ATLANTA INDUSTRIES

Solid Wall

HDPE LARGE DIAMETER PRESSURE PIPES & FITTINGS

- Structural Strength
- Lightweight
- Chemical Resistance
- Smooth inner surface
- Long service life
- Flexibility
- Ease of installation
- Environmental friendly

Solid Wall Large Diameter HDPE Pipe System Up to 2000mm diameter

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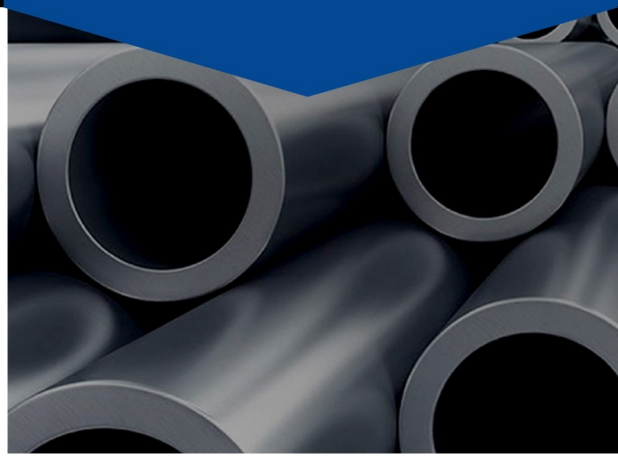
Large Diameter Pressure Pipes

There is a growing need for large diameter pressure pipes crafted from thermoplastics. This is particularly prominent in applications like transporting drinking water and constructing piping systems for water treatment and power plants. In these areas, there is a growing demand for cost - effective solutions that are also corrosion-resistant.

Our technology represents the most efficient and intelligent approach to producing large-sized pipes, fittings, manholes, tanks, and similar components. It allows for the creation of the required wall thickness based on specific application needs, all while ensuring there is no risk of sagging or the development of frozen stresses.



In order to respond to the call of times, we are now producing the large diameter pipes.

The Large Diameter Pressure Pipe is a cutting-edge solution in the realm of piping systems. It stands out for its remarkable strength-to-density ratio, which makes it an excellent choice for various applications. Large Diameter Pressure Pipes is used for various applications including drainage, sewage, and other fluid transportation systems.

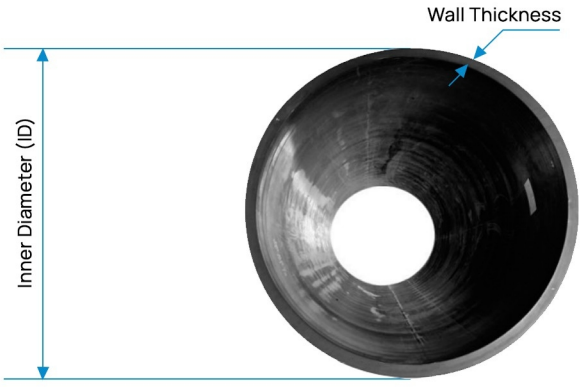
These pipes are characterized by their construction, which consists of a structured outer wall and a smooth inner wall, it is widely used in industries where corrosion resistance is paramount, ensuring durability and longevity in harsh environments. Moreover, can be employed for both pressurized and non-pressurized applications . This adaptability makes it an ideal for a range of purposes, transporting and longevity from transporting fluids under high pressure to facilitating efficient drainage systems.

Pipe Diameter

Our solid wall pressure pipes, manufactured using their advanced technology, are offered in both standardized and tailor-made pressure classes, covering sizes up to DN/ID 2000 mm. Whether you opt for FEAPC Pipes constructed from pure high-density Polyethylene PE100 or those reinforced with glass fibers, you can consistently rely on a dependable and environmentally-friendly product solution.

