

GENERAL SPECIFICATION

SURVEYS

GS EP GEO 703

Requirements for design and installation of drag anchors and anchor piles for offshore floating structures

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04	07/2016	General revision after revision of standard ISO 19901-4
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1. Scope

1.1 Objective

This document gives the minimum requirements applicable for the design and installation of drag anchors and driven anchor piles for mooring offshore floating structures.

For temporary moorings for exploration drilling rigs (MODUs), or for permanent moorings for production structures (e.g. FPSO/FSO, FPU, or other deep draught unit such as the Spar), the following types of anchors are addressed:

- Conventional drag anchors in catenary mooring systems
- Drag-in plate anchors (VLAs) in taut-leg mooring (TLM) systems
- Driven anchor piles.

Note: Anchor piles are generally used for permanent moorings only and generally installed by driving. Installation by vibratory hammering is not covered in the present General Specification. TLP foundation piles are not covered by the present document.

This General Specification applies to:

- Acquisition and interpretation of site and soil data
- Geotechnical and structural design considerations
- Requirements for monitoring and reporting of the installation operations.

Deviations from any of the requirements defined herein shall be treated as non-conformances in accordance with Company procedures.

1.2 Abbreviations

The following abbreviations are used:

- **CALM** Catenary Anchor Leg Mooring
- **CPTU** Cone Penetration Test with pore pressure measurement
- **FPSO/FSO** Floating Production Storage & Off-loading / Floating Storage & Off-loading
- **FPU** Floating Production Unit
- **MODU** Mobile Offshore Drilling Unit
- **TLM** Taut Leg Mooring
- **TLP** Tension Leg Platform
- **UHC/UPC** Ultimate Holding Capacity / Ultimate Pull-out Capacity
- **VLA** Vertically Loaded Anchor

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2. Reference documents

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

External Documents

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

Reference	Title
AISC WSD 9th Edition	Manual of Steel Construction - Allowable Stress Design
API Bull 2U	Bulletin on Stability Design of Cylindrical Shells
API Bull 2V	Bulletin on Design of Flat Plate Structures
API RP 2GEO	Geotechnical and Foundation Design Considerations
API RP 2SK	Design and Analysis of Stationkeeping Systems for Floating Structures
DNV-RP-E301	Design and Installation of Fluke Anchors
DNV-RP-E302	Design and Installation of Plate Anchors in Clay
DNV-OS-H101	Marine Operations, General
ISO 19901-4	Petroleum and Natural Gas Industries - Specific Requirements for Offshore Structures - Part 4 Geotechnical and Foundation Design Considerations
ISO 19901-6	Petroleum and Natural Gas Industries - Specific Requirements for Offshore Structures - Part 6 Marine Operations
ISO 19901-7	Petroleum and Natural Gas Industries - Specific Requirements for Offshore Structures - Part 7 Stationkeeping Systems for Floating Offshore Structures and Mobile Offshore Units
ISO 19901-8	Petroleum and Natural Gas Industries - Specific Requirements for Offshore Structures - Part 8 Marine Soil Investigations