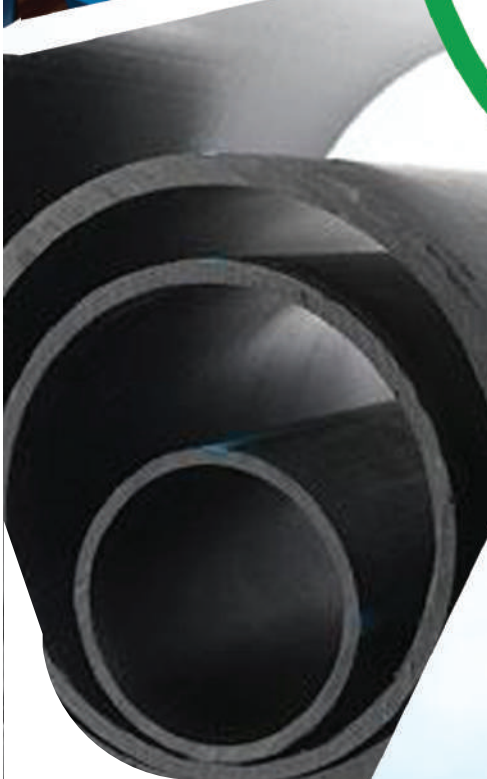


WAVIN India
Product Guide



Water and Gas Pipes & Fittings



wavin

about **wavin**

Wavin is an innovative solution provider for the building and infrastructure industry across multiple continents. Backed up by 60+ years of expertise, we are geared up to tackle some of the world's biggest challenges around: water supply, sanitation, climate-resilient cities and building performance.

At Wavin, we focus on creating a positive change in the world. Our passion is to build liveable and loveable places. We engage and collaborate with city leaders, engineers, planners and installers to help make cities future-proof, and their buildings comfortable and energy-efficient.

Wavin is part of Orbia, a community of companies bound together by a shared purpose: to advance life around the world. Wavin has 12,000+ employees in 40+ countries worldwide and operates under brands like Wavin Amanco and Pavco.

For more information about Wavin, visit us @ www.wavin.com
or for Wavin India, visit us @ www.wavin.co.in

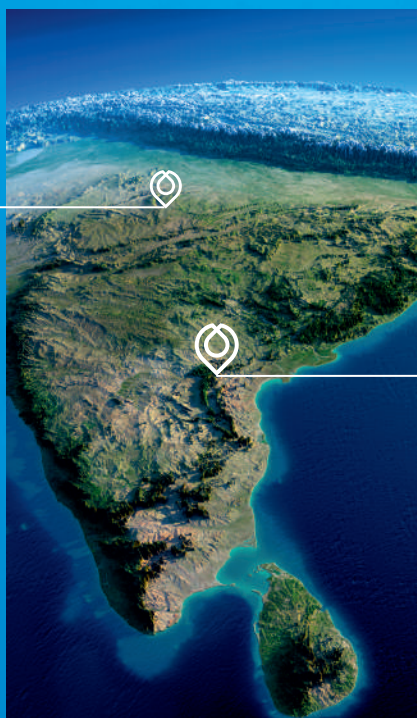
let's build long-lasting cities

Wavin India, Neemrana Factory



Situated in Neemrana,
Rajasthan, India

ISO-9001 and TL 9000
certified factory



Wavin India, Hyderabad Factory



Situated in Kottur Mandal,
Rangareddy, Telangana, India

ISO-9001 and TL 9000
certified factory

State-of-the-art solar-powered factory
emphasizing sustainability

Introducing WAVIN Water & Gas Pipes & Fittings



Product Range

Infrastructure Pressure Pipe (Water & Sewerage)

- HDPE pipe for Water supply 20mm to 100mm Nominal diameter as per various National and International Standards in PE63/80/100 Pressure Rating PN 2.5 to PN 25.
- HDPE pipe for Sewerage and Storm Weather discharge.
- Gas pipe as per various National and International Standards up to 315mm.