HDPE Solid Wall Pipe : Large Diameter Size Range

Inner Diameter (ID)	Pressure Rating & Wall Tickness			
	PN6.3 SIDR 24 (mm)	PN8 SIDR 19 (mm)	PN10 SIDR 15 (mm)	PN16 SIDR 9 (mm)
500	20.9	26.40	33.40	96.50
600	25	31.60	40.00	138.91
700	29.2	36.90	46.70	189.03
800	33.4	42.20	53.40	246.86
900	37.5	47.40	60.00	312.38
1000	41.7	52.70	66.70	386.00
1200	50	63.20	80.00	
1400	58.4	73.70	93.40	
1500	62.5	79.00	100.00	
1600	66.7	84.30	106.70	
1800	75	94.80	120.00	
2000	83.4	105.30		



The FEAPC pressure pipes have a flexible range of internal diameters from 500 mm to 2000 mm, and the nominal diameter matches the internal diameter. Any design adjustments can be made by changing the wall thickness while maintaining a consistent internal diameter, ensuring the desired hydraulic capacity is maintained.

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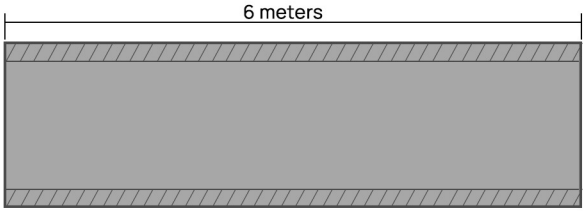
Material

Polyethylene PE100 exhibits outstanding qualities suitable for water supply and the construction of containers for both liquids and solid substances. Additionally, all these materials are environmentally sustainable.

Property	Standard	Unit	PE100
MRS class	ISO 12162	IN/mm²	10
Density	ISO 1183	g/cm³	0.96
melt index ; MFR 190/5	ISO 1133	g/10 min	0,25
Tensile modulus (1 min)	ISO 178	N/mm²	1100
Tensile strength at yield (in Extrusion-direction)	ISO 527-2	N/mm²	› 23
Tensile strain at yield (in Extrusion-direction)	ISO 527-2	%	›8
Notch resistance /	EN 12814-3	80°C,4 MPa,	› 300
Slow crack growth behavior		Arkopal N100	
Thermal expansion	DIN 53752	1/°C	1.8 x 10-4
Colour			black/yellow/blue



Wall Structure and Pipe Length

Large Diameter Pressure Pipes are commonly manufactured as solid wall pipes characterized by a smooth inner and outer surface.This pipe typically comes in standard lengths of six meters for the sake of convenience in handling, storage, and transportation. Moreover, it is feasible to continuously manufacture pipes with lengths ranging from one to six meters as needed.

Surface Characteristics

The inner and outer surfaces of Large Diameter Pressure Pipes are sleek and even. Additionally, it is possible to manufacture these surfaces using electro-conductive or colored materials if desired. For profiled pipes, the outer surface can be specially structured as needed.

Impact Resistance

The impressive impact resistance, even in low-temperature conditions, ensures the durability of the pipe, making it resistant to impacts during transport, on-site installation, and throughout its entire service life.

Weldability

Thanks to the characteristics of thermoplastic material, it is possible to thermally fuse the pipes, guaranteeing the creation of a seamless and completely secure pipe system, resistant to both infiltration and exfiltration. For connecting Large Diameter Pressure Pipes, we suggest using either the electro-fusion technology or the traditional butt-fusion method.

Hydraulics

The surface roughness plays a vital role in determining flow characteristics and pressure loss in pipe systemsLarge Diameter Pressure Pipes offer significantly lower roughness compared to conventional pipes, with realistic values between 0.01 and 0.1 under operational conditions. The reduced roughness and the waxy surface type also help prevent the buildup of deposits, which further reduces pressure loss.

Chemical Resilience

The exceptional material qualities ofLarge Diameter Pressure Pipes systems provide optimal protection against chemical threats. This is particularly crucial for industrial uses and in environments with acidic soil conditions.

