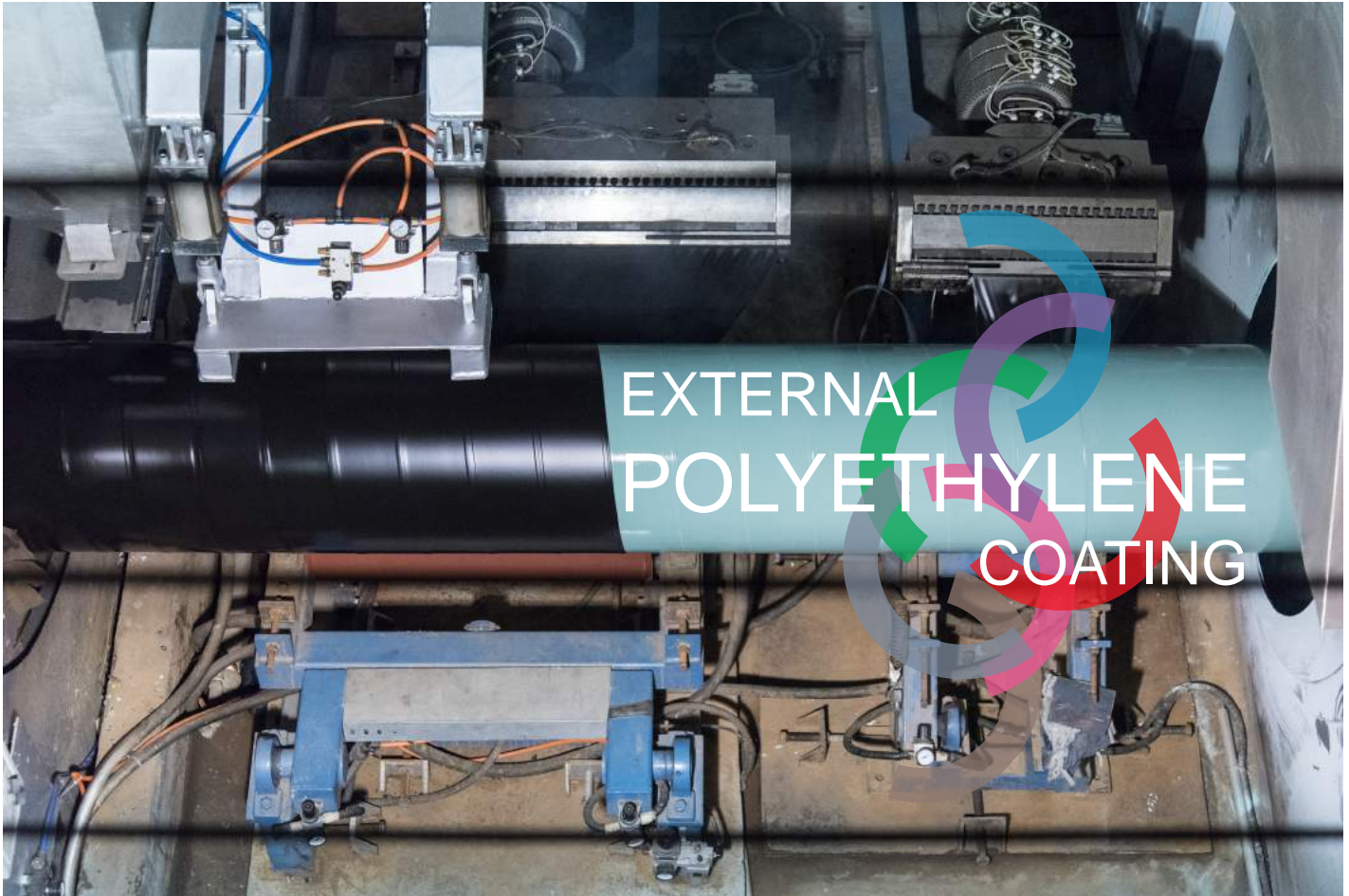


# EXTERNAL POLYETHYLENE COATING

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

CSA Z245.21	(2014)	DIN 30670	(2012)
ISO 21809-1	(2011)	ISO 21809-4	(2009)
NFA 49-710	(1992)	GB/T 23257	(Chinese 2009)
DEP 31.40.30.31	(SHELL 2011)	GS EP COR 220	(TOTAL Rev.08)



