طرح نگهداشت و افزایش تولید ۲۷ مخزن

MECHANICAL DATA SHEETS FOR SUMP PUMPS

نگهداشت و افزایش تولید میدان نفتی بینک

Rev.	Date	Purpose of Issue / Status	Prepared by:	Checked by:	Approved by:	CLIENT Approval
D04	AUG.2024	IFA	V.Amjadi	M. Fakharian	M.Sadeghian	
D03	OCT. 2023	IFA	H.Ghadyani	M. Fakharian	S.Faramarzpour	
D02	DEC. 2022	IFA	H. Adineh	M. Fakharian	M.Mehrshad	
D01	JAN. 2022	IFA	H. Adineh	M. Fakharian	M.Mehrshad	
D00	DEC. 2021	IFC	H. Adineh	M. Fakharian	M.Mehrshad	

Class: 1 **CLIENT Doc. Number: F0Z-708854**

status:

IDC: Inter-Discipline Check
IFC: Issued For Comment
IFA: Issued For Approval
AFD: Approved For Design
AFC: Approved For Construction
AFP: Approved For Purchase
AFQ: Approved For Quotation
IFI: Issued For Information
AB-R: As-Built for CLIENT Review
AB-A: As-Built –Approved

NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک	
شماره پیمان: ۰۵۳-۰۷۳-۹۱۸٤	MECHANICAL DATA SHEETS FOR SUMP PUMPS	شماره صفحه: ۲ از ۵

پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه
BK	GCS	PEDCO	120	ME	DT	0023	D04

REVISION RECORD SHEET

page	D00	D01	D02	D03	D04
1	x	x	x	x	x
2	x	x	x	x	x
3	x	x	x	x	
4	x		x	x	x
5	x		x	x	x
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					
37					
38					
39					
40					
41					
42					
43					
44					
45					
46					
47					
48					
49					
50					
51					
52					
53					
54					
55					
56					
57					
60					
61					
62					
63					
64					

page	D00	D01	D02	D03	D04
65					
66					
67					
68					
69					
70					
71					
72					
73					
74					
75					
76					
77					
78					
79					
80					
81					
82					
83					
84					
85					
86					
87					
88					
89					
90					
91					
92					
93					
94					
95					
96					
97					
98					
99					
100					
101					
102					
103					
104					
105					
106					
107					
108					
109					
110					
111					
112					
113					
114					
115					
116					
117					
118					
119					
120					
121					
124					
125					
126					
127					
128					

پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه
BK	GCS	PEDCO	120	ME	DT	0023	D04

GENERAL NOTES

1 Design Conditions:

Min./Max Design Temp.℃	Max.Design Press.(barg)
5 / 85	**2.5**

2 For electrical motor descriptions, refer to 'Specification For LV Electro Motors' Doc. No. BK-GNRAL-PEDCO-000-EL-SP-0010.

3 For technical requirements of electrical LV motors refer to "Data sheets for LV induction motors" Doc.No; BK-GCS-PEDCO-120-EL-DT-0008"
Vendor shall fill in the blanks and return the completed data sheet along with his proposal.

4 Vendor shall submit ITP (Inspection & Testing Plan) with his proposal.

5 The motors,pump coupling and pump accessories shall be supplied from the project's approved vendor list (A.V.L.).

6 Vendor is requested to confirm the material, or propose appropriate alternative.

7. Mechanical seal data sheet shall fill in by vendor as per API 682. Pump Manufacturer shall supply all instrumentation for mechanical seals as per API 682 4th Edition and project requirements.
Also orifice with diameter 3mm to be considered by vendor for seal flushing.

8. NPSH test shall be done & witnessed if the margin of NPSHr & NPSHa is less than 1.

9. The Tie-in flanges shall conform to ASME B-16.5.

10. Supplier to indicate which minimum flow pumps can achieve.

11. Pumps shall be designed, fabricated, tested, and inspected in accordance with the requirements of ISO 5199 latest edition.

12. Pump starts automatically with open delivery valve.

13. Electrical motor shall be rated for the end of curve.

14. The discharge line is 2".

15. Material class of 'I-1', 'I-2','S-1', 'S-2', 'S-3', 'S-4', 'S-5', 'S-6','C-6' 'A-7' and 'A-8', which is defined in API 610 table H.1,
shall be provided with full chemical analysis and mechanical test certification to BS EN 10204:2004 "3.1".
Material class of 'D-1' and 'D-2', which is defined in API 610 table H.1 and also titanium materials shall be provided with
full chemical analysis and mechanical test certification to BS EN 10204:2004 "3.2".

16. Based on project instrumentation specification, these equipments are classified as Type B (Connected to DCS/ESD):Centrifugal Pump Package

17. Pump material shall be selected based on Annex H API 610 11th Edition. (vendor to confirm)

18 Ultrasonic Test shall be performed for forged shaft.

19 For pumps with vacuum suction pressure the minimum NPSH margin shall be 2 m. for other pumps the minimum NPSH margin shall be 1 m.

