طرح نگهداشت و افزایش تولید 27 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	JAN. 2023	IFA	H. Adineh	M. Fakharian	M.Mehrshad	
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

REVISION RECORD SHEET

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

GENERAL NOTES

1 Design Conditions: Min./Max Design Temp.℃ **5 / 85** Max.Design Press.(barg) **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.

NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک	HIRGAN ENERGY

شماره پیمان:	MECHANICAL DATA SHEETS FOR SUMP PUMPS								
053-073-9184	پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	شماره صفحه: 4 از 5
	BK	GCS	PEDCO	120	ME	DT	0023	D03	

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		
					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	m³/h	NPSH at rated flow	Plant- NPSHA	9 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		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						
Casing support				Material code				Coupling (NOTE 20)	Manufacture					
Rotation(looking from driver)				Soft packing ring dimension					Type, