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
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.
### Nominal diameter (mm)

<table>
<thead>
<tr>
<th>Width</th>
<th>Φ 80 (3&quot;)</th>
<th>Φ 100 (4&quot;)</th>
<th>Φ 150 (6&quot;)</th>
<th>Φ 200 (8&quot;)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inner diameter (mm)</td>
<td>75</td>
<td>108</td>
<td>159</td>
<td>205</td>
</tr>
<tr>
<td>Outer diameter (mm)</td>
<td>90</td>
<td>125</td>
<td>180</td>
<td>225</td>
</tr>
<tr>
<td>Weight (kg/m)</td>
<td>6.3</td>
<td>12.1</td>
<td>25.2</td>
<td>39.3</td>
</tr>
<tr>
<td>Max. working pressure (MPa)</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
</tr>
<tr>
<td>Min. bending radius (mm)</td>
<td>750</td>
<td>1000</td>
<td>1350</td>
<td>1600</td>
</tr>
<tr>
<td>Max. test pressure (kN)</td>
<td>8</td>
<td>10</td>
<td>14</td>
<td>20</td>
</tr>
</tbody>
</table>
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.

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
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**

<table>
<thead>
<tr>
<th>Item</th>
<th>Requirement</th>
<th>Test Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bending Fatigue 5000 / times</td>
<td>MBR 1m</td>
<td>MBR 1.35m</td>
</tr>
<tr>
<td>Twisting resistance 1500 / times</td>
<td>16°/M</td>
<td>12°/M</td>
</tr>
</tbody>
</table>

## 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
CPC CORPORATION, TAIWAN

PetroChina Lanzhou Petrochemical Company

Sinopec Jilin Refining & Chemical Company

Qingdao Yijia Haiye Trading Co., Ltd.

PetroChina Liaoyang Petrochemical Company

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