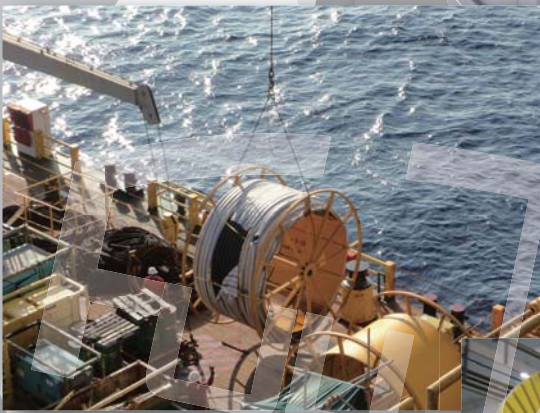
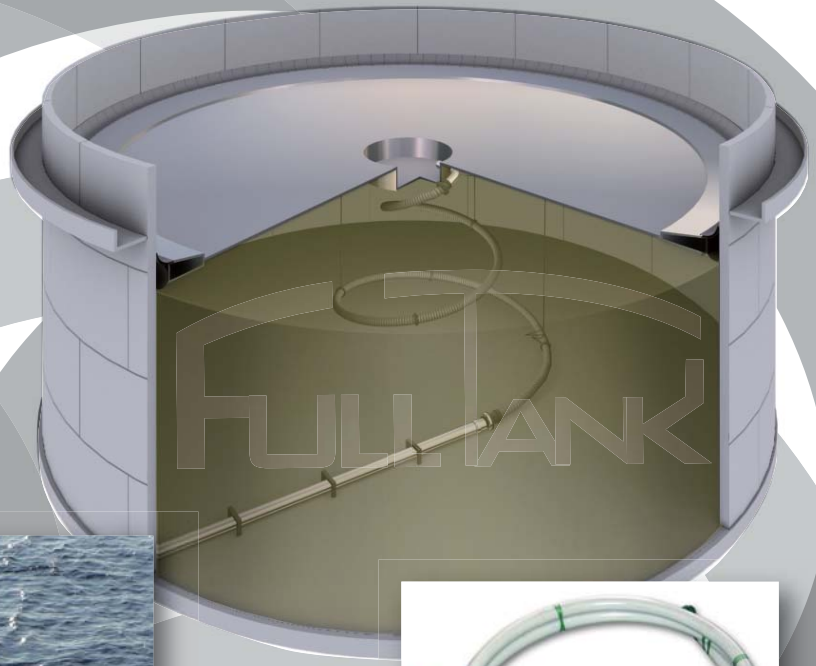


COMPOSITE FLEXIBLE PIPES

FOR PETROCHEMICAL AND REFINING INDUSTRY



Composite Flexible Pipes

- Flexible Drain Pipe System for Floating Roof Tanks
- Foam Delivery System for Floating Roof Tanks
- Floating Suction/Oil Skimmer Systems

Reinforced Thermoplastic Pipes (RTP)

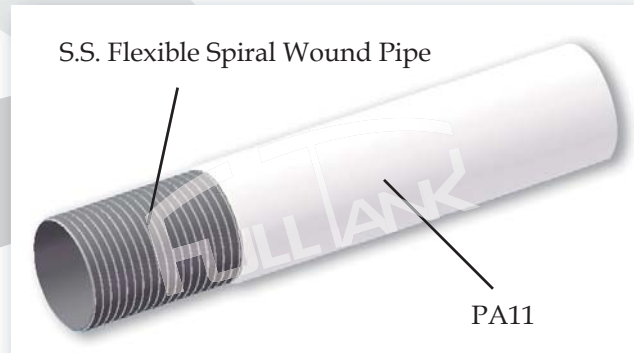
- Subsea Lines
- Offshore Platforms
- Onshore/Offshore Pipelines

INTRODUCTION

Composite Flexible Pipes

1. Composite pipeline of flexible spiral wound pipe and thermoplastic material.
2. The inner layer is skeleton, and fastened mutually by stainless steel material. It can bear the external pressure. Never collapse.
3. The outer layer is thermoplastic sheath; completely leak proof with 100% aromatic resistance.
4. The service life can reach 15 years.
5. The working pressure for long term can be 0.6MPa.

