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**NATIONAL STANDARD OF THE  
PEOPLE'S REPUBLIC OF CHINA**

**GB/T 33637-2025**

Replacing GB/T 33637-2017

**Cathodic protection - MMO/Ti flexible anode**

阴极保护 MMO/Ti柔性阳极

**Issued on: October 31, 2025**

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Standardization Administration of the PRC**

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### Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part

1.Structure and Drafting Rules of Standardization Documents". Drafting. This document replaces GB/T 33637-2017 "Cathode Protection MMO/Ti Flexible Anode". Compared with GB/T 33637-2017, except for... Aside from structural adjustments and editorial changes, the main technical changes are as follows:

- a) Added the terms "linear density," "design life," "rated output current," and "breakdown flexible anode" and their definitions (see 3.1.4, 3.1.5). 3.1.6, 3.1.8);
- b) A new method for representing the type of flexible anode has been added (see 4.2.2);
- c) The product's outer diameter dimensions have been changed (see 5.1.2,.2017 version of 5.1.2);
- d) Increased requirements for product line density (see 5.1.3);
- e) Increased performance requirements for MMO/Ti wire technology (see 5.2.1);
- f) The environmental suitability factors for the type of flexible anode-embedded cable insulation sheath have been added (see 5.2.2);
- g) Increased technical requirements for flexible anode nodes (see 5.2.3);
- h) The requirements for fixed carbon content and particle size of coke packing have been changed (see 5.2.4,
- 5.2.3 in the.2017 version);
- i) The technical requirements for the minimum bending radius of the product have been changed (see 5.3.1,.2017 version of 5.3.1);
- j) The design life of the flexible anode under different rated output current conditions has

been increased (see Table 4);

k) A formula for calculating the maximum output current during the anodic performance test has been added (see 5.3.3.1);

## 1 Scope

GB/T 33637-2025 is the Chinese national standard covering the mixed metal oxide titanium flexible anode - the wire anode laid alongside a pipeline that distributes current evenly over its whole length, the coating loading and the consumption rate, the current output, and the cable and connections that are the usual point of failure. Issued on 31 October 2025, it has been in force since 1 May 2026, replacing GB/T 33637-2017.

This document specifies the structure, model, technical requirements, and inspection procedures for cathodic protection MMO/Ti flexible anodes (hereinafter referred to as "the Product"). Acceptance and marking, packaging, storage and transportation, and use of the product. This document applies to the design, manufacture, and use of MMO/Ti flexible anodes in cathodic protection systems for soil environments.

## 2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are listed below. For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies. This document.

GB/T 1804-2000 General tolerances - Tolerances for linear and angular dimensions without specified tolerances

GB/T 2001 Analytical Determination Methods for Coke Industry

GB/T 3620.1-2016 Grades and Chemical Compositions of Titanium and Titanium Alloys

GB/T 3623 Titanium and Titanium Alloy Wire

GB/T 4208-2017 Degrees of protection provided by enclosures (IP code)

GB/T 8170 Rules for rounding off numerical values and the representation and determination of limiting values

GB/T 9174 General Technical Requirements for Transport Packaging of General Cargo

GB/T 12706.1 Extruded insulated power cables and accessories with rated voltages from 1kV ( $U_m=1.2kV$ ) to 35kV ( $U_m=40.5kV$ ) Part

## 3 Terms, Definitions and Abbreviations

3.1 Terms and Definitions The following terms and definitions apply to this document.

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