Agriculture and Landscaping

- Sprinkler Irrigation system for Agriculture, Horticulture and Plantation.
- Landscape and Irrigation system.
- Potable Sprinkler pipe with Quick Action couplers up to 160mm dia pipe.
- Coil pipe for submersible pump in swallow and deep tube-well.

Industry and Environment

- Effluent and slurry transportation
- Marine outfall
- Dust control

Fittings and Specials for various application

- Fabricated, Tees and Bends up to 100mm diameter
- Molded PE Fittings up to 1000mm diameter
- Compressed Fittings
- Electro-fusion Fittings

Product Standards

Fluid Pipe and System: ISO: 4427, EN: 12201, DIN: 8075/8074, IS: 4984, IS: 14333, BS: 6437, MS: 1058, AS/NZS: 4130, IS: 14151, IS: 14885, ISO: 4437

Range of Fittings: ISO: 4427, IS: 8008, IS: 8360

Double Wall Corrugated Pipe: IS: 14930



Applications of Wavin Dura-line PE Pipe

Pressure Pipe for Water, Seweage Application

Wavin produces widest range of PE pipe from 20 to 1000mm dia as per various National and International Standard using PE63/80/100 HDPE/MDPE resin as raw material. The pipes are manufactured in between PN 2.5 and 25 for various pressure applications. The plain ended solid wall pipes are used for water Supply, Drainage, Storm Water Disposal etc.

Wavin Dura-line - Properties	
Properties	Sizes Available
Properties Recommended Service Temperature	-45°C to +55°C
Color	Blue/Black
Vicate Softening Temperature	125°C
Decomposition Temperature	360°C
Ultra Violet Stability	Excellent
Flow Factor (C Factor in Hazen Williamson Formula)	150
pH Factor of Conveyed Fluid	1.0 to 14.0
Melt Flow Factor	0.20 to 1.10gms in 10 mins
Reversion	Less Than 3%
Density	940.0 to 958.0 Kg/m ³
Impact Strength	Excellent
Resistance to Abrasion	Excellent
Life Expectancy	More Than 50 Years

PE Pipe for Transportation of Gaseous Fuel

Gas pipes are being used by CGD (City Gas Distribution) Companies for transportation of the gaseous fuel for domestic use. These pipes are also used in the transportation of Coal Bed Methane (CBM) / Natural Gas from mines to various industries.

Dura-line Mexico has pioneered production in PE Gas Pipe in 1998 supplying PE Pipes to Resol, Gas de France, Gas de Suez, British Gas, Advatica etc. Dura-line Goa has been the source of Gas Pipes for Asia & Africa.

Salient Features

Manufactured from compounded MDPE Resin.

Standards: IS 4437, IS: 14885

Color of the pipe
Yellow for PE 80 Grade Raw Material, IS: 14885
Orange for PE 100 Grade Raw Material, IS: 14885
Black for PE 100 Grade Raw Material, ISO: 4437

Pipes designated by SDR Valve





DURATRAC & DURASURE

Wavin Dura-line water pipe and telecom ducts are available with a co-extruded highly conductive copper wire encased with HDPE along the length of the pipe. The wire transmit a low frequency electro-magnetic signal from a receiver. The signal from the copper wire is received by a hand-held receiver providing exact location (latitude, longitude, depth, etc.) in the backlit LCD display. The receiver can be connected by GPS to download the data on the PC. Necessary jointing kits and tools are also available for jointing the pipes across valves, fittings, etc.

Advantages:

- Gives a quick and precise location of the under ground piping system.
- Use of electronic detection device with which pipes offer inch-by-inch accurate traceability.
- Facilitates precise digging during maintenance activity thereby saving on the time & labor-and associated cost.
- Avoids damage to other utilities buried underground-avoid penalties.
- Keep a check on the accuracy of as-build drawings.

Fitting and Accessories

A wide range of fittings are available on installation of HDPE pipe as per the requirement and purpose. The range of fittings can be separated in to three classes.