2 Layers



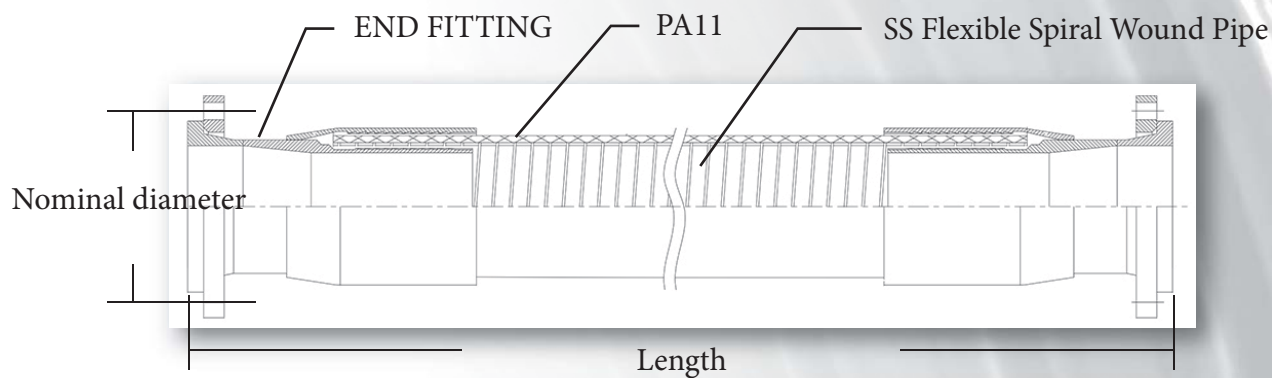
3 Layers



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PARAMETER LIST



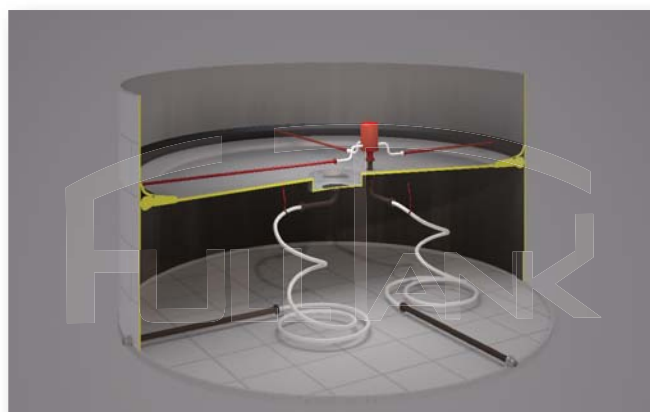
Nominal diameter (mm)	Φ 80 (3")	Φ 100 (4")	Φ 150 (6")	Φ 200 (8")
Inner diameter (mm)	75	108	159	205
Outer diameter (mm)	90	125	180	225
Weight (kg/m)	6.3	12.1	25.2	39.3
Max. working pressure (MPa)	0.6	0.6	0.6	0.6
Min. bending radius(mm)	750	1000	1350	1600
Max. test pressure (kN)	8	10	14	20



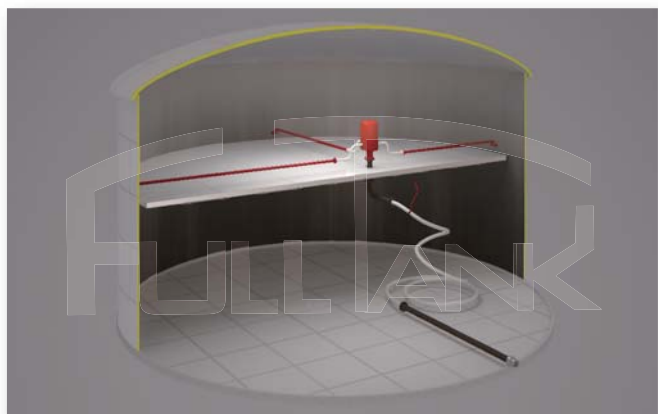
APPLICATION

Flexible Drain Pipe System/Foam Delivery System for External Floating Roof

Composite flexible pipe can be installed in EFR as drain system and/or foam delivery system. Spiral wound stainless steel covered by outer thermoplastic sheath completely leak proof with 100% aromatic resistance.



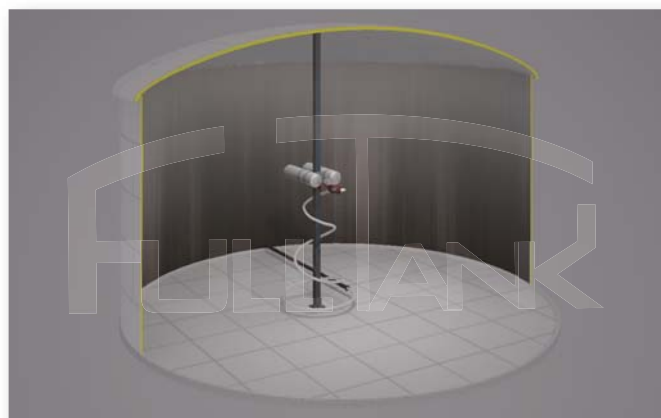
Foam Delivery System for Internal Floating Roof



Foam delivery system delivers high velocity fire-fighting foam from tank outside bottom through the flexible pipe up to floating roof deck by foam distributor connect with rigid pipe to rim space as rim fire protection system.

Flexible Pipe for Floating Suction / Oil Skimmer System

A custom designs and manufactures pontoon and floating roof skimmer systems, our exclusive flexible skimmer discharge line do not need to add extra weights or torques to skimmer pontoon, floating panel and floating roof. The smooth chemical resistance fluid way will not cause turbulence or trap solids as waxy residue.