Preheating



Blasting



QC Inspection



Induction Heating



FBE Application



PE Coating & Adhesive Applied



Water Quenching



Holiday Detection



Storage

# 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)



Preheating



Blasting



Primer Coating



AE Coating  
& Wrap Applied



Water  
Quenching



Holiday  
Detection



Rope  
Separator

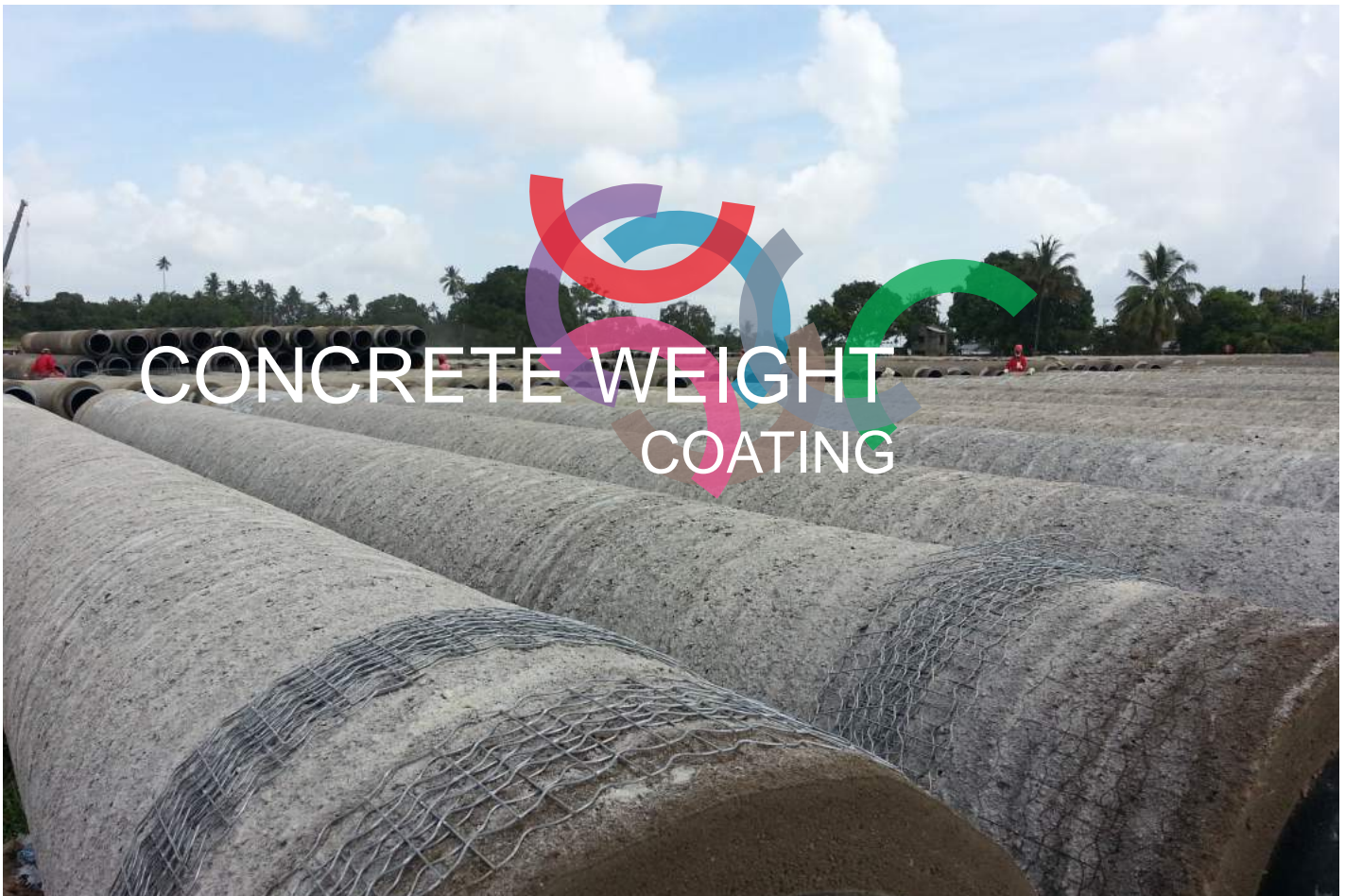


Storage



# CONCRETE WEIGHT COATING

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

ISO 21809-5 (2010)  
 DEP 31.40.30.30 (Shell 2012)  
 GS EP PLR 401 (TOTAL 2012)



Holiday Detection



Mesh Wrap & Concrete Coating



Curing Compound



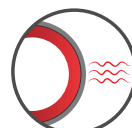
End Preparation



Weighting



QC Inspection



Curing



Storage

# EXTERNAL

# FUSION BONDED EPOXY COATING

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.



## EXTERNAL FUSION BONDED EXPOXY COATING

### Plant Capability

Nominal Pipe Size: 4"/114.3mm - 48"/1219mm

Pipe Length : 6m - 18m

### Typical Standards & Specifications

CSA Z245.20 (2014)

ISO 21809-2 (2014)

NACE SP0394 (2013)

DEP 31.40.30.32 (Shell 2011)

GS EP COR 222 (TOTAL)

AWWA C213 (2007)



Preheating



Blasting



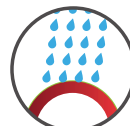
QC Inspection



Induction Heating



FBE Application



Water Quenching



Holiday Detection



Storage