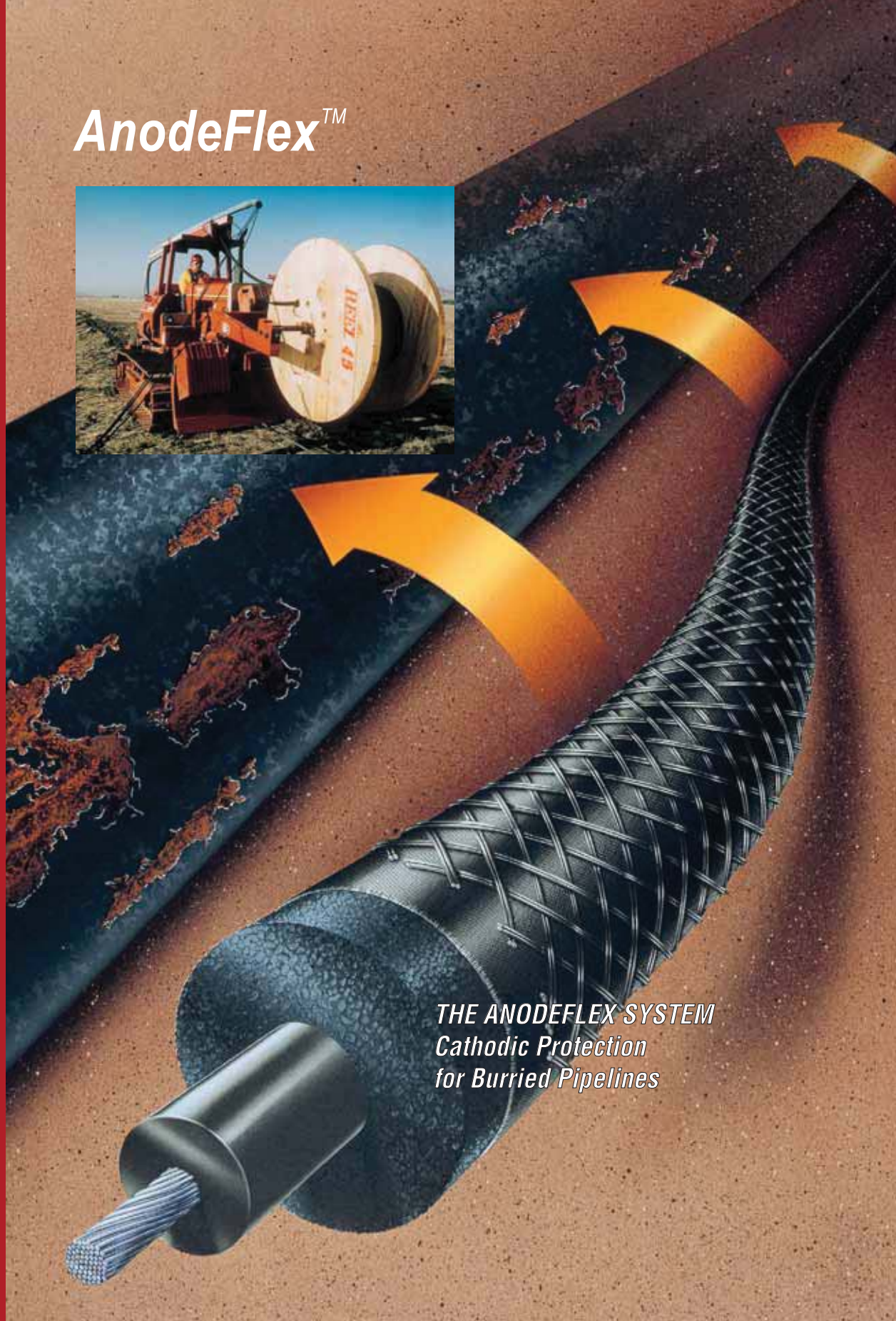


AnodeFlex™



*THE ANODEFLEX SYSTEM
Cathodic Protection
for Buried Pipelines*



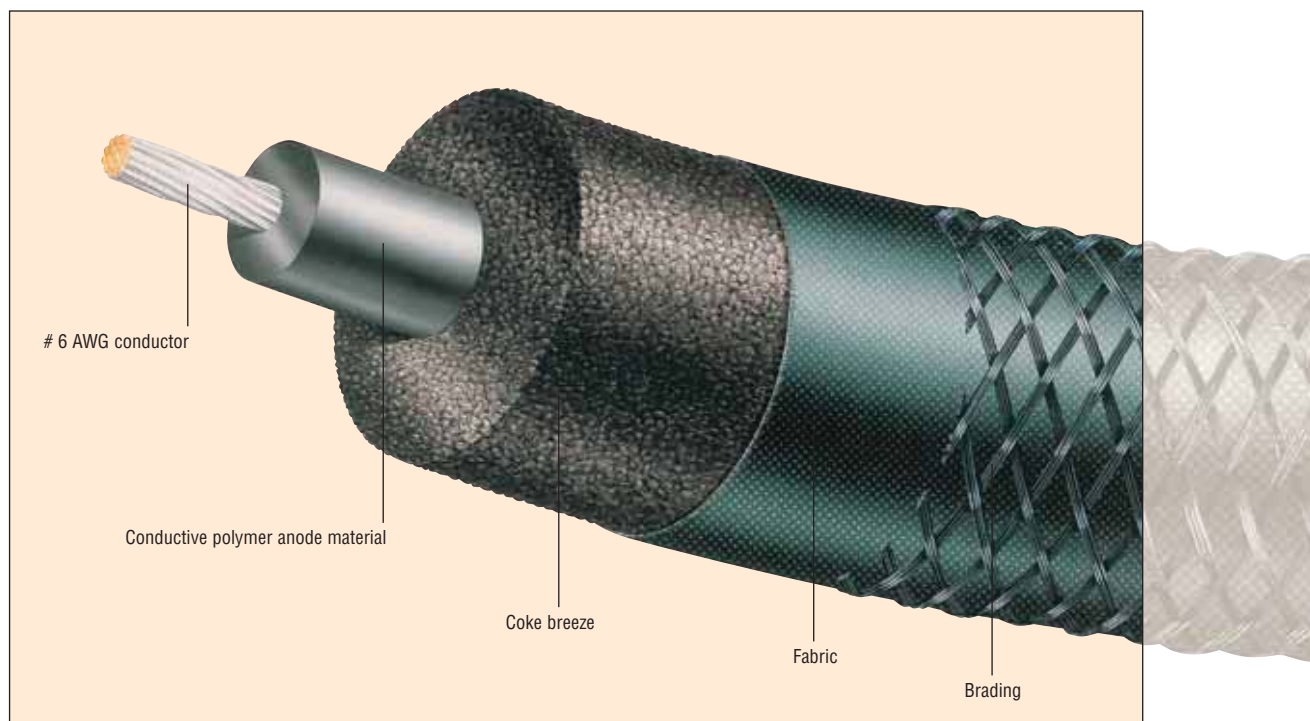
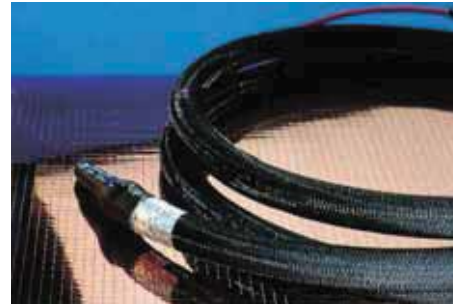
Installation of the Anodefex system is done using standard cable laying equipment, such as a hydraulic back hoe equipped with reel pay off equipment. A typical trench is only about 1 foot deep, and 6" wide, and no special backfill is required. Typical installation rates of 2 miles per day can be achieved.

The Anodefex 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.

What is the Anodefex system?

The Anodefex system is an impressed current, flexible cable anode for use in cathodic protection systems for buried structures.

Placed alongside a pipe or other buried metal structure, the Anodefex system provides uniform cathodic protection to every point, with a minimum of interference from adjacent structures.