UV Resistance

Black Polyethylene pipes exhibit enduring resistance to atmospheric corrosion and UV radiation. This means the pipes can be employed for outdoor pipe installations and storage without any harm to the pipe material, and there will be no aging effects over time.

Recycling

Polyethylene can be recycled completely, and this material possesses the ability to be reprocessed without significant structural alterations. As a result, all waste materials from Polyethylene pipes can be reintegrated into the production cycle. It's worth noting that for potable water applications, it is advisable to use 100% virgin material.

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PE 100
DIN 16961 DIN PAS 1065 acc. ISO 4427

$$e = \frac{p \cdot d_i}{20 \cdot \sigma_s - p} \qquad \sigma_s = \frac{MRS}{c}$$

e = minimum wall thickness [mm]
p = internal pressure [bar]
di = internal diameter [mm]
σ = design stress [MPa]
MRS = Minimum Required Strength
c = design coefficient [-]

$$SIDR = \frac{di}{e} \quad ; \; SIDR = SDR\text{-}2$$

Compliance with Regulations and Standards

Large Diameter Pressure Pipes is engineered to adhere to the current international norms and standards. Atlanta actively participates as a member in significant standardization committees, ensuring that the pipes not only align with established standards but also contribute to the development of those standards.

Pipe Design

Large Diameter Pressure Pipes System has the capacity to endure a working pressure of up to 10 bar, contingent upon the thickness of the uniform solid wall (e). Similar to ISO4427, the hoop stress formula can be applied when dealing with solid wall thickness.

SIDR

Standard Inside Dimension Ratio (SIDR): Traditionally, the Standard Dimension Ratio (SDR) has been employed to accurately describe Polyethylene pressure pipes, which is the relationship between the outside diameter and the wall thickness. However, for internally calibrated pipes like Krah Pipes, it proves more beneficial to specify the SIDR, or the Standard Inside Dimension Ratio, which represents the connection between the inner diameter and the wall thickness.

Fitting Range

Elbow 22.5°			
SDR / INSIDE DIAMETER (mm)			
24	19	15	9
500	500	500	500
600	600	600	600
700	700	700	700
800	800	800	800
900	900	900	900
1000	1000	1000	1000
1200	1200	1200	
1400	1400	1400	
1500	1500	1500	
1600	1600	1600	
1800	1800	1800	
2000	2000		

Elbow 45°			
SDR / INSIDE DIAMETER (mm)			
24	19	15	9
500	500	500	500
600	600	600	600
700	700	700	700
800	800	800	800
900	900	900	900
1000	1000	1000	1000
1200	1200	1200	
1400	1400	1400	
1500	1500	1500	
1600	1600	1600	
1800	1800	1800	
2000	2000		

Tee			
SDR / INSIDE DIAMETER (mm)			
24	19	15	9
500	500	500	500
600	600	600	600
700	700	700	700
800	800	800	800
900	900	900	900
1000	1000	1000	1000
1200	1200	1200	
1400	1400	1400	
1500	1500	1500	
1600	1600	1600	
1800	1800	1800	
2000	2000		

Elbow 90°			
SDR / INSIDE DIAMETER (mm)			
24	19	15	9
500	500	500	500
600	600	600	600
700	700	700	700
800	800	800	800
900	900	900	900
1000	1000	1000	1000
1200	1200	1200	
1400	1400	1400	
1500	1500	1500	
1600	1600	1600	
1800	1800	1800	
2000	2000		

Stub End			
SDR / INSIDE DIAMETER (mm)			
24	19	15	9
500	500	500	500
600	600	600	600
700	700	700	700
800	800	800	800
900	900	900	900
1000	1000	1000	1000
1200	1200	1200	
1400	1400	1400	
1500	1500	1500	
1600	1600	1600	
1800	1800	1800	
2000	2000		

