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**Katodna zaščita vetrnih konstrukcij na morju (ISO 24656:2022)**

Cathodic protection of offshore wind structures (ISO 24656:2022)

Kathodischer Korrosionsschutz von Offshore-Windparkstrukturen (ISO 24656:2022)

Protection cathodique des structures éoliennes offshore (ISO 24656:2022)

**Ta slovenski standard je istoveten z: EN ISO 24656:2022**

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47.020.99	Drugi standardi v zvezi z ladjedelništvom in konstrukcijami na morju	Other standards related to shipbuilding and marine structures
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Protection cathodique des structures éoliennes  
offshore (ISO 24656:2022)

Kathodischer Korrosionsschutz von Offshore-  
Windparkstrukturen (ISO 24656:2022)

This European Standard was approved by CEN on 6 May 2022.

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Contents	Page
European foreword.....	3

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## European foreword

This document (EN ISO 24656:2022) has been prepared by Technical Committee ISO/TC 156 "Corrosion of metals and alloys" in collaboration with Technical Committee CEN/TC 219 "Cathodic protection" the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 2022, and conflicting national standards shall be withdrawn at the latest by December 2022.

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# INTERNATIONAL STANDARD

**ISO**  
**24656**

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## Cathodic protection of offshore wind structures

*Protection cathodique des structures éoliennes en mer*

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# Contents

Page

<b>Foreword</b>	<b>vi</b>
<b>Introduction</b>	<b>vii</b>
<b>1 Scope</b>	<b>1</b>
<b>2 Normative references</b>	<b>1</b>
<b>3 Terms and definitions</b>	<b>1</b>
<b>4 Symbols and abbreviations</b>	<b>5</b>
4.1 Symbols	5
4.2 Abbreviations	7
<b>5 Competence of personnel</b>	<b>8</b>
<b>6 Structural considerations</b>	<b>9</b>
6.1 Structures to be protected	9
6.2 Materials	10
6.3 Corrosion protection strategy	10
<b>7 Cathodic protection criteria</b>	<b>15</b>
7.1 Temporary protection	15
7.2 Steel structures	16
7.3 Reinforced concrete structures	17
<b>8 Cathodic protection design</b>	<b>17</b>
8.1 Objectives	17
8.2 Design considerations	18
8.2.1 General	18
8.2.2 External cathodic protection	19
8.2.3 Internal cathodic protection	19
8.3 CP Design life	20
8.4 Surface area considerations	20
8.4.1 General	20
8.4.2 Structure subdivision	20
8.5 Environmental factors	21
8.5.1 General	21
8.5.2 Seawater flow velocity	21
8.5.3 Electrolyte resistivity	22
8.5.4 Seawater temperature	22
8.5.5 Calcareous deposits	22
8.6 Protection current demand	23
8.6.1 General	23
8.6.2 Calculation of current demand, external surfaces	23
8.6.3 Calculation of current demand, internal surfaces	26
8.7 Electrical continuity and continuity bonds	26
8.8 Current drains and interactions	27
8.9 Installation considerations during design	27
<b>9 Galvanic anode systems</b>	<b>28</b>
9.1 General	28
9.2 Anode current availability	28
9.3 Galvanic anode alloys	28
9.4 Anode selection	29
9.5 Anode requirements	30
9.6 Anode distribution	31
<b>10 Impressed current systems</b>	<b>32</b>
10.1 General	32
10.2 Design considerations	33

## ISO 24656:2022(E)

10.2.1	General	33
10.2.2	Resilience of impressed current CP system by design	33
10.2.3	Current requirement of impressed current CP system	34
10.2.4	Impressed current CP system components	34
10.2.5	DC power source	34
10.2.6	Impressed current anodes	36
10.2.7	Reference electrodes	37
10.2.8	Dielectric shields	37
10.3	Installation of impressed current CP systems	38
10.4	Hybrid systems and temporary power for impressed current systems	39
10.5	Continuity bonds	39
<b>11</b>	<b>Cable systems</b>	<b>39</b>
11.1	General	39
11.2	Cathodic protection DC cables	40
11.3	Inter-array and export AC cables	41
<b>12</b>	<b>Commissioning and surveys</b>	<b>43</b>
12.1	Objectives	43
12.2	Galvanic anode systems	43
12.2.1	General	43
12.2.2	Detailed external surveys	44
12.2.3	Detailed internal surveys	44
12.3	Permanent CP monitoring systems	45
12.4	Impressed current systems	45
<b>13</b>	<b>CP surveying and monitoring</b>	<b>46</b>
13.1	Objectives	46
13.2	General considerations	46
13.3	Reference electrodes	48
13.4	Frequency of survey and monitoring	48
<b>14</b>	<b>Retrofit cathodic protection systems</b>	<b>49</b>
14.1	General considerations	49
14.2	Survey before retrofit	49
14.3	Retrofit for inadequate protection	50
14.4	Retrofit for structure life extension	50
14.5	All retrofits	51
14.6	Equipment considerations	52
<b>15</b>	<b>Documentation</b>	<b>53</b>
15.1	General	53
15.2	Design report	53
15.2.1	General	53
15.3	Material specification requirements	55
15.3.1	General	55
15.3.2	Galvanic anodes	55
15.3.3	Impressed current CP materials	56
15.4	Installation drawings and specifications	59
15.5	As-built installation and commissioning report requirements	59
15.6	Operation and maintenance requirements	60
<b>16</b>	<b>Safety and cathodic protection</b>	<b>60</b>
16.1	Objectives	60
16.2	Physical obstructions	61
16.3	Protection against electric shock	61
16.4	Gas evolution	61
16.4.1	Hydrogen evolution	61
16.4.2	Chlorine evolution	62
	<b>Annex A (informative) Environmental checklist</b>	<b>63</b>