20 Couplings shall be dry, flexible and spacer type.

21 Bearing temperature shall be measured during mechanical run test.

22 Max Allowable Pressure at Shut-Off is 2.5 barg.

23 For site conditions refer to Process basis of design document; Doc.No: BK-GNRAL-PEDCO-000-PR-DB-0001.in data sheet.

25 Minimum Design Metal Tem (MDMT) = 5℃.

26 Vendor to provide the pump with mentioned flow rate or minimum available flow rate at market.

27 Max. allow. Sound press. Level =85 dBA.

28 Allowable external forces and moments on nozzle should be conformed to Spec. No.: BK-GCS-PEDCO-120-ME-SP-0004.

29 All drain and vents (If any) to be manifolded, valved and routed to the skid edge.

30 Range of ambient temperature: Min. ambient temperature: 5 °C , Max. ambient temperature: 50 °C

31 Hydraulic power (Kw): 0.31

32 For Instrumentation, Project specification 'Specification For Instrument and Control of package Unit System (PU)' Doc. No.BK-GNRAL-PEDCO-000-IN-SP-0004 and Specification
For Hazardous Area Classification; BK-GNRAL-PEDCO-000-SA-SP-0002 and other instrument specification which to be attached to MR shall be followed.

33 The Sump pump is in pit. Sump dimentions have been considered in calculations of operating conditions. For further data refer to related P&ID;
BK-GCS-PEDCO-120-PR-PI-0017. and Calculation Note For Pumps; BK-GCS-PEDCO-120-PR-CN-0001.

NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک	
شماره پیمان: ۰۵۳-۰۷۳-۹۱۸٤	MECHANICAL DATA SHEETS FOR SUMP PUMPS	شماره صفحه: ٤ از ٥

پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه
BK	GCS	PEDCO	120	ME	DT	0023	D04

ISO Std. 5199 CENTRIFUGAL PUMP DATA SHEET (SI UNIT)

Corporate name: NISOC	Centrifugal pump Data sheet	Rev.:
		Data:
		Name:

Plant: BINAK GCS					Service:	Drain Water Pump		
					Ref. Standards:	ISO 5199, IPS-M-PM-115		
					Ref. Spec. No. :	BK-GCS-PEDCO-120-ME-SP-0004		
	No. req.	Pump type	Eq. API-610 Type	Mfr. serial No.	Kind of driver	Drive, type, size		Item No.
Operation	1	Vertical	VS4(VTC)		Motor	LV Induction Electric Motor		P-2203 A/B
Standby	1							

Drawings	Installation dimension		Pump weight		Pump Content	
	Assembly pump		Customer	Enquiry No.		Date
	Assembly shaft seal			Order No.		Date
	Piping: Auxiliary system		Supplier	Proposal No.		Date
	Piping: Shaft seal			Contract No.		Date

Test (4)	Material (17)	Hydrostatic	Inspection	Perform.	NPSH (8)	Sound Level	Final inspection	Approved documents
Refer.	ISO 5199	ISO 5199	ISO 5199	ISO 5199	ISO 5199		ISO 5199	ISO 5199
Witn. by	Certified	Witnessed	Witnessed	Witnessed	Witnessed	NOTE 27	Certified	Certified

Operating Condition (NOTE 12)

Liquid		Drain Water		Flow	rated	5.50	m³/h	NPSH at rated flow	Plant- NPSHA: 9.4 m
Solids	Type				normal	5.00	m³/h		Pump- NPSH3: m
	%of mass				min.		m³/h	Pump speed rated	rpm
Corrosion by				Minimum flow required			m³/h	Pump efficiency rated	%
Op. Temp. (Min. / Max.)		5 / 50	°C	Inlet gauge pressure	min.	0.01	barg	Pump power input rated (NOTE 2)	kW
pH-value at T_{op}					max.	0.10	barg	Pump power input: rated impeller dia.	kW
Density at T_{op}		1024	kg/m³	Outlet gage pressure rated		2.00	barg	Pump power input: max. impeller dia.	kW
Vapour press. at Max. T		0.1	bara	Differential pressure rated		2.00	bar	Electric. Driver power output rated	kW
Kinematic vis. at T_{op}		0.5	cP	Total head rated		19.90	m	Steam turbine power output rated	kW
Specific heat at T_{op}			J/Kg.K	Shut-off head			m	Performance curve No.	