FEATURE

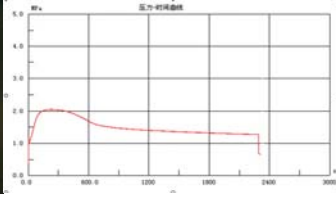
- 1) Consist both flexibility and rigidity character.
- 2) The flexible pipe will never interfere with tank internal, even the floating roof in the lowest position.
- 3) The trajectory of the flexible pipe is consistent, and can be predicted completely.
- 4) Can be used in the majority of oil tanks, including aromatic hydrocarbon oil with 100% aromatic resistance.
- 5) One continuous length without ballasting, with repeatable lay patterns . The flexible pipe will lay on the tank floor in the same place and pattern.

ADVANTAGE

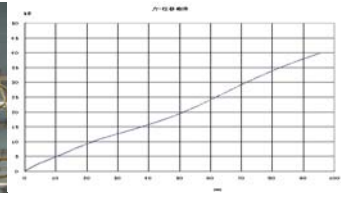
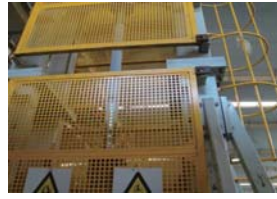
- 1) Fast and easy installation
- 2) Smooth and fluent drainage/delivery
- 3) Fixed trajectory
- 4) Long service life
- 5) No phenomena of obstruction or pipe blocking.
- 6) No interference with tank internal.



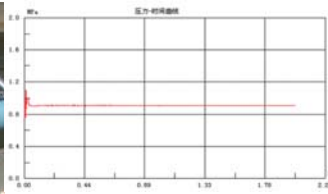
TEST



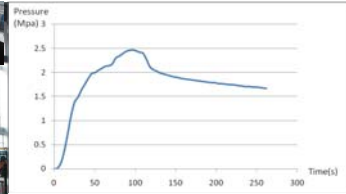
Short-term Burst Test



Axial Bearing Capacity Test



Compressive Strength Test



Resistance to External Pressure Test



Bending Fatigue Test

Item	Requirement			Test Result
	Dn100	Dn150	Dn200	
Bending Fatigue 5 000 / times	MBR 1m	MBR 1.35m	MBR 1.6m	Qualified
Twisting resistance 1500 / times	16°/M	12°/M	10°/M	Qualified

MANUFACTURING EQUIPMENTS



Cladding Extrusion Machine



Vacuum Sizing Water Tank



Vacuum Charging Machine



Crimping Machine



Rewinder

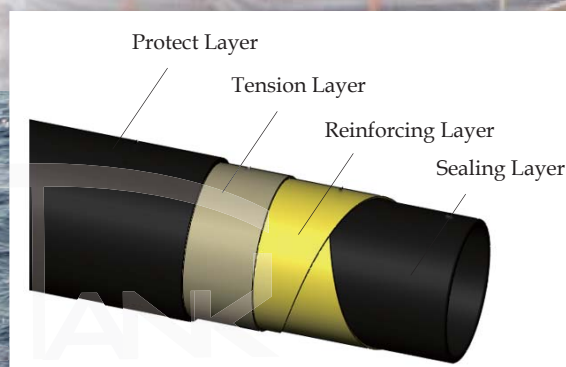
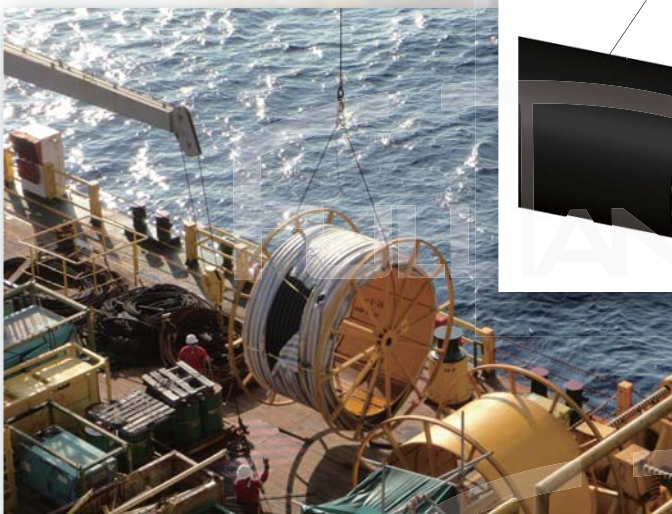
Reinforced Thermoplastic Pipes (RTP)

RTP is a high pressure resistant plastic complex pipe which is constituted by sealing layer, reinforcing layer and protect layer.

- ★ Sealing Layer: Made by Polyolefin materials. It's the role of fluid delivery and sealing.
- ★ Reinforcing Layer: Made by aramid fibers. Function: Bearing pressure.
- ★ Protect Layer: Made by HDPE. Outer layer: White color (The surfaces is protected against ultraviolet rays) / Black color (Buried laying).

Application

- ★ Single Well Cluster Pipeline in Oilfield
- ★ Geothermal hot spring pipeline
- ★ Petrochemical pipeline
- ★ Ash water pipeline
- ★ Bridge purge pipe
- ★ Drinking water pipeline, Industrial water pipeline
- ★ Natural gas pipeline
- ★ Nuclear power emergency pipeline
- ★ Subsea Lines



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