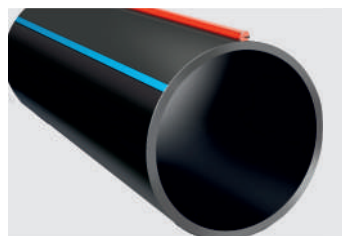
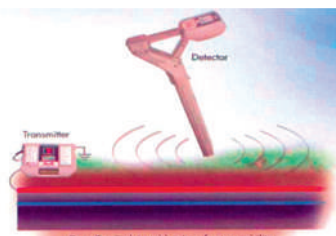
Butt Fusion Fittings

• Bends, Tees, End Caps, Pipe Ends, Flanges, etc.	• Can be fabricated/ moulded	• Standards: ISO: 4427, IS: 8008, IS: 8360	• Low cost
• Fittings can be tailor-made	• Range 20mm to 1000mm dia		

Compression/Mechanical Fittings

Compression fittings are very popular for water supply network. Compression Saddles, Compression Couplers, Bends etc. are cost effective in lower diameter.

- Ease in installation (does not need welding machine at site).
- Tapping saddles are very popular for house service connection.
- Easy and quick repair of damaged pipe.



Electro-Fusion Fittings

Electro-Fusion Fittings come in-built heating element, which generates heat when connected to electric source. The resulted heat fuses the fitting with the pipe uniformly offering an extremely reliable joint.

- Fittings: Couplers, Bends, Tees, Saddles, etc. are very popular
- Widely used in gas supply pipeline
- Reliability of fittings are very high
- Cost of fittings are high
- Needs qualified mechanics for jointing
- Fittings available up to 630mm dia

Jointing Methods

Butt Fusion

Butt Welding method is most popular and economical method of jointing PE pipes. Butt Welding machines are available for installation up to 2000mm dia pipe. A typical butt Welding machine consists of following mechanisms:

- Shaver to clean the sides to be joined together and making them parallel to each other.
- Heating mirror to provide heat on its sides, so that the jointing ends soak heat and bides are formed of molten resin.
- Other accessories: Clamps, Crane, Trolley, etc.

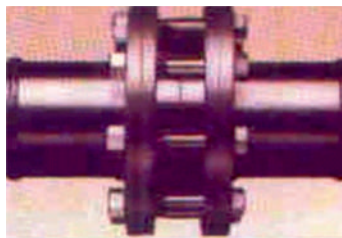
Electro-Fusion Jointing

Jointing is done by Electro-Fusion Fittings. The ID of the fitting matches to the OD of the pipe, so that ends of the pipes are easily pushed into both the side of fitting. All sources connected to the resistance coil inside the fitting generating requisite heat to fuse the pipe and fitting together.

Mechanical Joints

Mechanical Joints provide the joints, which can be detached for servicing, etc.

- Compression Joints - Joined by compression fittings (Couplers, Bends, Tees, etc.)
- Flanged Joints – pipe end and Slipon Flanges (MS/PE) can be used on both sides of the pipe for jointing them by nuts, bolts and washers.



DuraFlo, Krishi Coil Pipes for Tube-Well Use

DuraFlo pipe is one of the most innovative product introduced for tube-well application. This is a double layered PE pipe with an inner white solid lubricated layer to reduce friction.

- Reduced friction to flow, hence higher flow from tube-well is achievable.
- PE does not rust or corrode: long life
- Available in coils: 100 to 1000mts.
- Diameter of coil: 20mm to 110mm

Sprinkler Irrigation System

Wavin Dura-line manufactures complete range of PE pipes and fittings for sprinkler irrigation system as per IS: 14151 part 1 and part 2.

- Duraloc: Couplers come with metallic C-type lock for ease of operation.
- Duralift: Quick action hook system for efficient locking.
- Necessary fittings like Bend, Tee, End Cap are manufactured inhouse as per customer requirement.
- Sprinkler nozzles with high coefficient of distribution are available as per IS: 12232 Part – 1.
- Uses in field crop, tea, coffee gardens, landscape, etc.

PE Pipes for Industrial Application

PE, due to its inert properties found application in handling chemicals, brine, sour water, etc. It is also used in slurry and sand pumping due to its abrasion resistance quality.

