

GENERAL SPECIFICATION

STRUCTURAL

GS EP STR 433

Structural design of skirted foundations and suction anchors

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1. Scope

The present specification defines the codes, standards, reference documents, procedures and the acceptance criteria to be applied for structural design of skirted foundations systems and suction anchors, in particular for:

- Permanent or temporary mooring anchors of floating supports (such as FPSO, FSO, FPU, Semi Submersible, SPAR, TLP, floatel barge, drilling rigs, buoys)
- Skirted foundations for permanent tensioned systems such as riser towers, single risers, subsea arches
- Skirted foundations for subsea installations (manifold modules, production systems),
- Skirted foundations for pipes (anti- buckling devices),
- Skirted foundations for fixed structures (jackets, gravity based structures, jack-ups).

It shall be considered as Company's minimum requirements.

2. Reference documents

The reference documents listed below form an integral part of this General Specification.

The structural design of skirted foundations and anchors structures shall be conducted in accordance to the reference documents including codes and standards defined hereafter.

Where national regulations exist, their provisions and those of the standards and codes to which they refer shall apply, supplementing or amending the provisions of this document, subject to prior Company approval.

If there are no national regulations covering all or part of the subject of this document, the reference documents shall be strictly applied, as supplemented by the provisions of this specification and the project documents.

In all cases, Contractor shall avoid to mix the requirements of several different codes or regulations when designing a particular item of a structure.

Only the main reference documents are mentioned; the Contractor shall be responsible for complying with all secondary reference documents dealing with the subject of this document.

External Documents

Unless otherwise stipulated, the applicable version of these documents, including relevant appendices and addendums, is the latest revision published at the effective date of this document.

Reference	Title
BV NR445	Rules for Classification of Offshore Units
BV NR493	Classification of Mooring Systems for Permanent and Mobile Offshore Units
DNV-RP-C201	Buckling Strength of Plated Structures
DNV-RP-C202	Buckling Strength of Shells

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Reference	Title
DNV-RP-C203	Fatigue Design of Offshore Steel Structures
DNV-RP-E303	Geotechnical Design and Installation of Suction Anchors in Clay
ISO 19900	Petroleum and natural gas industries - General requirements for offshore structures
ISO 19901 (Parts 1; 2; 4; 5; 7)	Petroleum and natural gas industries - Specific requirements for offshore structures - Parts 1; 2; 4; 5; 7
ISO 19902	Petroleum and natural gas industries - Fixed steel offshore structures (2007) + Amendment 1 (2013)
ISO 19903	Petroleum and natural gas industries - Fixed concrete offshore structures
ISO 19905-1	Petroleum and natural gas industries - Site-specific assessment of mobile offshore units - Part 1: Jack-ups

The Company recognizes [ISO 19900](#), [ISO 19901-1](#), [ISO 19901-2](#), [ISO 19901-4](#), [ISO 19901-5](#), [ISO 19901-7](#), [ISO 19902](#), [ISO 19903](#) and [ISO 19905-1](#) as a source of sound recommendations on good practice. However, in some cases the requirements of these International Standards do not comply with the requirements of the Company's General Specifications. Furthermore, there exists within these International Standards the requirement for the owner or operator to define certain parameters which may override suggested default values.

In general terms, the requirements of formally issued [ISO 19901-1](#), [ISO 19901-2](#), [ISO 19901-4](#), [ISO 19901-5](#), [ISO 19901-7](#) shall be applicable in context to the design of new structures for Company and to the insurance that operations are performed within defined and recognized safety/confidence levels where these requirements are additional to or are more onerous than the requirements stated in the Company's General Specifications and Project Particular Specifications. In this context, the default values of parameters recommended by these International Standards shall apply, unless more onerous values are stipulated within the Contract documents.

Any other proposal based on the content of these International Standards shall be subject to Company approval.

Total General Specifications

Unless otherwise stipulated, the applicable version of these documents, including relevant appendices and addendums, is the latest revision published.

Reference	Title
GS EP COR 100	Cathodic protection of offshore structures
GS EP COR 350	External protection of offshore and coastal structures and equipment by painting
GS EP GEO 702	Requirements for design and installation of skirted foundations and suction anchors
GS EP SPS 001	Subsea Production Systems General Design Requirements