طرح نگهداشت و افزایش تولید ۲۷ مخزن

MECHANICAL DATA SHEETS FOR SUMP PUMPS
(P-2203 A/B)
نگهداشت و افزایش تولید میدان نفتی بینک

Rev.	Date	Purpose of Issue / Status	Prepared by:	Checked by:	Approved by:	CLIENT Approval
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	D03

REVISION RECORD SHEET

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1	x	x	x	x	
2	x	x	x	x	
3	x	x	x	x	
4	x		x	x	
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D03

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.).
Chinese & Indian vendors are not acceptable for Mechanical seal , Electro motor and coupling subvendors.

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.

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سطح الارض

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شماره پیمان: ۰۵۳-۰۷۳-۹۱۸٤

MECHANICAL DATA SHEETS FOR SUMP PUMPS

پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه
BK	GCS	PEDCO	120	ME	DT	0023	D03

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

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

Plant:	BINAK GCS	Service:	Drain Water Pump
		Ref. Standards:	ISO 5199
		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
		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	m^3/h	NPSH at rated flow	Plant- NPSHA	9.4	m
Solids	Type				normal	5.00	m^3/h		Pump- NPSH3		m
	%of mass				min.		m^3/h	Pump speed rated			rpm
Corrosion by				Minimum flow required			m^3/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/m^3	Outlet gage pressure rated		2.00	barg		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
Number of Stages				Test pressure		1.5 x MAWP	barg
Self priming				Inlet Flange	Size/Position		
Impeller diameter	max		mm		Rating/facing		
	rated		mm	Outlet Flange	Size/Position	2" / Up	
	min		mm		Rating/facing (14)	150# / RF	
Pump length vertical pumps			mm	Vent connection			
Barrel dia. vertical pumps			mm	Drain connection			
Casing split				Shaft seal manufacture			
Casing seal type				Type, size (NOTE 7)		Mech. Seal	
Impeller type				Flush plan (VTC)		11+61	
Casing support				Material code			
Rotation(looking from driver)				Soft packing ring dimension			
Axial thrust reduction by				Rad. Bearing	Type		
Total clearance	Impeller		mm	Axial. Bearing	Size		
	Bal. Drum		mm	Line shaft bearing			
	Shaft bushes		mm	Bearing bracket No.			
	Wear plate		mm	Lubrication			
Wall thickness rot sheath / stat. cas				Lubrication device			

Cooling water condition		N.A.				
Cooling (C) Series (s)		N.A.				
Heating (H), Parallel (p)	C	H	S	P		Quantity
Bearing						
Seal Chamber						
Cooler for seal flush						
Oil cooler						
Flush		Liquid				Quantity
Lantern ring						
Mechanical ring						
Gland/Seal plate		N/A				D03
Coupling (NOTE 20)	Manufacture					
	Type, Size					
	Diameter max					mm
	Spacer length					mm
Baseplate						
Anchor bolts supplied by		Vendor				
Driver	Supplied by	Vendor				
	Mounted by	Vendor				

Site and Utility Data (NOTES 23,24)

Location	❍ Partial sides	● Outdoor	● Unheated			
❍ Winterization REQ'D	❍ Tropicalization REQ'D					
Unusual condition	❍ Dust	❍ Fumes	❍ Others			
Driver	Volt.	400	Hertz	50	Phase	3
Type of protection						
Temperature rise class / Insulation class						

Site data:	Elevation	m	Barometer		mbar
Range of ambient temps: MIN/MAX			5/50		˚C
Relative humidity: MIN/MAX			0/100		%
Max Voltage Variation (NOTE 24)			± 10%		
Max Frequency Variation (NOTE 24)			± 5%		
Max Volt. and Frequency Variation together			± 10%		

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MECHANICAL DATA SHEETS FOR SUMP PUMPS

شماره صفحه: ۵ از ۵

نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادرکننده	بسته کاری	پروژه
D03	0023	DT	ME	120	PEDCO	GCS	BK

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

D03

Material (VTC)

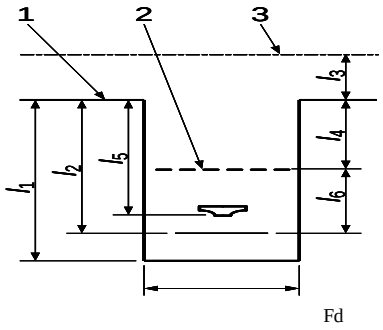
API class I-1 (According to API-610) **(NOTES 6,15,17)**