Some of the popular applications of PE pipe in various industries:

Effluent disposal

Marine outfall line/sea water intake

Under sea installation of pipe for transportation of potable water

Line pipe for petroleum industries

Transportation of DM water

Slurry transportation

Dust suspension system in mines and haul road

Dewatering

Mineral washeries



Advantages of PE Pipe

- Smooth inner wall (C-value:150): Offers minimum resistance to flow then reducing operating cost
- Long Life: life expectancy more than 50 years.
- High Impact Strength/ Flexible: pipe available in coil up to 110mm diameter.
- Light Weight: low transportation cost and ease in installation.
- Food Grade Material: highly recommended for portable water. No bacterial or algae growth.
- Temperature resistance: -40°C to 60°C.
- Resistance to UV ray.
- Excellent water hammer/surge characteristics.
- Preferred material for horizontal directional drilling, pipe bursting,etc.
- Leak-proof Joint: jointing by Butt fusion, with jointing strength higher than the pipe .



Comparison Among Various Pipe Material

Properties	HDPE	P.V.C.	Mild Steel (MS)
Life	>50 years underground	More than 20 years (When not exposed to sun)	Less than 10 years under protection
Health Hazard	No additives during manufacturing. Hence totally safe.	Lead based stabilizer causes long term health hazard	Corroded pipes allow outside contaminated water to seep into the system
Weathering Resistance	Good due to presence of Carbon Black	Tends to become brittle when exposed to sun	Poor resistance against corrosion and chemicals
Recommended Temperature	-40°C to +50°C	-+1°C to +45°C	Can stand any temperature
Chemical Resistance	High degree of resistance to acid alkalis and high anti-corrosive properties	Moderate resistance to most alkalis and acid	Poor
Water Hammer Characteristics	Excellent water hammer characteristics, 50% better than and MS and 30% better than PVC pipes	Need higher diameter pipelines to control surge pressure under similar conditions as that of HDPE	Poor resistance to absorb surge wave. Needs thrust blocks
Flexibility	Highly flexible & can be bent over curves. Requiring very fewer fittings	Limited flexibility & requires lots of fittings and specials during installations	Highly rigid. Needs huge fittings and specials
Lengths	Pipe up to 110mm can be supplied in coils of 100mt. Small dia pipe can be supplied in 1000mt.	Comes in straight lengths of maximum 6mt.	Comes in straight lengths of maximum 6mt.
Load Bearing Capacity	Flexible & Deform under load and recovers on its release	Low impact strength. Cracks under heavy loads	Can take high dead load and live load
Maintenance	Virtually maintenance free	Regular maintenance to replace broken parts	High maintenance after few years of use
Internal/External Coatings	Not required	Not required	Requires coating to prevent corrosion and reduce friction
Soil Settlement	Resistance to ground movement, even earthquakes	Poor resistance to soil movement	Poor resistance to soil movement
Friction to Flow	Smooth inside surface. C factor - 150. Lowest resistance to flow	Smooth inside surface. C factor-150. Lowest resistance to flow	Rough inside surface. Roughness increases with age

Wall Thickness for PE Pipe as IS:4984

Diameter	Pr. Class	PE63		PE80		PE100	
		Min	Max	Min	Max	Min	Max
mm	pn	mm	mm	mm	mm	mm	mm
20	10	2.3	2.8				
20	12.5	2.8	3.3	2.3	2.8		
20	16	3.4	4.0	2.8	3.3	2.3	2.8
25	8	2.3	2.8				
25	10	2.8	3.3	2.3	2.8		
25	12.5	3.4	4.0	2.8	3.3	2.3	2.8
25	16	4.2	4.9	3.5	4.1	2.9	3.4
32	6	2.3	2.8				
32	8	3.0	3.5	2.4	2.9		
32	10	3.6	4.2	3.0	3.5	2.4	2.9
32	12.5	4.4	5.1	3.6	4.2	2.9	3.4
32	16	5.4	6.2	4.5	5.2	3.7	4.3
40	4	2.0	2.4				
40	6	2.8	3.3	2.3	2.8		
40	8	3.7	4.3	3.0	3.5	2.4	2.9
40	10	4.5	5.2	3.7	4.3	3.0	3.5
40	12.5	5.5	6.3	4.5	5.2	3.7	4.3
40	16	6.7	7.6	5.6	6.4	4.6	5.3
50	4	2.4	2.9	2.3	2.8		
50	6	3.5	4.1	2.9	3.4	2.3	2.8
50	8	4.6	5.3	3.8	4.4	3.0	3.5
50	10	5.6	6.4	4.6	5.3	3.7	4.3
50	12.5	6.8	7.7	5.6	6.4	4.6	5.3
50	16	8.4	9.5	6.9	7.8	5.7	6.5

