

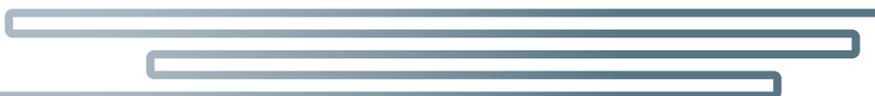
حلول الأنابيب  
Pipes Solutions



Approved by:



لجنة السعودية للمواصفات والمقاييس والجودة  
Saudi Standards, Meteorology and Quality Org





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# حلول الأنابيب Pipes Solutions





# Pipes Solutions

HDPE Double Wall Corrugated/Spiral Winding pipe:  
The Strong, Reliable, Cost-Effective Solution for Drainage

Over the past several years, the use of dual wall High Density Polyethylene (HDPE) corrugated pipes for storm water has increased dramatically. This is because of their strength, durability, joint integrity, and long-term cost-effectiveness. HDPE double wall pipes are well proven in some of the world's toughest environments.

Results show that forward-thinking municipalities realize the future of storm water management relies on the best technology. HDPE corrugated pipes are manufactured from the highest quality materials and are the most technologically advanced product available for moving storm water and wastewater.

Taldeem HDPE double wall corrugated pipes are the proven, reliable, cost-effective and safe solution for your long-term drainage needs. The pipes have two layers; the outer layer is corrugated to enhance the pipe's stiffness while reducing weight and cost; while the inner layer is smooth to improve flow efficiency and lower operational costs.

HDPE corrugated pipes can replace other piping material such as concrete, GRP and clay pipes as well as traditional plastic pipes.

## **Benefits:**

HDPE double wall corrugated pipes are a flexible pipe system that performs well in both high-cover and low-cover applications. Its unique ability to support and distribute both live and dead loads enables it to meet almost every installation condition.

## **Durability:**

Chemical inertness:

High-density polyethylene is one of the most chemically inert plastics available. This inertness makes it chemical and corrosion resistant.

## **Abrasion resistance:**

HDPE double wall corrugated pipes are resistant to abrasion giving them a significant long-term advantage over concrete and metal pipes. This also makes them reliable and secure.

## **Joints:**

Silt-tight and watertight joints mean what is inside the pipe stays inside the pipe, and what is outside the pipe stays outside. This helps protect communities, individuals, groundwater supplies, and wildlife. The integral joints on our HDPE corrugated pipes meet stringent standards set out by the EPA as well as complies with ASTM and DIN specifications.

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### **Tolerances:**

Tight controls in production and the use of uniform, specified raw materials ensure our HDPE pipes are manufactured to strict tolerances. In addition, silt-tight and watertight joints perform even under moderate deflections.

### **Economic Advantages:**

#### **Installation**

HDPE pipe is light and tough, and it is manufactured in long lengths. This combination of features reduces the cost of installation.

#### **Life Cycle Cost**

HDPE pipes offer significant savings over their life cycle compared to alternative drainage systems because they are resistant to abrasion and chemicals. They have a usable service life in many typical drainage applications of 100 years.



## Applications

HDPE corrugated pipes are mainly used in:

- Storm water applications.
- Sewerage applications
- Water treatment plants
- Sea outfall and intake lines.
- Landfill drainage systems.
- Storage tanks (water, food, chemicals, mineral oils, and more) and manholes.
- Air ducts, tunnels, mining, and ventilation applications.
- Irrigation.



## Pipes Product Range

### 1. HDPE Double Wall Corrugated Pipe

	Diameter	100	150	200	250	300	400	500	600	800
<b>SN8</b>	Pipe Weight (Kg/M)	0.6	1.1	1.94	3	4.2	7.4	12.1	17.8	30.9

### 2. HDPE Spiral Winding Pipe

	Diameter	1000	1200	1400	1600	1800	2000	2300	2400
<b>SN8</b>	Pipe Weight (Kg/M)	66.5	85.83	136.6	198.3	275	322	502	570
<b>SN4</b>	Pipe Weight (Kg/M)	62.5	81.25	105.3	139.5	190.75	269.75	336.25	377.5

### Fittings and Accessories

Fittings are available for DN size 100, 150, 200, 250, 300, 400, 500, 600, 800, 1000, 1200, 1400, 1600, 1800, 2000, 2300 and 2400 mm

- Tees/reduced tees wyes (45°)
- Bends



## Manufacturing Process

### HDPE Double Wall Corrugated Pipe

- HDPE corrugated pipes use extrusion technology.
- The manufacturing process is flexible as different sizes and stiffness of pipe can be produced using the same extrusion equipment in combination with different sizes of mandrel.
- The raw material goes from the extruder to the die head so the pipes can be shaped before going to the cutter.



