CerAnode PiggyBack Pipeline Anode System™

Product Data Sheet

Functions Efficiently in Arid Soils or Immersed in Water

- **Continuous Anode Technology**
- **Follows Pipeline Symmetry**
- **Optimized for Current Distribution**
- **Optimized Power Efficiency**
- **Optimized for Low Groundbed Resistance**
- **Easy to Install**
- **100% Factory Connections**
- **>50 Year Anode Design Life**
- **Cost Effective**
- **Arrives Ready to Lay in Place**

Ideal Anode to Coke Interface
Ideal Coke to Earth Interface
An Ideal Execution of An Ideal Technology

Anode MMO Element Current Density

Anode to Coke Current Density Based on 20 Year Life	17.4 A/m^2
Anode to Coke Current Density Based on 30 Year Life	11.6 A/m^2
Anode to Coke Current Density Based on 50 Year Life	7.0 A/m^2

Anode Coke Sock Current Density

Coke to Earth Interface Current Density Based on 20 Year Life	0.653 A/m^2
Coke to Earth Interface Current Density Based on 30 Year Life	0.435 A/m^2
Coke to Earth Interface Current Density Based on 50 Year Life	0.261 A/m^2

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Technology for Cathodic Protection of underground pipelines has undergone fundamental innovations allowing optimization and close to ideal current distribution. The CerAnode **Continuous Anode Technology** has been in operation by major oil companies since 1992, individual components since the mid 1980's. The technology provide optimized current distribution, low groundbed resistance and better than ever power efficiencies. Depending on the application the anode can be used with or without the Coke Sock. (To double the current rating, change the 33 in the part numbers below to 66.)

PiggyBack™ Pipeline Anode with or without Coke Sock

Model PBP-15-33/50-CS (with Coke Sock) -- **Model PBP-15-33/50** (without the Coke Sock)

The characteristics highlighted in green relate only to the Coke Sock Version.

Coke Sock Anode Diameter	**40 mm**
MMO Anode Wire Diameter	**1.5 mm**
MMO Anode Current Density Based on 20 Year Life	**17.4 A/m^2**
Coke to Earth Interface Current Density	**0.653 A/m^2**
Primary Header Cable Cross Section	**13.3 mm^2**
MMO Anode Rating for 20 years	**82 mA/m**
MMO Anode Rating for 30 years	**55 mA/m**
MMO Anode Rating for 50 years	**33 mA/m**
Max. Attenuation in ≥2000 ohm-cm Soil - Both Ends Powered See Note 1	**10 %**
Coke Volume	**0.00126 m^3/m**
Coke Weight	**1.5 kg/m**
Coke Specification	**SC-3 Loresco®**
Anode Length per Wooden 32" x 24" Spool	**152 m** See Note 2
Gross Weight per Spool	**250 kg**
Anode Length *without the Coke Sock* per 24" x 12" Spool	**152 m** See Note 2
Gross Weight per Spool -- PiggyBack only *without coke sock*	**50 kg**

NOTES:

1 -- Anode Wire and Internal Header Cable Electronic Resistance plus Connection Spacing per the above specification will have no greater Attenuation than 10% in Groundbed installations with Soil Resistivity of ≥2000 ohm-cm when powered from both ends. If the resistivity is lower the factory design can usually be altered to accommodate.

2 -- When multiple lengths of the 152 meter lengths are used to form a longer anode, an Auxiliary Header Cable connected where 152 meter lengths are joined minimizes attenuation. The Auxiliary Header Cable should be large enough to carry the current without significant voltage drop. Balancing Resistors at these joint are sometimes needed to compensate for the IR Loss for long runs. This use of an Auxiliary Header Cable and Balancing Resistors permits longer runs with when powered from only one end or when soil resistivity is exceptionally low.

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