Casing		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)

Sump Dimensions:

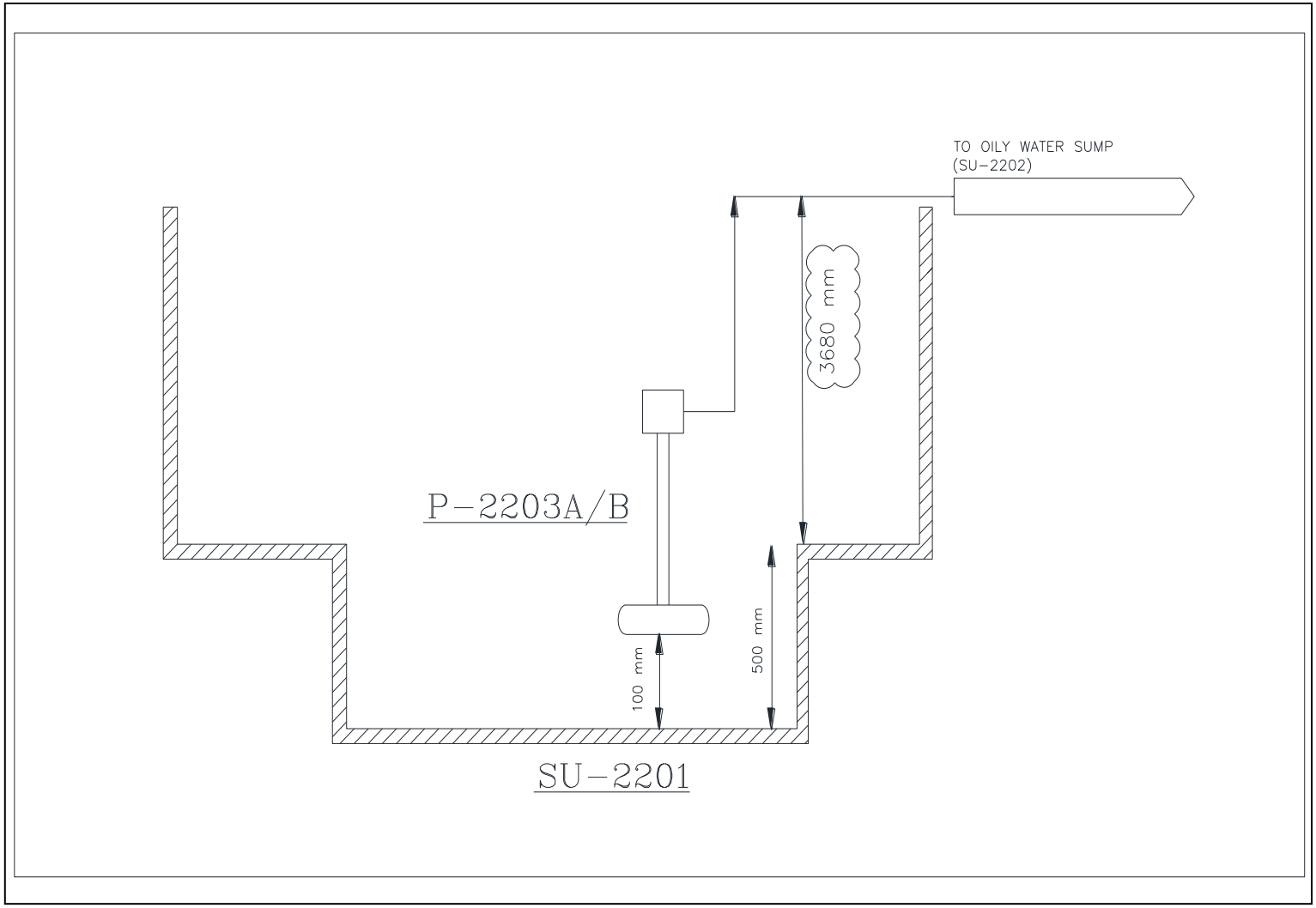
Grade Elevation	1		m
Low Liquid Level	2	0.1	m
C.L. Of Discharge	3		m
Sump Depth	l_1	4.18	m
Pump Length	l_2		m
Grade to Disch.	l_3		m
Grade to Low Liquid Level	l_4		m
Grade to 1st Stg Impl'r.	l_5		m
Submergence Req'd	l_6		m
Sump Diameter	Fd		m



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.)


TO OILY WATER SUMP
(SU-2202)
3680 mm
P-2203A/B
100 mm
500 mm
SU-2201