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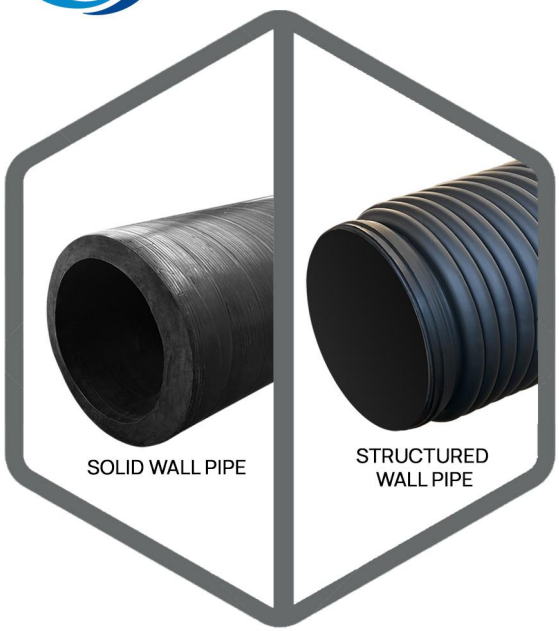

Solid Wall Pipes vs Structured Wall Pipes

Compared to Structured Wall HDPE pipe, Solid Wall HDPE features a homogeneous construction without the presence of ribs or corrugations. As the name suggests,Solid Wall HDPE pipes have a uniform and continuous wall thickness throughout their length.This design results in a consistent wall thickness throughout the pipe, providing uniform strength and durability.

In contrast, Structured Wall HDPE pipes typically feature a corrugated exterior, offering enhanced stiffness and structural integrity, making them particularly suitable for applications where the pipe may be subject to external loads or forces.

They are typically made from materials like metal, concrete, or plastic (such as PVC) and have a consistent density from the inner to the outer surface. Structured wall pipes, also known as spiral wound pipes or corrugated pipes, have a more complex construction with an inner smooth layer and an outer corrugated layer. They are commonly made from materials like high-density polyethylene (HDPE).

Advantages of Solid Wall Pipes

Structural Strength: *Atlanta Solid Wall Pipes are designed to have excellent structural strength due to their spiral wound construction. This design enhances the pipes' ability to withstand external loads, such as soil pressure, without deforming or collapsing. This makes them suitable for underground installations and areas with high load-bearing requirements.*

Lightweight: *Despite their structural strength, Atlanta Solid Wall Pipes are relatively lightweight compared to traditional materials like concrete or metal pipes. This makes them easier to transport, handle, and install, reducing labor and equipment costs during installation.*

Chemical Resistance: *Atlanta Solid Wall Pipes are often made from high-density polyethylene (HDPE) or other chemically resistant plastics. This gives them good resistance to a wide range of chemicals, making them suitable for conveying corrosive fluids without the risk of degradation.*

Smooth Inner Surface: *The smooth inner wall of Atlanta Solid Wall Pipes allows for efficient flow of fluids. The lack of roughness reduces friction, which in turn lowers pumping energy requirements and helps prevent clogs or blockages.*

Long Service Life: *HDPE and other plastics used in Atlanta Solid Wall Pipeshave excellent resistance to environmental factors like UV radiation, moisture, and temperature fluctuations. This contributes to their long service life and reduces the need for frequent maintenance or replacements*

Flexibility: *Atlanta Solid Wall Pipes have a degree of flexibility that allows them to accommodate ground movements or settle without cracking or breaking. This flexibility makes them particularly suitable for areas prone to soil subsidence or seismic activity.*

Ease of Installation: *The lightweight nature of Atlanta Solid Wall Pipes, combined with their easy-to-join connections, simplifies the installation process. This can lead to faster project completion times and reduced labor costs.*

Environmental Friendliness: *HDPE and other plastic materials used in Atlanta Solid Wall Pipes are recyclable. Additionally, the pipes' extended lifespan and minimal maintenance needs contribute to a lower environmental impact compared to other materials that require frequent replacements.*

In essence, Solid Wall HDPE pipe stands as a reliable solution for various piping needs, ensuring exceptional corrosion resistance, versatility, and consistent performance in both pressurized and non-pressurized settings.

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