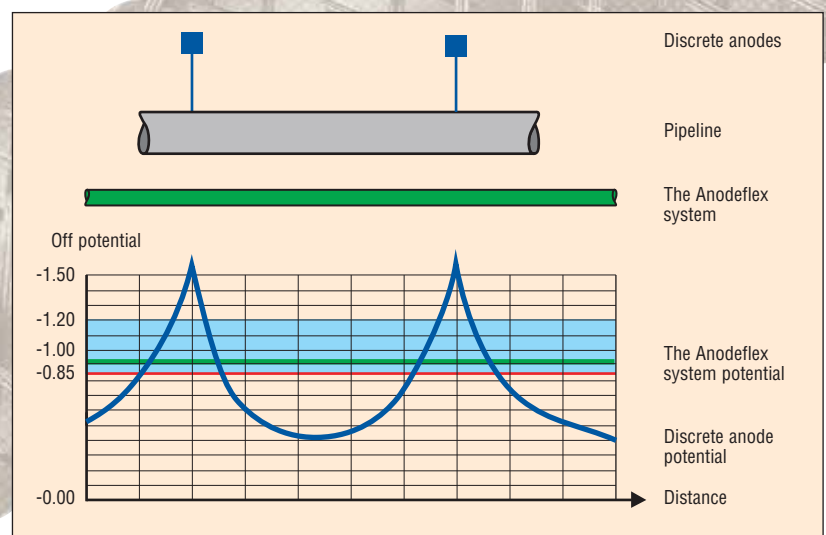
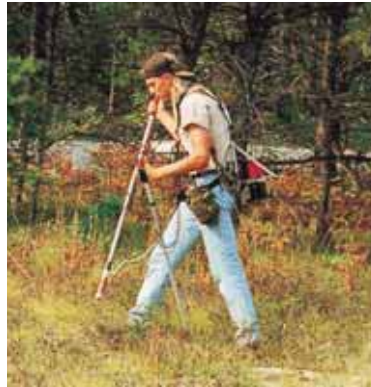
The five basic elements in the Anodefex system are:

- a high performance **coke breeze**, serving as the active matrix in which the anodic reactions take place,
- a copper **conductor** serving as a low resistance busbar to deliver the required current over considerable distance without incurring substantial longitudinal voltage drop,
- a special **conductive polymer** that seals the conductor from chemical attack, yet allows current to flow from the conductor to the environment all along its length,
- a **fabric** jacket to hold the coke breeze in place around the anode cable. This jacket is designed to resist electro-chemical attack, but to allow current flow from the anode to the surrounding soil,
- a tough, porous non-conductive **brading** jacket encases the Anodefex 1500-01, enhancing its abrasion resistance and preventing the fabric from being damaged.

... a Cable Anode.

Why use Anodefex systems?

The Anodefex system is used to achieve effective and homogeneous cathodic protection over the entire surface of the buried structure. Cathodic protection current should not be supplied to high demand areas at the expense of remote parts of the structure. Homogeneous distribution therefore is more important than current output.



Continuous anode vs. discrete anode potential distribution along pipeline

The Anodefex system is a unique and cost effective way to keep the operation of a pipeline in compliance with cathodic protection DOT or other regulations.

The use of the Anodefex system on pipelines will eliminate many of the problems found with conventional groundbed anodes:

- it equalizes cathodic protection at consistent levels all along the line,
- its low overall current output will stop further coating degradation caused by cathodic disbonding when higher current output anodes are used,
- since the Anodefex system is installed adjacent to the pipeline, and its current output per feet is low, interference problems are significantly reduced,
- in most cases the Anodefex system can be installed in the pipeline ROW. Environmental and other ROW related problems are therefore kept to a minimum.

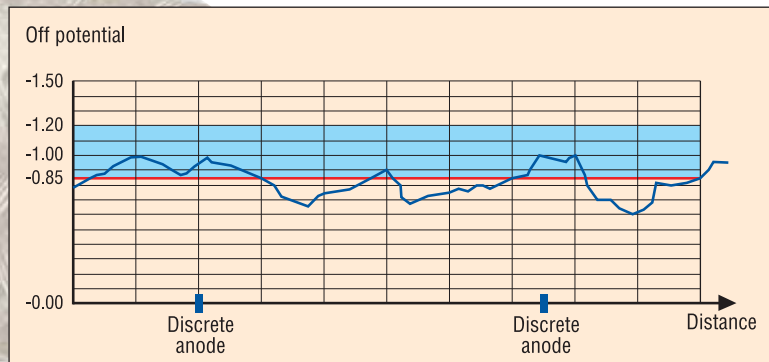


... to ensure uniform current distribution.