### HDPE Spiral Winding Pipe

- HDPE Spiral Winding pipes use helical extrusion technology.
- The manufacturing process is flexible as different sizes and stiffness of pipe can be produced using the same extrusion equipment in combination with different sizes of mandrel.
- The extruder is positioned on a carriage which passes winding stations on a track. This can take different size mandrels. The circular movement of the mandrels combined with the axial movement of the extruder result in a spiral winding of the extruded profile.
- Pipes are produced with a socket and spigot during the process. A heating wire is inserted into the socket of the pipe. After putting the socket and spigot of the two connecting pipes together, the wire is heated with the help of a special fusion device. This process welds together the two pipe ends (i.e., the socket and spigot).



## HDPE Solid Wall PE 100 Pipe

High Density Polyethylene (HDPE) pipes have been used extensively around the world since the 1950s. The unique properties of HDPE pipes offer an alternative to traditional materials like steel, concrete and clay. Polyethylene is a strong, extremely tough, and very durable product which offers long service and trouble-free installation.

Properties such as impact and abrasion resistance make HDPE pipes the obvious choice in the mining and industrial sectors. Piping made from polyethylene is a cost-effective solution making it suitable for piping applications in the municipal, industrial, marine, mining, landfill, HVAC and agricultural industries. Tests prove its effectiveness for above ground, surface, buried slip-lined, floating and subsurface marine application.

### HDPE PE100 pressure pipe

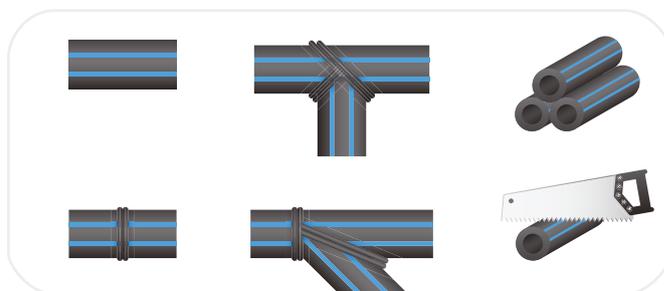
Piping made from polyethylene is a cost-effective solution for a range of piping applications in the municipal, industrial, marine, mining, landfill, HVAC and agricultural industries. Tests prove its effectiveness for above ground, surface, buried slip-lined, floating and subsurface marine applications.

Taldeen HDPE Solid Wall PE100 Pipes can carry drinking water, wastewater, slurry, chemicals, hazardous waste and compressed gas. As a result, polyethylene pipes have a long history of successful service in the gas, oil and mining industries, as well as many others. In fact, HDPE pipes have the lowest repair frequency per kilometer of pipe per year compared with all other pressure pipe materials used for urban gas distribution.

### Fitting and Accessories:

Fittings are available as injection-molded, electrofusion, or segment-welded and include:

- Tees/reduced tees wyes (45°)
- Bends/elbows
- Reducers
- Flanges connections
- Saddles etc.
- Cross X



### Benefits

Polyethylene pressure pipe systems offer many advantages when compared to traditional products. This includes:

- Weather resistance in above ground applications.
- Highly resistant to corrosion.
- Easy to handle and install.
- Exceptional toughness.
- Excellent abrasion resistance.
- Manufactured in long lengths and coils.
- Manufactured to internationally accepted standards.
- Service performance of over 50 years.



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### **Resistance to weather degradation:**

The raw material used to make HDPE pipes contains a high percentage of carbon black. This prevents pipes from degrading when exposed to ultraviolet rays. In addition, HDPE pipes are unaffected by rain or wind.

### **Chemical resistance:**

HDPE pipes are chemically inert so chemicals do not affect them. As the pipes do not conduct electricity, reactions that would affect performance cannot take place.

HDPE pipes have excellent corrosion resistance and, as they are virtually inert, they do not need expensive cathodic protection. They offer better resistance to corrosive acids, bases, and salts than most piping materials.

Natural soil chemicals do not degrade HDPE pipes in any way.

### **Ease of handling:**

Conventional materials are heavier than HDPE pipes so require cranes and lifting gear. HDPE pipes, on the other hand, can often be lifted and moved by hand (for smaller dimension pipes). This makes them easier to install, particularly in confined spaces and difficult terrain.

### **High strength and flexibility:**

The material used in HDPE pipes has a high degree of impact resistance so they are robust. They are ductile which allows for savings in design as less critical angles can be achieved by easily bending the pipe.

HDPE pipes can be laid across uneven surfaces and in narrow trenches. The pipes can be joined outside the trench before installation. In addition, the ability to absorb pressure surges makes HDPE pipes superior to other plastic pipe materials. Even in sub-zero temperatures, HDPE pipes perform as expected.