Wall Thickness for PE Pipe as IS:4984

Diameter	Pr. Class	PE63		PE80		PE100	
		Min	Max	Min	Max	Min	Max
mm	pn	mm	mm	mm	mm	mm	mm
63	2.5	2.0	2.4				
63	4	3.0	3.5	2.5	3.0		
63	6	4.4	5.1	3.6	4.2	2.9	3.4
63	8	5.8	6.6	4.7	5.4	3.8	4.4
63	10	7.20	7.9	5.8	6.6	4.7	5.4
63	12.5	8.6	9.7	7.0	7.9	5.7	6.5
63	16	10.5	11.8	8.7	9.8	7.1	8.1
75	2.5	2.3	2.8				
75	4	3.6	4.2	2.9	3.4		
75	6	5.3	6.1	4.3	5.0	3.5	4.1
75	8	6.9	7.8	5.6	6.4	4.5	5.2
75	10	8.4	9.5	6.9	7.8	5.6	6.4
75	12.5	10.2	11.5	8.4	9.5	6.8	7.7
75	16	12.5	14.0	10.4	11.7	8.5	9.6
90	2.5	2.8	3.3	2.3	2.8		
90	4	4.3	5.0	3.5	4.1		
90	6	6.3	7.2	5.1	5.9	4.1	4.8
90	8	8.2	9.3	6.7	7.6	5.4	6.2
90	10	10.0	11.2	8.2	9.3	6.7	7.6
90	12.5	12.2	13.7	10.0	11.0	8.2	9.3
90	16	15.0	16.7	12.5	14.0	10.2	11.5
110	2.5	3.4	4.0	2.7	3.0		
110	4	5.3	6.1	4.3	5.0		
110	6	7.7	8.7	6.3	7.2	5.0	5.7

Wall Thickness for PE Pipe as IS:4984

Diameter	Pr. Class	PE63		PE80		PE100	
		Min	Max	Min	Max	Min	Max
mm	pn	mm	mm	mm	mm	mm	mm
110	8	10.0	11.2	8.2	9.3	6.6	7.5
110	10	12.3	13.8	10.0	11.2	8.1	9.2
110	12.5	14.9	16.6	12.3	13.8	10.0	11.2
110	16	18.4	20.5	15.2	17.0	12.4	13.9
125	2.5	3.8	4.4	3.1	3.7		
125	4	6.0	6.8	4.9	5.6		
125	6	8.8	9.9	7.1	8.1	5.7	
125	8	11.4	12.8	9.3	10.5	7.5	6.5
125	10	13.9	15.5	11.4	12.8	9.2	8.5
125	12.5	16.9	18.8	13.9	15.5	11.3	10.4
125	16	21.9	23.2	17.3	19.3	14.1	12.7
140	2.5	4.3	5.0	3.5	4.1		15.8
140	4	6.7	7.6	5.4	6.2		
140	6	9.8	11.0	8.0	9.0	6.4	7.3
140	8	12.8	14.3	10.4	11.7	8.4	9.5
140	10	15.6	17.4	12.8	14.3	10.3	11.6
140	12.5	19.0	21.1	15.6	17.4	12.7	14.2
140	16	23.4	26.0	19.4	21.6	15.8	17.6
160	2.5	4.9	5.6	4.0	4.6		
160	4	7.7	8.7	6.2	7.1		8.3
160	6	11.2	12.6	9.1	10.3	7.3	10.8
160	8	14.6	16.3	11.9	13.3	9.6	13.2
160	10	17.8	19.8	14.6	16.3	11.8	16.2
160	12.5	21.7	24.1	17.8	19.8	14.5	20.2

