



**Long-line flexible anode for impressed-current cathodic protection of buried pipelines and of on-grade and buried storage tanks.**

### Product description

**ANODEFLEX 1500 cathodic protection.**

**Construction:** Five basic elements:

**Central Copper Conductor:** #6 AWG, serving as a low resistance busbar to deliver the required current over considerable distance without incurring substantial longitudinal voltage drop.

**Conductive polymer:** 0.5 in (13 mm) in diameter special extrusion, sealing the copper conductor from chemical attack, yet allowing current to flow through it, from the conductor to the environment all along its length.

**Coke breeze:** Pre-packaged, high performance calcined petroleum coke breeze, serving as the active matrix in which the electrochemical reactions take place. Designed for min. 20 years service life at max. current output of 16 mA/ft (52 mA/m).

**Fabric jacket:** Integrated woven, acid resistant and porous jacket holding the coke breeze in place around the anode.

**Protective braid:** Tough, porous, non-conductive protective braid enhancing the abrasion and damage resistance of the fabric jacket.

Anodeflex 1500-1 is a long-line, flexible, cable-like anode, which is placed in continuous close proximity to the target structure. Uniform distribution of cathodic protection current is therefore achieved on applications where many conventional anode ground beds do not work. Key to the product's performance is the central, conductive-polymer coated copper conductor. This unique construction allows current to flow long distances down the center conductor, while allowing sufficient cathodic protection current to continuously pass through the conductive polymer all along the length of the anode. In contrast to conventional CP systems, AnodeFlex is placed in the ground in close proximity to the steel surface to be protected and provides uniform distribution of protective current to the entire steel surface, thereby maintaining the steel-to-soil "instant-off" potential in the required window of -850mv (-950mv if SRB's present) and -1200mv. The central anode cable is surrounded by factory prepackaged, high conductivity coke breeze, held in place by a porous, woven acid-resistant jacket. This arrangement avoids handling loose coke breeze and simplifies field installation. The improved current distribution increases anode efficiency and helps prevent over-voltage problems such as hydrogen generation and associated rapid coating disbondment. In addition, interference from other structures and stray currents are virtually eliminated. On poorly coated pipelines where optimal polarization can no longer be achieved, Anodeflex 1500-1 can often be installed as an alternative to expensive recoating. Both on single and multi-parallel pipelines, safe levels of polarization will be restored at every point. The system avoids difficult and costly field recoating and greatly reduces environmental disturbance.

AnodeFlex 1500-1 is delivered on long length spools and because no additional coke breeze is required, the installation is as simple as laying a low voltage power cable. Proven heat-shrinkable splice kits, Tee joints and end sealing caps are available to complete any installation design.

### Product features/benefits

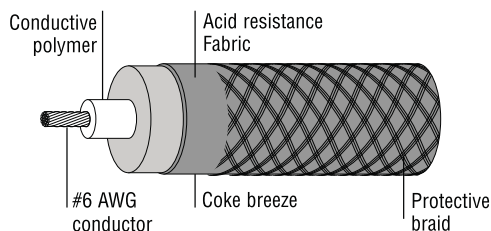
- Anode is always in close proximity to the pipeline**  
 Distributes current uniformly over total length of pipeline.  
 No over- or under-protected areas.  
 Prevents accelerated coating disbondment.  
 More effective & economical than a series of discrete anodes.  
 Independent of variations in soil resistivity.
- Pipeline Rehabilitation without Excavation**  
 A fraction of the cost of recoating.  
 Environmentally friendly.  
 No loss of revenue or supply interruptions.  
 No safety problems associated with working on live lines.  
 Far quicker, up to 1.25 miles (2 km) laying speed per day.
- Long continuous circuit lengths**  
 90% fewer joints compared to conventional anode systems.  
 Lower maintenance cost.
- Avoids interference and stray current problems**  
 Enhances long-term performance.  
 Focuses current on the target structure.  
 Improves protection and cost efficiency.
- Pre-packaging coke breeze (Anodeflex 1500-01)**  
 Ensures low resistance ground bed all the time.  
 Ensures the polymer coated cable is centred.  
 Simplifies field installation.
- Installation with standard cable laying equipment**  
 Fast, Easy & Cost Effective.

### Product selection guide

	AnodeFlex 1500-01
<b>Recommended Max Design Current Output in Soil</b>	52 mA/m (16 mA/ft)
<b>Min Installation and Storage Temperature</b>	-18°C (0°F)
<b>Min Bend Radius</b>	500 mm (20 in)

### Product dimensions

	AnodeFlex 1500-01
<b>Nominal diameter</b>	38 mm (1.5 in)
<b>Weight</b>	1.49 Kg/m (1.0 lb/ft)
<b>Length</b>	494 m ± 6 m (1620 ft ± 20 ft)
<b>Coke breeze requirements</b>	1.15 kg/m (0.77 lb/ft)



Property	Test method	Typical Value
<b>Copper Conductor</b>		
Dimensions	ASTM B-263	6 AWG
Resistance	ASTM B-193	1.5 x 10 <sup>-3</sup> Ohm/m
<b>Conductive Polymer</b>		
Dimensions	ASTM B-263	Pass
Volume resistivity	ASTM B-193	1.5 Ohm-cm
<b>Coke Breeze</b>		
Fixed carbon	ASTM D-172	99.7%
Resistivity	G.L.C. - C - 12A @ 23°C (73°F), 10 bar (145 psi)	0.4 Ohm-cm
<b>Fabric Jacket</b>		
Weight	Min. 200 g/m <sup>2</sup>	229 g/m <sup>2</sup>
Bursting strength	ISO 3303	575 N
Abrasion resistance	ASTM D-4157	219 cycles to failure
Fluid resistance	Internal immersion test 6 months	Pass
Chlorine resistance	Internal immersion test 6 months	Pass
UV resistance	ASTM G-53 @ 60°C (140°F), 8 hrs @ 50°C (122°F), 4 hrs condensation	55% tear strength loss

## Ordering information

### ANODEFLEX type products are available:

- as a spool

### Example: AFLX-1500-01

AFLX	AnodeFlex type product
1500-01	Conductive polymer coated copper conductor surrounded by pre-packaged high conductivity coke breeze Standard cutlength = 494 m ± 6 m (1620 ft ± 20 ft)

### Accessories

AFLX-1500-01-CAP	End seal kit
AFLX-1500-01-TEE	Tee splice kit
AFLX-1500-01-SPLICE	In-line splice kit
Design software	Special computer program calculating the cathodic protection circuit lengths, anode to pipe distances, power supply voltages and current demands for each individual AnodeFlex section on pipeline and tank applications.

Berry Plastics warrants that the product conforms to its chemical and physical description and is appropriate for the use stated on the technical data sheet when used in compliance with Berry Plastics written instructions. Since many installation factors are beyond the control of Berry Plastics, the user shall determine the suitability of the products for the intended use and assume all risks and liabilities in connection herewith. Berry Plastics liability is stated in the standard terms and conditions of sale. Berry Plastics makes no other warranty either expressed or implied. All information contained in this technical data sheet is to be used as a guide and is subject to change without notice. This technical data sheet supersedes all previous data sheets on this product.



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