	PN 4	PN 6	PN 8	PN 10	PN 12.5	PN 16
	Wall Thickness	Wall Thickness	Wall Thickness	Wall Thickness	Wall Thickness	Wall Thickness	Wall Thickness
20	-	-	-	-	-	2.3-2.8	2.8-3.3
25	-	-	-	-	2.3-2.8	2.8-3.3	3.5-4.1
32	-	-	-	2.4-2.9	3.0-3.5	3.6-4.2	4.5-5.2
40	-	-	2.3-2.8	3.0-3.5	3.7-4.3	4.5-5.2	5.6-6.4
50	-	2.3-2.8	2.9-3.4	3.8-4.4	4.6-5.3	5.6-6.4	6.9-7.8
63	-	2.5-3.0	3.6-4.2	4.7-5.4	5.8-6.6	7.0-7.9	8.7-9.8
75	-	2.9-3.4	4.3-5.0	5.6-6.4	6.9-7.8	8.4-9.5	10.4-11.7
90	2.3-2.8	3.5-4.1	5.1-5.9	6.7-7.6	8.2-9.3	10.0-11.2	12.5-14.0
110	2.7-3.2	4.3-5.0	6.3-7.2	8.2-9.3	10.0-11.2	12.3-13.8	15.2-17.0
125	3.1-3.7	4.9-5.6	7.1-8.1	9.3-10.5	10.4-12.8	13.9-15.5	17.3-19.3
140	3.5-4.1	5.4-6.2	8.0-9.0	10.4-11.7	12.8-14.3	15.6-17.4	15.6-17.4
160	4.0-4.6	6.2-7.1	9.1-10.3	11.9-13.3	14.6-16.3	17.8-19.8	22.1-24.6
180	4.4-5.1	7.0-7.9	10.2-11.5	13.4-15.0	16.4-18.3	20.0-22.2	30.0-33.2
200	4.9-5.6	7.7-8.7	11.4-12.8	14.9-16.6	18.2-20.3	22.3-24.8	27.6-30.6
225	5.5-6.3	8.7-9.8	12.8-14.3	16.7-18.6	20.5-22.8	25.0-27.7	31.1-34.5
250	6.1-7.0	9.7-10.9	14.2-15.9	18.6-20.7	22.8-25.3	27.8-30.8	34.5-38.2
280	6.9-7.8	10.8-12.1	15.9-17.7	20.8-23.1	25.5-28.3	31.2-34.6	38.7-42.8
315	7.7-8.7	12.2-13.7	17.9-19.9	23.4-26.0	28.7-31.8	35.0-38.7	43.5-48.1
355	8.7-9.8	13.7-15.3	20.1-22.4	26.3-29.2	32.3-35.1	39.5-43.7	49.0-54.1
400	9.8-11.5	15.4-18.0	22.7-26.4	29.7-34.4	36.4-42.1	44.5-51.4	55.2-63.7
450	11.0-12.9	17.4-20.3	25.5-29.6	33.4-38.7	41.0-47.7	50.0-57.7	-
500	12.2-14.3	19.3-22.4	28.4-32.9	37.1-42.9	45.5-52.6	55.6-64.2	-

Material Grade :

PE 80 : All dimension are in mm

OD	PN 2.5	PN 4	PN 6	PN 8	PN 10	PN 12.5	PN 16
	Wall Thickness	Wall Thickness	Wall Thickness	Wall Thickness	Wall Thickness	Wall Thickness	Wall Thickness
20	-	-	-	-	-	2.3-2.8	2.8-3.3
25	-	-	-	-	2.3-2.8	2.8-3.3	3.5-4.1
32	-	-	-	2.4-2.9	3.0-3.5	3.6-4.2	4.5-5.2
40	-	-	2.3-2.8	3.0-3.5	3.7-4.3	4.5-5.2	5.6-6.4
50	-	2.3-2.8	2.9-3.4	3.8-4.4	4.6-5.3	5.6-6.4	6.9-7.8
63	-	2.5-3.0	3.6-4.2	4.7-5.4	5.8-6.6	7.0-7.9	8.7-9.8
75	-	2.9-3.4	4.3-5.0	5.6-6.4	6.9-7.8	8.4-9.5	10.4-11.7
90	2.3-2.8	3.5-4.1	5.1-5.9	6.7-7.6	8.2-9.3	10.0-11.2	12.5-14.0
110	2.7-3.2	4.3-5.0	6.3-7.2	8.2-9.3	10.0-11.2	12.3-13.8	15.2-17.0
125	3.1-3.7	4.9-5.6	7.1-8.1	9.3-10.5	10.4-12.8	13.9-15.5	17.3-19.3
140	3.5-4.1	5.4-6.2	8.0-9.0	10.4-11.7	12.8-14.3	15.6-17.4	15.6-17.4
160	4.0-4.6	6.2-7.1	9.1-10.3	11.9-13.3	14.6-16.3	17.8-19.8	22.1-24.6
180	4.4-5.1	7.0-7.9	10.2-11.5	13.4-15.0	16.4-18.3	20.0-22.2	30.0-33.2
200	4.9-5.6	7.7-8.7	11.4-12.8	14.9-16.6	18.2-20.3	22.3-24.8	27.6-30.6
225	5.5-6.3	8.7-9.8	12.8-14.3	16.7-18.6	20.5-22.8	25.0-27.7	31.1-34.5
250	6.1-7.0	9.7-10.9	14.2-15.9	18.6-20.7	22.8-25.3	27.8-30.8	34.5-38.2
280	6.9-7.8	10.8-12.1	15.9-17.7	20.8-23.1	25.5-28.3	31.2-34.6	38.7-42.8
315	7.7-8.7	12.2-13.7	17.9-19.9	23.4-26.0	28.7-31.8	35.0-38.7	43.5-48.1
355	8.7-9.8	13.7-15.3	20.1-22.4	26.3-29.2	32.3-35.1	39.5-43.7	49.0-54.1
400	9.8-11.5	15.4-18.0	22.7-26.4	29.7-34.4	36.4-42.1	44.5-51.4	55.2-63.7
450	11.0-12.9	17.4-20.3	25.5-29.6	33.4-38.7	41.0-47.7	50.0-57.7	-
500	12.2-14.3	19.3-22.4	28.4-32.9	37.1-42.9	45.5-52.6	55.6-64.2	-



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