


[total care specific solution]



A Anodeflex™
Cathodic Protection & AC Mitigation

An aerial photograph of a lush green landscape. A winding river flows through the terrain, which is covered in dense vegetation. In the foreground, a large, circular, textured structure, possibly a large-scale agricultural or industrial facility, is visible. The overall scene is bathed in a soft, golden light, suggesting a sunrise or sunset. The sky is a clear, pale blue.

Anodeflex™ is part of Seal For Life Industries, which is the name of a closely associated group of companies engaged in preventing and combating corrosion in the broadest possible sense. Seal For Life is the statement through which we demonstrate our thinking about the concept of ‘people, planet, profit’ – as well as about the quality and therefore the lifespan of our solutions. It shows what we think about markets, complete solutions, cost of ownership, the often sensitive infrastructures within which we work, and about our sustainable cost-effective solutions.

Welcome to Seal For Life Industries.

Why use Anodefex™ systems?

Anodefex™ is a unique and cost effective way to keep the operation of a pipeline in compliance with DOT or other cathodic protection regulations. It provides consistent and uniform current distribution over the entire steel structure and will eliminate many of the installation and current distribution difficulties inherent in conventional remote groundbed anodes.

One of the major uses of the Anodefex™ system is in rehabilitation of pipelines, where ageing and degrading coatings no longer provide adequate corrosion protection. Re-coating the pipe is a very expensive solution, often requiring to shut down the pipeline over an extended period of time. In addition, the pipeline operator is facing major problems of obtaining environmental permits and disposal of toxic materials.

Through a lock and seal mechanism, the Anodefex™ splice system provides a high integrity reliable long-term anode to cable and anode to anode connections.

Anodefex™ can be installed in hand excavations, standard cable laying equipment or trenchless technologies. Due to its high tensile strength, Anodefex™ is particularly suitable for the cathodic protection of HDD pipe and casing requirements.

The Anodefex™ system offers a better, more cost effective, and environmental friendly approach to pipe rehabilitation. It is typically installed in the same right of way as the pipe, adjacent to the pipe, with only minimal disturbance of the environment.



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What is the Anodefex™ system?

The Anodefex™ system is an energy efficient, flexible long linear anode providing an impressed current for use in cathodic protection systems for buried pipelines, tanks and other steel structures. Placed alongside a pipe or other buried metal structure, Anodefex provides uniform cathodic protection over the full length of the protected structure.

The Anodefex™ system is comprised of 5 main elements:

1. A copper conductor serving as a low resistance busbar to deliver the required current
2. A special conductive polymer that seals the conductor from chemical attack while allowing current to flow into the soil
3. A high performance coke breeze that ensures a consistent low resistance to earth
4. A fabric jacket securing the coke breeze around the anode cable
5. A polyethylene fiber wound around the fabric jacking providing mechanical strength to the system

[5 Polyethylene fiber]

[4 Fabric jacket]

[3 Coke breeze]

[2 Conductive polymer]

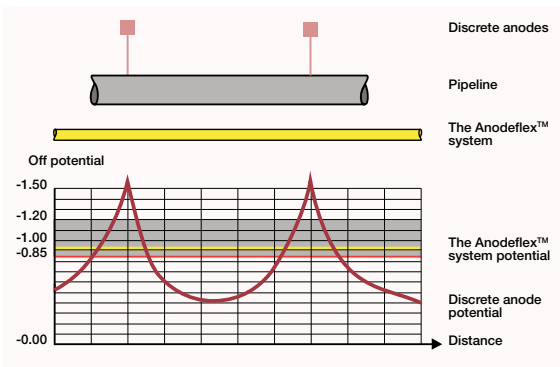
[1 Copper conductor]



Features and benefits

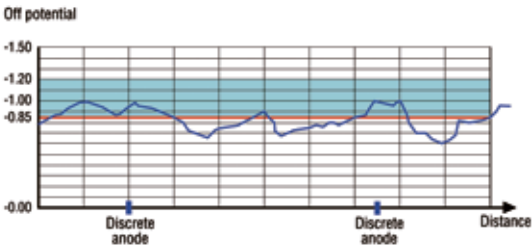
- Proven in-service performance of 30+ years in the pipeline industry
- Design life expectancy of 20+ years
- The linear anode delivers cathodic protection at consistent levels along the steel structure
- Consistent current output avoids fluctuating output demands and ensures an energy efficient system
- Minimizes the effects of interference to adjacent structures
- Compensates for the adverse effects of DC stray current
- Provides an excellent low resistance earth for discharging AC voltages from pipelines
- Through installation in the Pipeline ROW, impacts on the surrounding environment are minimized
- Rehabilitation through HDD is cost effective
- Long continuous circuit lengths ensures stability and integrity of the system
- High Tensile Strength allows for greater mechanical resistance
- Pre-packaged with backfill it is easy to install
- Rehabilitation without excavation

Continuous anode vs. discrete anode potential distribution along pipeline

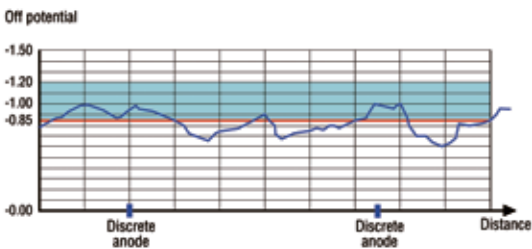


Discrete anode versus

- [1] The close interval survey shows the underprotected areas, caused by deteriorating pipeline coatings.



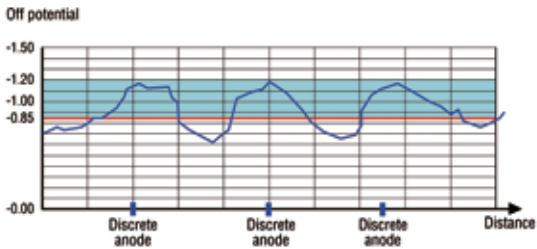
- [2] Voltage increase of existing rectifiers.



Increasing current output of existing grounded anodes is no longer an option, since this will aggravate the problem by further disbonding of the pipe coating.

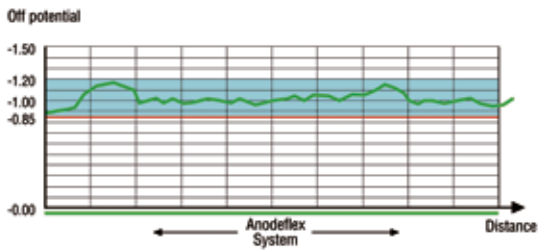
continuous anode

[3] Installation of additional grounded.

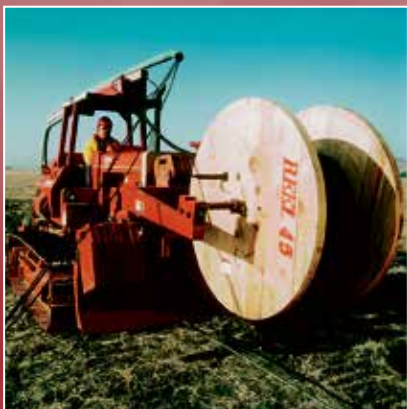
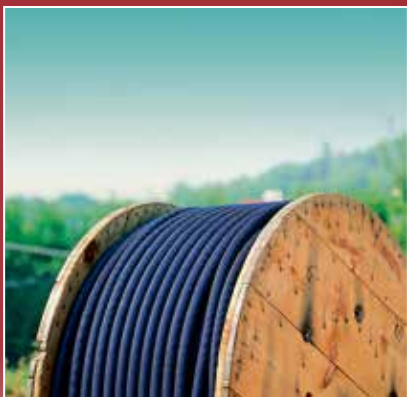


This does not solve the problem; still underprotected area's remain.

[4] Installation of the Anodeflex system.



It provides cathodic protection on every point without causing any under- or overprotection.



Installation

The installation of the Anodeflex™ is very simple. It can be laid alongside pipelines using standard cable laying equipment, such as a hydraulic back hoe equipped with cable laying equipment. It can be laid by hand in congested areas or beneath tank floors. A typical trench is approximately 1 ft (30 cm) deep by 6 inches (15 cm) wide. No additional backfill is required for the anode. Using a back hoe and cable laying equipment distances of 2 miles (3.2 km) per day are typically achieved.

The Anodeflex™ system is supplied on a reel. A set of specially designed splice kits is available to handle in-line splices, branch off and end terminations.



Product range

- AnodeFlex 1500-52mA/m (16mA/ft) w/coke
- AnodeFlex 3000 Series End Cap Splice Kit
- AnodeFlex 3000 Series In-Line-Splice Kit
- AnodeFlex 3000 Series Tee Splice Kit
- AnodeFlex 3020 - 65mA/m (20mA/ft)
- AnodeFlex 3100 - 328mA/m (100mA/ft)
- AnodeFlex 3200 - 656mA/m (200mA/ft)
- AnodeFlex End Cap Splice Kit
- AnodeFlex In Line Splice Kit
- AnodeFlex Tee Splice Kit

 **Anodeflex**[™]
Cathodic Protection & AC Mitigation

+

 **STOPAQ**[®]
Self Healing Corrosion Prevention
& Sealant Technology

=

**Optimal Corrosion
Monitoring Solution**

The synergy of Seal For Life Industries

Everyday brings us new opportunities to put the combined synergistic and innovative strengths of our companies into practice wherever required, throughout the world. It's a world that we face with an unequivocal mission which we consider so important that we've named our collective business after it: Seal For Life.

Above or under water, from salty swamps to complex polar operations, Seal For Life offers a number of specialist and proven products. The best approach for many projects is to combine these products, thus delivering a tailor made and optimized solution for each individual project.

Flexible 1 + 1 = 3 principle

We call this the 1 + 1 = 3 principle, which is made possible by the direct and open contacts between our products specialists. It means that Seal For Life can respond rapidly and effectively to any project, no matter what combination of products and specialisms is applied.

1+1 = 3 principle is made a reality by Seal For Life Industries. Seal For Life is the constant factor!

For more information regarding specifications, track records and other commercial/technical information, please consult us at:

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Manufacturing sites:

Kentucky - USA, Tijuana - Mexico, Westerlo - Belgium,
Baroda - India, Stadskanaal - the Netherlands,
Dammam - Saudi Arabia



 **SEALFORLIFE**
Industries

 **Anodefex™**
Cathodic Protection & AC Mitigation