### **Resistance to abrasion:**

HDPE pipes are a proven solution in applications involving the transportation of very abrasive materials. They consistently outperform traditional pipe materials (such as steel and concrete) fitted with sacrificial layers such as rubber linings.

As a result, HDPE pipes are used extensively in mine tailings and washing plants.



## Applications

- Drinking water.
- Gas transportation.
- Telecommunication.
- Gravity water supply systems.
- Irrigation systems.
- Sewerage systems.
- Building and house connections.
- Mining, including extensive use in treatment and recovery plants.
- Marine applications.
- Fire Fighting Systems.



## Pipes Product Range

PE100 Pipe Dimensions as per ISO 4427, EN12201-2 Design Stress =8.0 Mpa									
Nominal OD mm	PN16			PN10			PN6		
	WT mm	Weight Kg/m	SDR	WT mm	Weight Kg/m	SDR	WT mm	Weight Kg/m	SDR
20	1.9	0.11	11	-	-	-	-	-	-
25	2.3	0.17	11	-	-	-	-	-	-
32	3	0.28	11	2	0.19	17	-	-	-
40	3.7	0.43	11	2.4	0.29	17	-	-	-
50	4.6	0.67	11	3	0.45	17	2	0.31	26
63	5.8	1.05	11	3.8	0.72	17	2.5	0.49	26
75	6.8	1.48	11	4.5	1.02	17	2.9	0.67	26
90	8.2	2.11	11	5.4	1.46	17	3.5	0.98	26
110	10	3.13	11	6.6	2.18	17	4.2	1.44	26
125	11.4	4.12	11	7.4	2.78	17	4.8	1.85	26
140	12.7	5.13	11	8.3	3.49	17	5.4	2.33	26
160	14.6	6.62	11	9.5	4.56	17	6.2	3.06	26
180	16.4	8.51	11	10.7	5.76	17	6.9	3.81	26
200	18.2	10.49	11	11.9	7.11	17	7.7	4.73	26
225	20.5	13.28	11	13.4	9.02	17	8.6	5.94	26
250	22.7	16.06	11	14.8	11.05	17	9.6	7.36	26
280	25.4	20.48	11	16.6	13.88	17	10.7	9.18	26
315	28.6	25.92	11	18.7	17.58	17	12.1	11.69	26
355	32.2	32.34	11	21.1	22.38	17	13.6	14.78	26
400	36.3	41.05	11	23.7	28.28	17	15.3	18.74	26
450	40.9	52.9	11	26.7	35.83	17	17.2	23.69	26
500	45.4	64.2	11	29.7	44.27	17	19.1	29.22	26

PE100 Pipe Dimensions as per ISO 4427, EN12201-2 Design Stress =8.0 Mpa									
Nominal OD mm	PN16			PN10			PN6		
	WT mm	Weight Kg/m	SDR	WT mm	Weight Kg/m	SDR	WT mm	Weight Kg/m	SDR
560	50.8	81.78	11	33.2	55.47	17	21.4	36.63	26
630	57.2	101.87	11	37.4	70.25	17	24.1	46.41	26
710	64.5	131.83	11	42.1	87.58	17	27.2	59.09	26
800	72.6	167.19	11	47.4	113.2	17	30.6	74.83	26
900	81.7	211.63	11	53.3	140.58	17	34.4	95.03	26
1000	90.2	259.82	11	59.3	173.73	17	38.2	116.79	26
1200	109.1	377	11	67.9	239.27	17	46.2	171	26
1400	-	-	-	-	-	-	53.84	229.16	26
1600	-	-	-	-	-	-	61.2	293.63	26
1800	-	-	-	-	-	-	69.2	378.7	26
2000	-	-	-	-	-	-	76.9	460.42	26

### Certificates and Approvals:

Taldeen pipe systems operate on the below certificates:

- ISO 2000/9001
- NSF and WRAS certificate for drinking water applications
- FM (Factory Mutual) for firefighting systems

### Pipe Jointing

Taldeen HDPE PE100 pipe can be jointed using different methods. This includes

- Butt-fusion welding.
- Electro fusion welding.
- Flange connection.

### Manufacturing Process

The HDPE PE100 Pipe manufacturing process is as follows:

- Single screw extruders obtain the raw HDPE material.
- The extruder is heated with the temperature controlled by pyrometers. Once at the required temperature, the hopper is fed with HDPE material.
- The plasticized material comes out and is cooled while being formed into a pipe.
- The pipe is cooled by a haul-off machine at a consistent rate to ensure uniform wall thickness throughout the length of the pipe.
- The pipe then passes through a saw machine and is cut to the required length.