Wall Thickness for PE Pipe as IS:4984

Diameter	Pr. Class	PE63		PE80		PE100	
		Min	Max	Min	Max	Min	Max
mm	pn	mm	mm	mm	mm	mm	mm
160	16	26.7	29.6	22.1	24.6	18.1	20.2
180	2.5	5.5	6.3	4.4	5.1		
180	4	8.6	9.7	7.0	7.9		
180	6	12.6	14.1	10.2	11.5	8.2	9.3
180	8	16.4	18.3	13.4	15.0	10.8	12.1
180	10	20.0	22.2	16.4	18.3	13.2	14.9
180	12.5	24.4	27.1	20.0	22.2	16.3	18.2
180	16	30.0	33.2	24.9	27.6	20.3	22.6
200	2.5	6.1	7.0	4.9	5.6		
200	4	9.6	10.8	7.7	8.7		
200	6	14.0	15.6	11.4	12.8	9.1	10.3
200	8	18.2	20.3	14.9	16.6	12.0	13.4
200	10	22.3	24.8	18.2	20.3	14.8	16.5
200	12.5	27.1	30.1	22.3	24.8	18.1	20.2
200	16	33.4	37.0	27.6	30.6	22.6	25.1
225	2.5	6.9	7.8	5.5	6.3		
225	4	10.8	12.1	8.7	9.8		
225	6	15.7	17.5	12.8	14.3	10.3	11.6
225	8	20.5	22.8	16.7	18.6	13.5	15.1
225	10	25.0	27.7	20.5	22.8	16.6	18.5
225	12.5	30.5	33.8	25.0	27.7	20.4	22.7
225	16	37.5	41.5	31.1	34.5	25.4	28.2
250	2.5	7.6	8.6	6.1	7.0		
250	4	12.0	13.4	9.7	10.9		

Wall Thickness for PE Pipe as IS:4984

Diameter	Pr. Class	PE63		PE80		PE100	
		Min	Max	Min	Max	Min	Max
mm	pn	mm	mm	mm	mm	mm	mm
250	6	17.5	19.5	14.2	15.9	11.4	12.8
250	8	22.8	25.3	18.6	20.7	15.0	16.7
250	10	27.8	30.8	22.8	25.3	18.4	20.5
250	12.5	33.8	37.4	27.8	30.8	22.6	25.1
250	16	41.7	46.1	34.5	38.2	28.2	31.3
280	2.5	8.5	9.6	6.9	7.8		
280	4	13.4	15.0	10.8	12.1		
280	6	19.6	21.8	15.9	17.7	12.8	14.3
280	8	25.5	28.3	20.8	23.1	16.8	18.7
280	10	31.2	34.6	25.5	28.3	20.6	22.9
280	12.5	37.9	41.9	31.2	34.6	25.3	28.1
280	16	46.7	51.6	38.7	42.8	31.6	35.0
315	2.5	9.6	10.8	7.7	8.7		
315	4	15.0	16.7	12.2	13.7		
315	6	22.0	24.4	17.9	19.9	14.4	16.1
315	8	28.7	31.8	23.4	26.0	18.9	21.0
315	10	35.0	38.7	28.7	31.8	23.2	25.8
315	12.5	42.6	47.1	35.0	38.7	28.5	31.6
315	16	52.5	58.0	43.5	48.1	35.5	39.3
355	2.5	10.8	12.1	8.7	9.3		
355	4	17.0	18.9	13.7	15.3		
355	6	24.8	27.5	20.1	22.4	16.2	18.1
355	8	32.3	35.8	26.3	29.2	21.2	23.6
355	10	39.5	43.7	32.3	35.8	26.2	29.1

