External polyethylene coating is a plant-applied coating system applied externally to provide excellent anti-corrosion protection for steel line pipes and fittings, intended primarily for buried or submerged service for water or oil and gas pipeline system, including two-layer (2LPE) and three-layer (3LPE) coating systems, whereby a copolymer adhesive is interposed between a bare substrate or high performance fusion bonded epoxy and the outer layer of polyethylene which provides mechanical protection at moderate operating temperature.

**Plant Capability**

Nominal Pipe Size: 4”/114.3mm - 48”/1219mm  
Pipe Length : 6m - 18m

**Typical Standards & Specifications**

<table>
<thead>
<tr>
<th>Standard</th>
<th>Year</th>
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<tbody>
<tr>
<td>CSA Z245.21</td>
<td>2014</td>
<td>DIN 30670</td>
<td>2012</td>
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<tr>
<td>ISO 21809-1</td>
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<td>ISO 21809-4</td>
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<td>NFA 49-710</td>
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<td>GB/T 23257</td>
<td>Chinese 2009</td>
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<tr>
<td>DEP 31.40.30.31 (SHELL 2011)</td>
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<td>GS EP COR 220 (TOTAL Rev.08)</td>
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External Asphalt Enamel Coating

Asphalt enamel (AE) coating is a plant-applied external bitumen (asphalt) based enamel hot applied coating system to provide good corrosion protection for onshore and offshore steel line pipes and fittings. AE is a safer and more environment friendly coating system than coal tar enamel coating, consisting of a film of primer, one or two layers of reinforcing inner wrap and a layer of outer wrap impregnated with oxidized bitumen along with various grades of asphalt enamel. Sometimes, a solar protection (weather-resistant material) is applied to protect the coating from sunlight if the coated pipe have a long period of open air storage.

Plant Capability
Nominal Pipe Size: 4”/114.3mm - 48”/1219mm
Pipe Length : 6m - 18m
Coating Thickness: as per customer’s specification up to 5.5mm

Typical Standards & Specifications
DEP 31.40.30.33 (Shell 2001)
GS EP COR 223  (TOTAL)
EN 10300  (2005)
Concrete weight coating (CWC) is a plant-applied reinforced concrete coating system externally applied by using either impingement or compression (wrap) method to either bare pipe or pre-coated offshore pipe with a minimum thickness of 25mm, intended primarily for submerged service for water or oil and gas pipeline system. The objective of a concrete weight coating is to provide required negative buoyancy to the pipeline, ensuring stability on the seabed, and/or to provide required additional mechanical protection for the pipe and its anti-corrosion coating during installation and throughout the pipeline's operational life.

**Plant Capability**

Nominal Pipe Size: 4”/114.3mm - 48”/1219mm  
Pipe Length : 6m - 18m  
Coating Thickness: as per customer’s specification up to 150mm

**Typical Standards & Specifications**

DEP 31.40.30.30 (Shell 2012)  
GS EP PLR 401 (TOTAL 2012)
External fusion bonded epoxy coating (referred to as FBE coating) is a plant-applied epoxy-based powder coating system applied externally by electrostatic guns to provide excellent anti-corrosion protection for steel line pipes and fittings, intended primarily for buried or submerged service for water or oil and gas pipeline system with a moderate operating temperature, including single layer FBE coating, dual layer FBE coating systems and three-layer FBE coating systems. FBE coating has superior adhesion to steel substrates and provides excellent cathodic disbondment resistance.

**Plant Capability**

Nominal Pipe Size: 4”/114.3mm - 48”/1219mm  
Pipe Length: 6m - 18m

**Typical Standards & Specifications**

- CSA Z245.20 (2014)
- NACE SP0394 (2013)
- GS EP COR 222 (TOTAL)
- ISO 21809-2 (2014)
- DEP 31.40.30.32 (Shell 2011)
- AWWA C213 (2007)