Where are Anodeflex systems used?

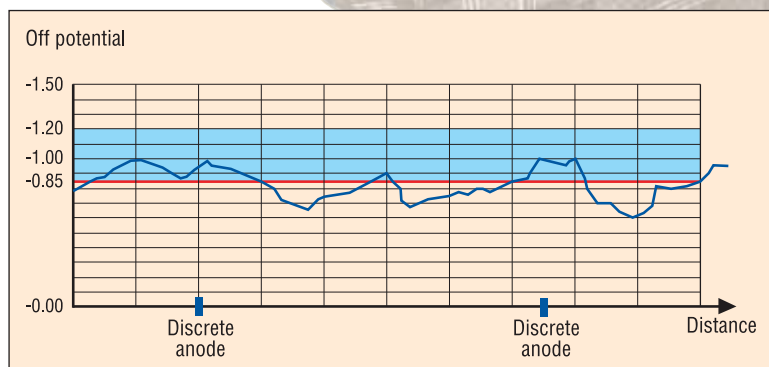
One of the major uses of the Anodeflex system is in rehabilitation of pipelines, where ageing and degrading coatings no longer provide adequate corrosion protection.

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.



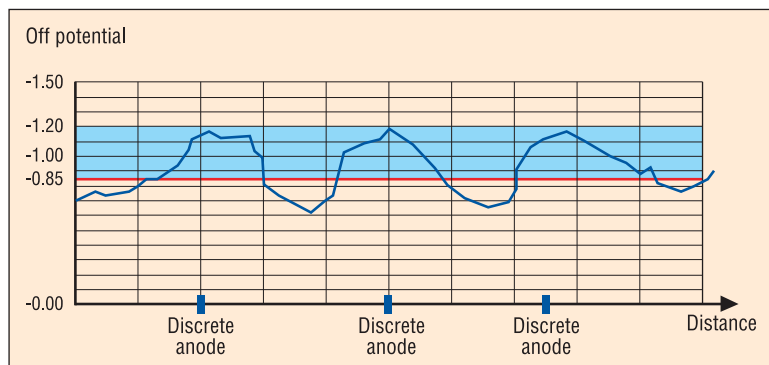
The close interval survey shows the underprotected areas, caused by deteriorating pipeline coatings.

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.



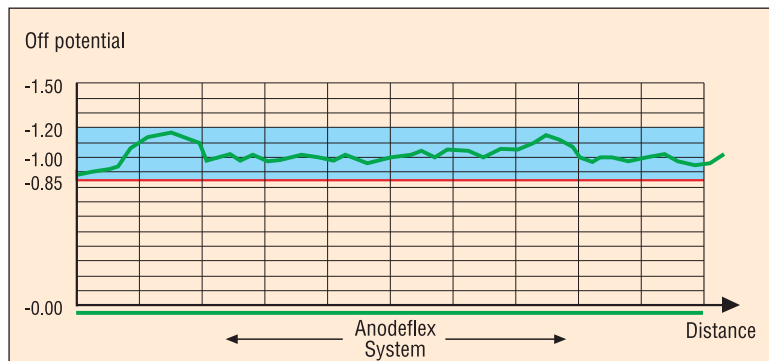
Voltage increase of existing rectifiers

Installation of additional grounded. This does not solve the problem; still underprotected area's remain.