Wall Thickness for PE Pipe as IS:4984

Diameter	Pr. Class	PE63		PE80		PE100	
		Min	Max	Min	Max	Min	Max
mm	pn	mm	mm	mm	mm	mm	mm
355	12.5	48.0	53.0	39.5	43.7	32.1	35.6
355	16	29.2	65.4	49.0	54.1	40.0	44.2
400	2.5	12.2	14.3	9.8	1.5		
400	4	19.1	22.2	15.4	18.0		
400	6	28.0	32.4	22.7	26.4	18.2	21.2
400	8	36.4	42.1	29.7	34.4	23.9	27.7
400	10	44.5	51.4	36.4	42.1	29.5	34.2
400	12.5	54.1	62.5	44.5	51.4	36.2	41.9
400	16			55.2	63.7	45.1	52.1
450	2.5	13.7	160	11.0	12.9		
450	4	21.5	25.0	17.4	20.3		
450	6	31.4	63.4	25.5	29.6	20.5	23.8
450	8	41.0	47.4	33.4	38.7	26.9	31.2
450	10	50.0	57.4	41.0	47.4	33.1	38.3
450	12.5	60.9	70.3	50.0	57.7	40.7	47.1
450	16					50.8	58.7
500	2.5	15.2	17.7	12.2	14.3		
500	4	23.9	27.4	19.3	22.4		
500	6	34.9	40.4	28.4	32.9	22.8	26.5
500	8	45.5	52.6	37.1	42.9	29.9	34.6
500	10	55.6	64.2	45.5	52.6	36.8	42.6
500	12.5	67.6	78.0	55.6	64.2	45.2	52.2
500	16					56.4	65.1
560	2.5	17.0	19.8	13.7	16.0		

Wall Thickness for PE Pipe as IS:4984

Diameter	Pr. Class	PE63		PE80		PE100	
		Min	Max	Min	Max	Min	Max
mm	pn	mm	mm	mm	mm	mm	mm
560	4	26.7	31.0	21.6	25.1		
560	6	39.1	45.2	31.7	36.7	25.3	29.6
560	8	51.0	58.9	41.5	48.0	33.5	38.8
560	10			51.0	58.9	41.2	47.6
560	12.5					50.6	58.6
560	16						
630	2.5	19.1	22.2	15.4	18.0		
630	4	30.0	34.7	24.3	28.2		
630	6	44.0	50.8	35.7	41.3	28.7	33.3
630	8	57.3	66.1	46.7	54.0	37.7	43.6
630	10			57.3	66.1	46.4	53.6
630	12.5					56.9	65.7
630	16						
710	2.5	21.6	25.1	17.4	20.3		
710	4	33.9	39.2	27.4	31.8		
710	6	49.6	57.3	40.2	46.5	32.3	37.4
710	8			52.3	60.7	42.4	49.0
710	10					52.3	60.4
710	12.5						
710	16						
800	2.5	24.3	28.2	19.6	22.8		
800	4	38.1	44.1	30.8	35.7		
800	6	55.9	64.5	45.3	52.3	36.4	42.1
800	8					47.8	55.2

