

E DIN EN ISO 18647:2019-07 (E)

Erscheinungsdatum: 2019-06-21

Petroleum and natural gas industries - Modular drilling rigs for offshore fixed platforms (ISO 18647:201 7); English version prEN ISO 18647:2019, only on CD-ROM

Contents

	Page
Foreword	vi
Introduction	vii
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 Abbreviated terms	4
5 Overall considerations	6
5.1 General	6
5.2 Functional equipment	6
5.2.1 Hoisting system	6
5.2.2 Rotary system	6
5.2.3 Circulation and solids control systems	6
5.2.4 Power and electrical systems	6
5.2.5 Well control system	7
5.2.6 BOP handling system	7
5.2.7 Cementing system	7
5.2.8 Pipe handling system	7
5.2.9 Instrument communication system	7
5.2.10 Auxiliary system	7
5.3 Layout	7
5.3.1 General	7
5.3.2 Drilling equipment set	8
5.3.3 Drilling support module	8
5.3.4 Drilling utilities	8
5.4 Health and safety considerations	8
5.4.1 General	8
5.4.2 Escape and alarms	8
5.4.3 Hazardous areas and storage of hazardous goods	9
5.4.4 Fire and explosion protection	9
5.4.5 Safety equipment	9
5.5 Operational considerations	9
5.6 Corrosion control	9
5.7 Structural considerations	9
5.8 Removal and abandonment	10
6 Design	10
6.1 General	10
6.2 Rig rating	10
6.3 Drilling equipment set	11
6.3.1 General	11
6.3.2 Derrick/Mast	12
6.3.3 Maximum hook load	12
6.3.4 Drill floor clearance	12
6.3.5 Top drive system	12
6.3.6 Well control equipment	12
6.3.7 BOP handling system	12
6.3.8 Circulation and solids control system	13
6.4 Drilling support equipment	13
6.4.1 Power of the mud pump set	13
6.4.2 Mud tank volume	13
6.4.3 Generator set	13
6.4.4 Electrical equipment and cabling	14
6.4.5 Emergency power supply	14

6.4.6	UPS.....	14
6.4.7	Fuel tank.....	14
6.4.8	P-tanks and pipework.....	14
6.4.9	Auxiliary systems.....	15
6.4.10	Other requirements.....	15
6.5	Interfaces.....	16
6.5.1	Seawater.....	16
6.5.2	Fresh water.....	16
6.5.3	Fuel.....	16
6.5.4	Compressed air.....	16
6.5.5	Discharge system.....	16
6.5.6	Electrical interface.....	16
6.5.7	Instrument communication interface.....	16
6.5.8	Well control system interface.....	16
6.5.9	Safety system interface.....	17
6.5.10	Flowback system interface.....	17
7	Structural design.....	17
7.1	General.....	17
7.2	Structure simulation.....	17
7.3	Design checks.....	17
7.4	Material selection.....	17
7.5	Skid rail strength analysis.....	17
8	Construction and assembly.....	17
8.1	General.....	17
8.2	Planning.....	18
8.3	Equipment and materials handling.....	18
8.3.1	Arrival inspection of materials and equipment.....	18
8.3.2	Storage and tracking of materials and equipment.....	18
8.4	Structural steelwork fabrication.....	18
8.4.1	Cylindrical tubular members.....	18
8.4.2	Non-cylindrical sections.....	18
8.4.3	Skid rail fabrication.....	19
8.4.4	Tolerance for skid rail installation.....	19
8.5	Welding and inspection.....	19
8.5.1	Basic requirements.....	19
8.5.2	Visual inspection.....	20
8.5.3	Non-destructive inspection.....	20
8.5.4	Additional inspection requirement.....	21
8.6	Prefabrication and installation of the piping.....	21
8.7	Outfitting.....	21
8.7.1	Heat insulating materials.....	21
8.7.2	Penetrations.....	21
8.7.3	Fire doors.....	21
8.7.4	Installation of ladders and guardrails.....	22
8.8	Corrosion control.....	22
8.9	Installation of equipment.....	22
8.9.1	General.....	22
8.9.2	Hoisting equipment.....	22
8.9.3	Rotating equipment.....	22
8.9.4	Circulation and solids control equipment.....	22
8.9.5	Power and electrical equipment.....	24
8.9.6	Well control equipment.....	24
8.9.7	Pipe handling equipment.....	24
8.9.8	Fire and gas detection equipment.....	24
8.9.9	Drilling instrument communication system.....	25
8.9.10	Boiler and steam system.....	25
8.10	Weighing.....	25

9	Pre-commissioning	26
9.1	Pre-commissioning scope	26
9.2	Pre-commissioning preparation	26
9.3	Hoisting equipment	27
9.4	Rotating equipment	27
9.5	Circulation and solids control equipment	28
9.6	Power and electrical equipment	28
9.6.1	Diesel generator set	28
9.6.2	Transformer	28
9.6.3	Medium voltage switchboard, low voltage switchboard and motor control centre	29
9.6.4	UPS	29
9.6.5	Electric control system equipment	29
9.7	BOP handling equipment	29
9.8	Cementing equipment	29
9.9	Pipe handling equipment	30
9.10	Fire and gas detection system equipment	30
9.11	Instrument	30
9.11.1	Drilling instrument	30
9.11.2	P-tank instrument	30
9.12	Hydraulic system	31
9.13	Skidding equipment	31
9.14	HVAC equipment	31
10	Installation, hook up and commissioning	31
10.1	Loadout and marine transportation	31
10.2	Installation	32
10.3	Hook up	32
10.3.1	Equipment hook up	32
10.3.2	Piping system hook up	32
10.3.3	Electrical hook up	33
10.4	Commissioning	33
10.4.1	General	33
10.4.2	Preparations before commissioning	33
10.4.3	System function testing	35
10.4.4	System load testing	39
11	Quality control, quality assurance and documents	40
12	In-service inspection and integrity management	40
13	Reuse	41
	Annex A (informative) Additional information and guidance	42
	Annex B (informative) Guidance for load and resistance factor design/working stress design method	84
	Annex C (informative) List of typical fabrication design drawings and documents	91
	Annex D (informative) Typical loadout and seafastening design documents	96
	Annex E (informative) Typical acceptance report for an MDR on an offshore fixed platform	97
	Annex F (informative) Typical completion acceptance document and record for an MDR on an offshore fixed platform	100
	Annex G (informative) Typical in-service inspection plan for an MDR on a fixed offshore platform	102
	Bibliography	113