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

GB/T 33378-2025

Replacing GB/T 33378-2016

Technical specification of cathodic protection

阴极保护技术条件

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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 33378-2016 "Technical Conditions for Cathodic Protection". Compared with GB/T 33378-2016, the main differences are structural adjustments and... Aside from editorial changes, the main technical changes are as follows:

a) The "Terms and Definitions" section (see 3.1,.2016 edition) has been amended, and the definition of the term "polarization potential" has been changed (see 3.1.1,.2016 edition).

Version

3.1.19 removes the terms "cathode stripping," "cathode polarization," "cathode protection," "continuity joint," "corrosion," and "corrosion potential." "Current density", "Insulation and corrosion protection layer", "Electrical insulation", "Electrode potential", "Electrolyte", "Sacrificial anode", "Ground bed", "Forced current", "IR" "Degradation", "Insulation", "Polarization", "Reference Electrode", "Stray Current", "Stray Current Corrosion", "Structure/Electrolyte Potential", "Minimum Protection Voltage" "Position", "Maximum Protection Potential" and their definitions (see 3.1.1~3.1.11, 3.1.13~3.1.18, 3.1.20~3.1.25 in the.2016 edition);

b) The abbreviations CIPS, DCVG, SCC, and SCE have been removed (see section 3.2 of the.2016 version), and the abbreviation "closed-loop steam generator" has been changed. "Electric generator set" and its English name (see 3.2,.2016 edition 3.2);

c) Specific provisions for the maximum protection potential have been added (see 4.3.2, 4.3.3, and 4.3.4);

- d) The provision regarding stress corrosion cracking of structures within a certain potential range under certain conditions has been removed [see 4.6.3a) of the.2016 edition];
- e) The criteria for determining cathodic protection of reinforced concrete structures have been revised (see 4.6.3,.2016 version of 4.6.3);
- f) The specifications for the chemical composition and electrochemical properties of zinc alloy sacrificial anodes have been changed (see 5.8.4.3,.2016 version of 5.8.4.3);
- g) The specifications for the chemical composition and electrochemical properties of magnesium alloy sacrificial anodes have been revised (see 5.8.4.4,.2016 version 5.8.4.4);
- h) The requirements for the design life of forced current cathodic protection have been revised (see 5.9.2.1,.2016 version of 5.9.2.1);
- i) The regulations for cathodic protection power supply equipment have been amended (see 5.9.5.3,.2016 version of 5.9.5.3);

1 Scope

GB/T 33378-2025 is the Chinese national standard covering the general requirements for a cathodic protection system - the protection criteria and how the potential is to be measured, the sacrificial and impressed current designs, the anode and cable installation, the commissioning survey and the monitoring afterwards. Issued on 31 October 2025, it has been in force since 1 May 2026, replacing GB/T 33378-2016.

This document specifies the guidelines, design, construction, operation, and maintenance of cathodic protection. This document applies to cathodic protection of steel structures; cathodic protection of other metal structures should be used with reference to this document.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included. 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 470 Zinc Ingots

GB/T 3623 Titanium and Titanium Alloy Wire

GB/T 4948 Aluminum Alloy Sacrificial Anodes

GB/T 4950-2021 Zinc Alloy Sacrificial Anodes

GB/T 17731-2015 Magnesium Alloy Sacrificial Anodes

GB/T 21246 Measurement Methods for Cathodic Protection Parameters of Buried Steel

Pipelines

GB/T 33373 Terminology for Corrosion Control and Electrochemical Protection

GB 50058 Design Code for Electrical Installations in Explosive Atmospheres

GB 50194 Safety Specification for Power Supply and Use at Construction Sites JGJ/T

46 Technical Standard for Safety of Temporary Power Supply at Construction Sites of Building and Municipal Engineering JGJ

80 Technical Specification for Safety of High-Altitude Operations in Building Construction

JGJ146 Construction Site Environmental and Sanitary Standards JGJ184 Standard for the

Provision and Use of Personal Protective Equipment in Construction Operations SY/T 0086

Electrical Insulation Standard for Cathodic Protection Pipelines SY/T 0096 Technical

Specification for Forced Current Deep Anode Ground Bed YS/T 828 Titanium Anodes for Cathodic Protection

3.1 Terms and Definitions The terms and definitions defined in

GB/T 33373 and the following terms and definitions apply to this document.

3.1.1 polarization potential The value by which the surface potential of a metal shifts from its natural corrosion potential to a negative direction under the action of cathodic protection current.

3.1.2 external structures Metal structures other than the cathodic protection system.