Wall Thickness for PE Pipe as IS:4984

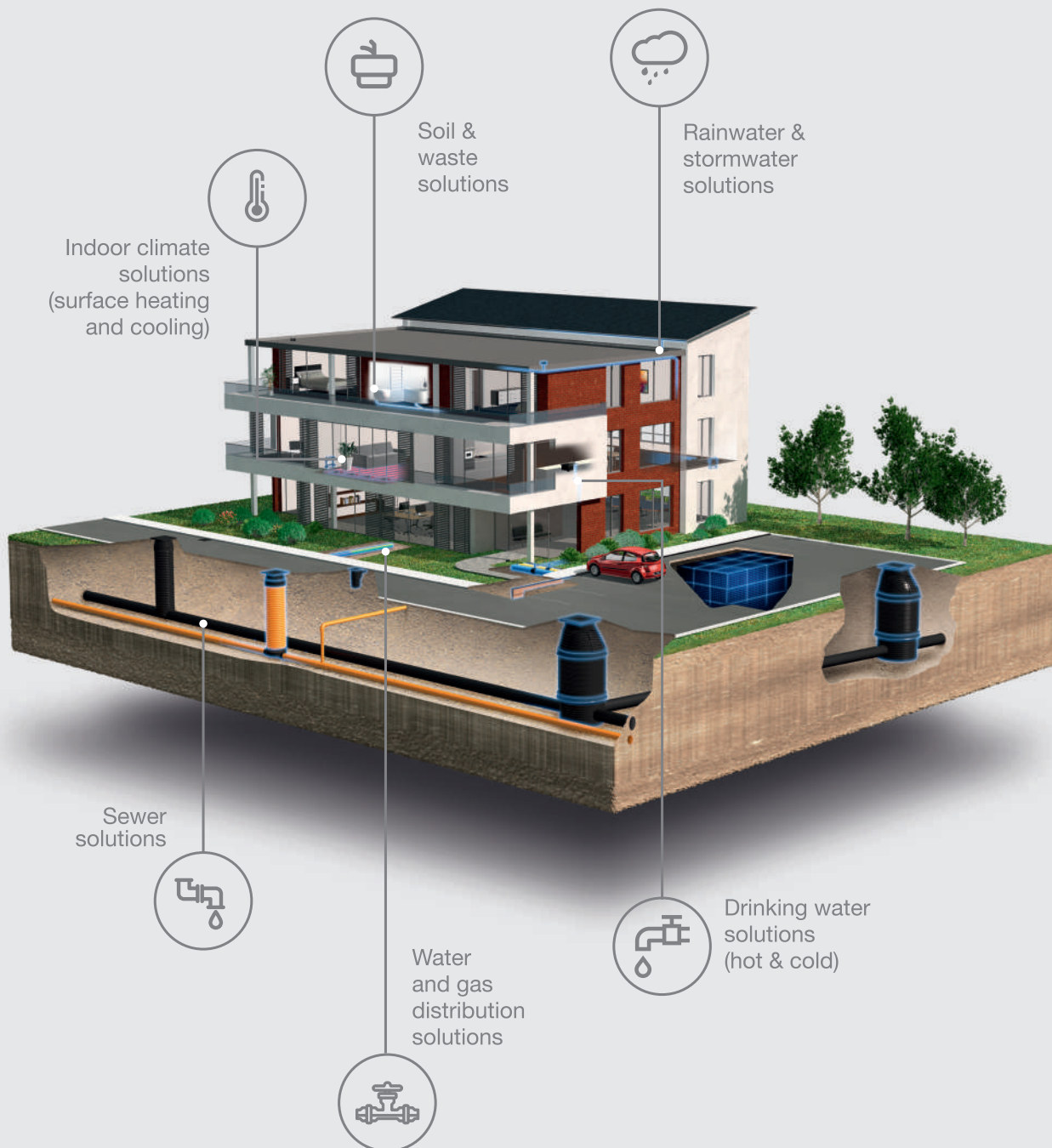
Diameter	Pr. Class	PE63		PE80		PE100	
		Min	Max	Min	Max	Min	Max
mm	pn	mm	mm	mm	mm	mm	mm
800	10						
800	12.5						
800	16						
900	2.5	27.3	31.6	22.0	25.5		
900	4	42.9	49.6	34.7	40.2		
900	6	62.8	72.5	51.0	58.9		
900	8					41.0	47.4
900	10					53.8	62.1
900	12.5						
900	16						
1000	2.5	30.4	35.2	24.4	28.3		
1000	4	47.7	55.1	38.5	44.5		
1000	6					45.5	52.6
1000	8						
1000	10						

Discover our broad portfolio at wavin.com

Hot & Cold Water
Indoor Climate
Soil & Waste

Foul Water
Stormwater

Gas & Water Mains
Geotextiles



Wavin is part of Orbia, a community of companies working together to tackle some of the world's most complex challenges. We are bound by a common purpose: To Advance Life Around the World.

WAVIN INDIA E-mail wavinindia@wavin.com | Internet www.wavin.co.in
Toll free number: 1800-123-7704

@wavinindia



© 2020 Wavin Wavin reserves the right to make alterations without prior notice. Due to continuous product development, changes in technical specifications may change. Installation must comply with the installation instructions.