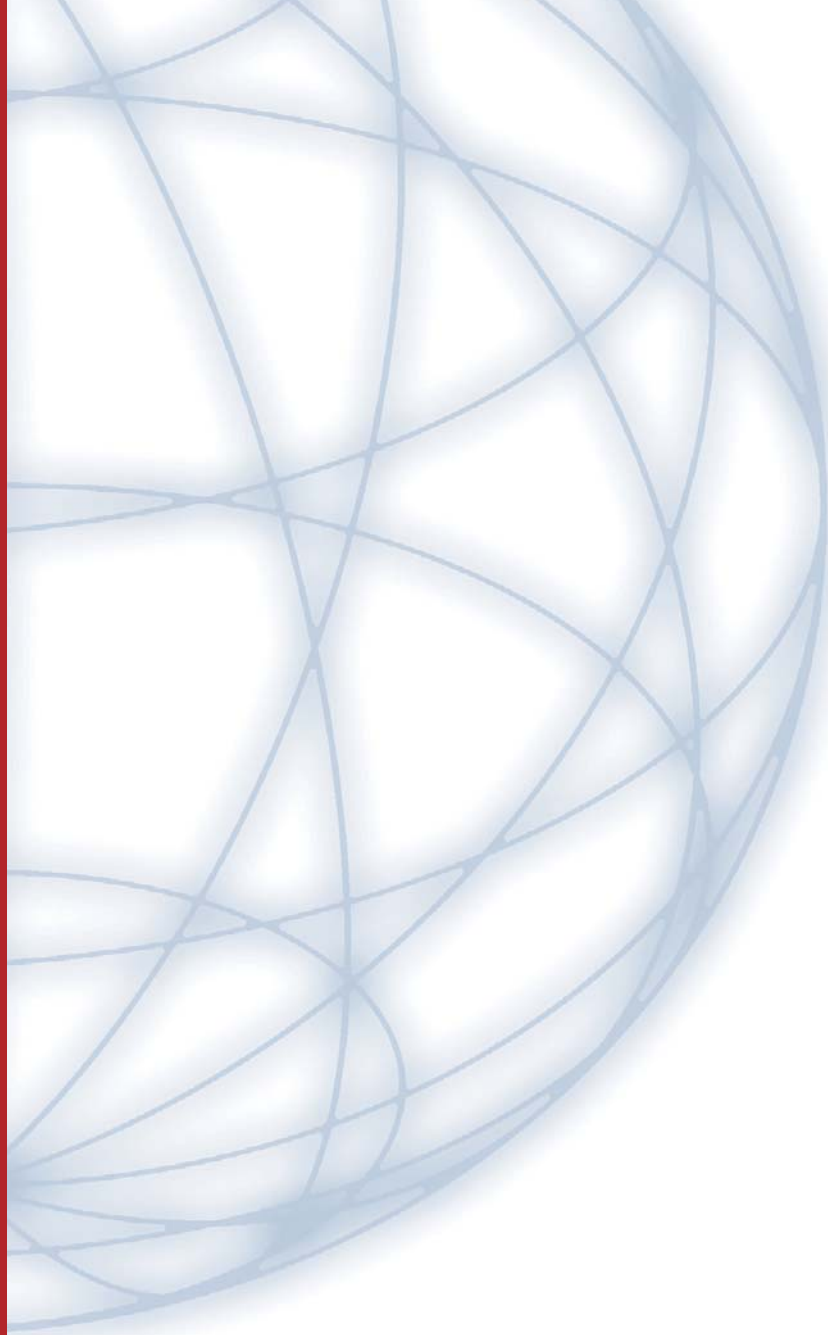
Installation of additional grounded

The Anodeflex 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.



Installation of the Anodeflex system. It provides cathodic protection on every point without causing any under- or overprotection.

... to ensure protection in areas of concern.



Important: Like any cathodic protection system, the Berry Plastics AnodeFlex system must be optimized for particular design conditions. Severe environments may limit the lifetime. AnodeFlex is a flexible carbon cable anode system. When all the active anode material available around the polymeric cable is consumed, the anode will no longer function. Berry Plastics warrants that AnodeFlex meets the internal Berry Plastics specification, but the purchaser must rely on its own engineering experience judgement and skill to ascertain whether or not AnodeFlex is fit for the particular purpose proposed by the purchaser. All of the above information, including illustrations, is believed to be reliable. Users, however, should independently evaluate the suitability of each product for their application. Berry Plastics makes no warranties as to the accuracy or completeness of the information and disclaims any liability regarding its use. Berry Plastics only obligations are those in the Standard Terms and Conditions of Sales for this product and in no case will Berry Plastics be liable for any incidental, indirect or consequential damages arising from the sale, resale, use or misuse of the product. Berry Plastics specifications are subject to change without notice. In addition, Berry Plastics reserves the right to make changes in materials or processing, without notification to the Buyer, which do not affect compliance with any applicable specification.

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.



CORROSION PROTECTION GROUP

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