Construction Features

Design			barg	Max. allowable work press			barg	Cooling water condition	N.A.				
Number of Stages				Test pressure		1.5 x MAWP	barg	Cooling (C) Series (s)	N.A.				
Self priming				Inlet Flange	Size/Position			Heating (H), Parallel (p)	C	H	S	P	Quantity
Impeller diameter	max		mm		Rating/facing			Bearing					
	rated		mm	Outlet Flange	Size/Position	2" / Up		Seal Chamber					
	min		mm		Rating/facing (14)	150# / RF		Cooler for seal flush					
Pump length vertical pumps			mm	Vent connection				Oil cooler					
Barrel dia. vertical pumps			mm	Drain connection				Flush	Liquid				Quantity
Casing split				Shaft seal manufacture				Lantern ring					
Casing seal type				Type, size (NOTE 7)		Mech. Seal		Mechanical ring					
Impeller type				Flush plan (VTC)		11+61		Gland/Seal plate	N/A				
Casing support				Material code				Coupling (NOTE 20): Manufacture					
Rotation(looking from driver)				Soft packing ring dimension				Coupling: Type, Size					
Axial thrust reduction by				Rad. Bearing	Type			Coupling: Diameter max					mm
Total clearance: Impeller			mm	Axial. Bearing	Size			Coupling: Spacer length					mm
Total clearance: Bal. Drum			mm	Line shaft bearing				Baseplate					
Total clearance: Shaft bushes			mm	Bearing bracket No.				Anchor bolts supplied by	Vendor				
Total clearance: Wear plate			mm	Lubrication				Driver: Supplied by	Vendor				
Wall thickness rot sheath / stat. cas				Lubrication device				Driver: Mounted by	Vendor				

Site and Utility Data (NOTES 23,24)

Location	❍ Partial sides	● Outdoor	● Unheated	Site data:	Elevation	m	Barometer		mbar
❍ Winterization REQ'D		❍ Tropicalization REQ'D		Range of ambient temps: MIN/MAX			5/50		°C
Unusual condition	❍ Dust	❍ Fumes	❍ Others	Relative humidity: MIN/MAX			0/100		%
Driver: Volt.	400	Hertz: 50	Phase: 3	Max Voltage Variation (NOTE 24)			± 10%		
Type of protection				Max Frequency Variation (NOTE 24)			± 5%		
Temperature rise class / Insulation class		Zone 1 , IIB , T3	D04	Max Volt. and Frequency Variation together			± 10%		

NISOC

نگهداشت و افزایش تولید میدان نفتی بینک
سطح الارض

احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک

شماره پیمان: ۰۵۳-۰۷۳-۹۱۸٤

MECHANICAL DATA SHEETS FOR SUMP PUMPS

شماره صفحه: ۵ از ۵

نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادرکننده	بسته کاری	پروژه
D04	0023	DT	ME	120	PEDCO	GCS	BK

ISO Std. 5199 CENTRIFUGAL PUMP DATA SHEET (SI UNIT)

Material (VTC)

API class I-2 (According to API-610) (NOTES 6,15,17)

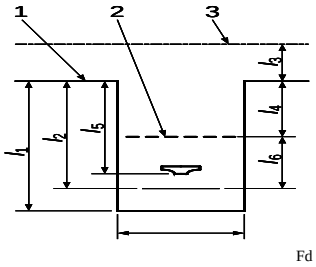
Casing D04		Bearing bush		Mecan. Seal	Gland plate & gasket		
Discharge casing		Balance disc-drum			Rotor ring	Inner/outer	
Suction casing		Bal. counter disc-drum bus.			Static ring	Inner/outer	
Stage casing		Contrain.shell / Stat.casing			Spring or bellow		
Suction impeller		Rotor sheath / can			Seal metal parts		
Impeller		Magnet material			Rotary & Static ring seats		
Diffuser		Barrel		Stuffing box	Gland Plate		
Wear ring casing		Column pipe			Soft packing ring		
Wear ring impeller		Bearing bracket			Lantern ring		
Wear plate / lining		Motor stool		Shaft sleeve			
Case bush		Coupling		Throat bush			
Casing gaskets		Coupling guard		Paint	According to "Specification for Painting"; Doc. No. BK-GNRAL-PEDCO-000-PI-SP-0006		
Shaft		Base plate					

Sump Arrangement (Note 33)

D04

Sump Dimensions:

Grade Elevation	1		m
Low Liquid Level	2	0.1	m
C.L. Of Discharge	3		m
Sump Depth	l_1	0.65	m
Pump Length	l_2		m
Grade to Disch.	l_3		m
Grade to Low Liquid Level	l_4		m
Grade to 1st Stg Impl'r.	l_5	0.5 (VTC)	m
Submergence Req'd	l_6		m
Sump Diameter	Fd		m



Remarks

For Pump schematic and P&ID refer to BK-GCS-PEDCO-120-PR-PI-0017. and calculation note for pumps; BK-GCS-PEDCO-120-PR-CN-0001.

Customer		Supplier	
Prepared (Data / Dep/ Signature)	Checked (Data / Dep/ Sign.	Prepared (Data / Dep/ Signature)	Checked (Data / Dep/ Sign.)