<b>Annex B (normative) Method of using metocean data to calculate marked-up seawater flow velocity</b>	<b>65</b>
<b>Annex C (informative) Guidance on cathodic protection current density requirement for cathodic protection of wind offshore structures</b>	<b>78</b>
<b>Annex D (informative) Coatings and coating breakdown for CP design</b>	<b>86</b>
<b>Annex E (normative) Anode resistance and life calculation</b>	<b>90</b>
<b>Annex F (normative) Calculation of voltage drop down connection cables</b>	<b>97</b>
<b>Annex G (normative) Typical electrochemical characteristics for commonly used impressed current anodes</b>	<b>99</b>
<b>Annex H (informative) Permanent monitoring system design process</b>	<b>101</b>
<b>Annex I (informative) Cathodic protection modelling</b>	<b>105</b>
<b>Bibliography</b>	<b>108</b>

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SIST EN ISO 24656:2022

<https://standards.iteh.ai/catalog/standards/sist/f865edb5-e50f-4529-9ecc-7b04a403a970/sist-en-iso-24656-2022>

## ISO 24656:2022(E)

## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 156, *Corrosion of metals and alloys*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 219, *Cathodic protection*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

## Introduction

Cathodic protection (CP), possibly together with protective coating, is applied to protect the immersed external surfaces of offshore wind farm structures and appurtenances from corrosion due to seawater or seabed environments.

CP, possibly together with protective coating, can be applied to protect the internal flooded and seabed and sediment exposed surfaces from corrosion.

The general principles of CP in seawater are detailed in ISO 12473.

CP involves the supply of sufficient direct current to the surfaces of the structure in order to reduce the steel to electrolyte potential to values where corrosion is considered insignificant or acceptably low.

CP is designed to protect the submerged and buried areas of the structure from corrosion. The parts that are not permanently immersed will not be permanently protected by the CP system.

This document introduces guidance for the use of available metocean data to

- assess the CP demand of immersed and frequently wetted areas
- determine seawater flow velocities to assess the CP design parameters

This is in addition to the primary use of the metocean data in structural design.

This document does not require the CP designer to be expert in metocean data; it gives guidance on data which should be available from metocean specialists and which is required in the CP design process.

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# Cathodic protection of offshore wind structures

## 1 Scope

This document specifies the requirements for the external and internal cathodic protection for offshore wind farm structures. It is applicable for structures and appurtenances in contact with seawater or seabed environments. This document addresses:

- design and implementation of cathodic protection systems for new steel structures;
- assessment of residual life of existing cathodic protection systems;
- design and implementation of retrofit cathodic protection systems for improvement of the protection level or for life extension of the protection;
- inspection and performance monitoring of cathodic protection systems installed on existing structures, and
- guidance on cathodic protection of reinforced concrete structures.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 8501-1, *Preparation of steel substrates before application of paints and related products — Visual assessment of surface cleanliness — Part 1: Rust grades and preparation grades of uncoated steel substrates and of steel substrates after overall removal of previous coatings* 2022

ISO 12473, *General principles of cathodic protection in seawater*

EN 12496, *Galvanic anodes for cathodic protection in seawater and saline mud*

ISO 12696, *Cathodic protection of steel in concrete*

ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories*

EN 60529, *Degrees of protection provided by enclosures (IP Code)*

IEC 61000-1-2, *Electromagnetic compatibility (EMC) — Part 1-2: General — Methodology for the achievement of functional safety of electrical and electronic systems including equipment with regard to electromagnetic phenomena*

IEC 61400-24, *Wind energy generation systems — Part 24: Lightning protection*

## 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>