

DIN EN ISO 19901-5:2022-02 (E)

Petroleum and natural gas industries - Specific requirements for offshore structures - Part 5: Weight management (ISO 19901-5:2021); English version EN ISO 19901-5:2021

Contents		Page
Foreword		vi
Introduction		viii
1 Scope		1
2 Normative references		1
3 Terms and definitions		2
4 Abbreviations		6
5 Principles of weight management		7
5.1 General.....		7
5.2 Weight management during project lifecycle phases.....		7
5.3 Weight management objectives.....		7
5.3.1 Objectives during conceptual design phase.....		7
5.3.2 Objectives during FEED, detail engineering and construction phases.....		8
5.3.3 Objectives during operations and decommissioning phases.....		8
5.4 Illustration of weight versus time.....		8
5.5 Loading conditions.....		9
5.5.1 General.....		9
5.5.2 Typical loading conditions.....		9
6 Control Weights		10
6.1 General.....		10
6.2 Purpose.....		11
6.3 Budget weights and NTE weights.....		11
6.3.1 Budget Weights.....		11
6.3.2 Reserves.....		11
6.3.3 NTE weights.....		12
6.4 Loading conditions and parameters.....		12
6.5 Control weights during operations phase.....		12
7 Weight management during project execution phases		12
7.1 Conceptual design.....		12
7.1.1 General.....		12
7.1.2 Predicted weight.....		13
7.1.3 Conceptual design weight.....		13
7.1.4 Upper bound weight constraint.....		13
7.1.5 Weight estimating.....		14
7.1.6 Key documentation.....		14
7.1.7 Estimating principles.....		15
7.1.8 Deliverables.....		17
7.2 FEED.....		18
7.2.1 General.....		18
7.2.2 Weight management plan.....		18
7.2.3 Weight management procedure.....		19
7.2.4 Weight reporting.....		19
7.2.5 Weight checking and verification.....		20
7.3 Detail engineering.....		21
7.3.1 General.....		21
7.3.2 Weight management plan.....		21
7.3.3 Weight management procedure.....		21
7.3.4 Weight reporting.....		21
7.3.5 Weight checking and verification.....		23
7.4 Construction.....		23
7.4.1 General.....		23
7.4.2 Weight database.....		23
7.4.3 Weight reporting.....		24

7.4.4	Weighing of assemblies	24
7.5	Installation and HUC	24
7.6	Operations	24
7.6.1	General	24
7.6.2	Weight management procedure	24
7.6.3	Weight database	25
7.6.4	Legacy weight databases	25
7.6.5	Laydown and storage drawings	25
7.6.6	Decommissioning	26
8	Requirements for suppliers' weight data and weighing of tagged equipment and assembled discipline bulks	26
8.1	General	26
8.2	Submission of weight data	26
8.3	Weighing requirements	27
8.3.1	Equipment	27
8.3.2	Discipline bulks	27
8.4	Weighing procedure	27
8.5	Weighing devices	28
8.5.1	Type of weighing device	28
8.5.2	Calibration of weighing devices	28
8.5.3	Maximum relative uncertainty for weighing devices	28
8.5.4	Capacity of weighing device	29
8.5.5	Spare weighing devices and ancillaries	29
8.6	Witnessing of weighing	29
8.7	Scheduling of weighings	29
8.8	Environmental conditions during a weighing	29
8.9	Weighing operation	29
8.10	Temporary items present during a weighing	30
8.11	Permanent items not installed during a weighing	30
8.12	Weighing certificate	30
9	Requirements for weighing of major assemblies	31
9.1	General	31
9.2	Weighing procedure	31
9.3	Weighing system	32
9.3.1	Load cells	32
9.3.2	Read-out devices	32
9.3.3	Uncertainty of weighing system	32
9.3.4	Calibration of load cells	33
9.3.5	Capacity of weighing system components	33
9.3.6	Spare load cells and ancillaries	33
9.3.7	Hydraulic jacking system	33
9.3.8	Levelness of the assembly during the weighing	34
9.4	Preparations prior to the weighing	34
9.4.1	Notification and witnessing of weighings	34
9.4.2	Environmental conditions during a weighing	34
9.4.3	Weighing prediction report	34
9.4.4	Temporary items during the weighing	35
9.5	Weighing operation	35
9.5.1	Number of results recorded	35
9.5.2	Readings of load cells and level criteria	36
9.5.3	Consistency of results	36
9.5.4	CoG calculations	36
9.5.5	Weighing report	36
9.5.6	Weighing certificate	37
	Annex A (informative) Commentary	38
	Annex B (informative) Weighing certificates	42

Annex C (informative) Example control weight summary	46
Annex D (informative) Variable weight	47
Annex E (informative) Example decision-making RAPID matrix	51
Annex F (informative) Weighing result uncertainty	53
Annex G (informative) Weight database structure	56
Annex H (informative) Weight management guidelines for concrete structures	57
Annex I (informative) Coordinate systems	60
Annex J (informative) Weight allowances and reserves	62
Annex K (informative) Weight management competencies	64
Bibliography	65