

ISO 19901-7:2013-05 (E)

Petroleum and natural gas industries - Specific requirements for offshore structures - Part 7: Stationkeeping systems for floating offshore structures and mobile offshore units

Contents		Page
Foreword		v
Introduction		vii
1	Scope	1
2	Normative references	2
3	Terms and definitions	2
4	Symbols and abbreviated terms	7
4.1	Symbols	7
4.2	Abbreviated terms	8
5	Overall considerations	9
5.1	Functional requirements	9
5.2	Safety requirements	9
5.3	Planning requirements	10
5.4	Inspection and maintenance requirements	10
5.5	Analytical tools	10
6	Design requirements	10
6.1	Exposure levels	10
6.2	Limit states	11
6.3	Defining design situations	11
6.4	Design situations	12
7	Actions	14
7.1	General	14
7.2	Site-specific data requirements	14
7.3	Environmental actions on mooring lines	15
7.4	Indirect actions	16
8	Mooring analysis	18
8.1	Basic considerations	18
8.2	Floating structure offset	19
8.3	Floating structure response	20
8.4	Mooring line response	25
8.5	Line tension	26
8.6	Line length and geometry constraints	26
8.7	Anchor forces	27
8.8	Typical mooring configuration analysis and assessment	27
8.9	Thruster-assisted moorings	28
8.10	Transient analysis of floating structure motions	29
9	Fatigue analysis	30
9.1	Basic considerations	30
9.2	Fatigue resistance	30
9.3	Fatigue analysis procedure	32

10	Design criteria	37
10.1	Floating structure offset	37
10.2	Line tension limit	38
10.3	Grounded line length	38
10.4	Anchoring systems	38
10.5	Fatigue safety factor	41
10.6	Corrosion and wear	41
10.7	Clearances	42
10.8	Supporting structures	42
11	Mooring hardware	42
11.1	Mooring line components	42
11.2	Winching equipment	43
11.3	Monitoring equipment	43
12	In-service inspection, monitoring and maintenance	44
12.1	General	44
12.2	Mobile moorings	44
12.3	Permanent moorings	44
13	Dynamic positioning system	46
13.1	Basic considerations	46
13.2	Design and analysis	47
13.3	Design, test and maintenance	48
13.4	Operating personnel	48
13.5	Determination of stationkeeping capability	48
14	Synthetic fibre rope mooring	48
14.1	Basic considerations	48
14.2	Fibre rope mooring analysis	49
14.3	Fatigue analysis	50
14.4	Creep analysis	50
14.5	Design criteria	50
14.6	Model testing	51
Annex A (informative)	Additional information and guidance	52
Annex B (informative)	Regional information	169
Bibliography		176