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Ships and marine technology — Offshore wind energy — Port and marine operations

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Foreword

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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).

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).

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

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 8, *Ships and marine technology.*

Introduction

The series of International Standards applicable to the offshore wind industry, ISO 29400 to ISO 29406[1)], constitutes a comprehensive and common basis covering port and marine operations of all offshore structures installed and maintained by the offshore wind industries worldwide. Through their application, the intention is to achieve reliability levels appropriate for offshore wind farm components, whatever the type of structure and the nature or combination of materials used.

This International Standard presumes compliance with international (e.g. IMO), national and local rules and regulations. This International Standard does not replace the applicable rules and regulations. Adherence to this International Standard will not necessarily ensure compliance with all applicable rules and regulations.

It is important to recognize that during port and marine operations the structural integrity of the component is an overall concept comprising models for describing actions, structural analysis, design rules, safety elements, workmanship, quality control procedures and national requirements, all of which are mutually dependent. The modification of one aspect of design in isolation can disturb the balance of reliability inherent in the overall concept or structural system. It is necessary, therefore, to consider the implications involved in modifications in relation to the overall reliability of structures in offshore wind farms.

The series of International Standards applicable to offshore wind farms is intended to provide a wide latitude in the choice of structural configuration, material and techniques without hindering innovation. Sound engineering judgment is, therefore, necessary in the use of these International Standards.

ISO 29400 was developed to provide comprehensive requirements and guidance for the planning, engineering and safe execution of port and marine operations for all types of components of offshore wind farms including cable-laying and -burial barges and diving support vessels but excluding floating structures.

Port operations for installation of components of offshore wind farms cover all component transport to the ports, whether by land or via inland waterways, any intermediate storage as well as preassembly activities at the ports until placing the components close to any quayside for subsequent marine operations to start.

Marine operations for offshore wind farm structures cover loadout from the quayside, offshore transportation and installation phases when the structure is at risk from the marine environment up to and including any marine logistics during offshore commissioning works. Marine operations can extend to decommissioning, redeployment, removal, etc.

ISO 29400 describes the principles of and provides requirements and guidance for port and marine operations associated with WTG, cables and topsides installed in offshore wind farms, from the point of view of planning, engineering, implementation and documentation. Alternative requirements, methods and provisions can fulfil the intention of ISO 29400 and may be applied, provided it can be demonstrated that they achieve at least the same level of assurance and reliability. The overall objective of ISO 29400 is to ensure that port and marine operations are conducted within defined and recognized safety and reliability levels, wherever they are performed. Additional standards, codes and guidelines should also be taken into account, where applicable. Special attention should be paid to national regulations governing the area in which the port and marine operations are performed.

It is not the intent of ISO 29400 to govern the design of structures, systems and components used in port and marine operations, beyond the principles given. Recognized codes and standards are normally accepted as the basis for the detailed design and the fabrication requirements of such components.

Annex A provides some background and some additional information to the main body of the document and it is intended that it be read in conjunction with the main body of the document.

This International Standard is based on ISO 19901-6 while adapting it extensively to the specific requirements of the offshore wind industry.

1) Planned International Standards.

Ships and marine technology — Offshore wind energy — Port and marine operations

1 Scope

This International Standard provides comprehensive requirements and guidance for the planning and engineering of port and marine operations, encompassing all documents and works related to such port and marine operations, e.g. the design and analysis of the components, systems, equipment and procedures required to perform port and marine operations, as well as the methods or procedures developed to carry them out safely.

This International Standard is intended to be comprehensive, covering all relevant information related to port and marine operations necessary for the installation and maintenance of offshore wind farms. It is not applicable to the case of floating turbines moored to the seabed.

This International Standard is applicable to port and marine operations for offshore structures including:

— foundations made from steel and concrete gravity base structures (GBS);

— piled steel foundation structures;

— subsea templates and similar structures applied for pre-piling of foundations;

— steel towers, nacelles and blades forming part of the wind turbine generators (WTG);

— mobile offshore units (MOU): jackup vessel/self-elevating offshore unit topsides and components of any of the above for offshore substations or offshore accommodations platforms;

— array cables within the wind farms as well as export cables connecting the wind farm to the grid.

This International Standard is also applicable to modifications of existing structures, e.g. installation of additional modules or exchange of components.

This International Standard is not applicable to the following operations:

— construction activities, e.g. in a fabrication yard onshore, where there is no exposure to the marine environment;

— operational and routine activities during the service life of the windfarm related to the technical maintenance works regularly required for the components;

— diving;

— marine operations related to the operational and routine activities during the service life of the windfarm.

This International Standard presumes compliance with international, national and local rules and regulations. This International Standard does not replace the applicable rules and regulations.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 15544, *Petroleum and natural gas industries — Offshore production installations — Requirements and guidelines for emergency response*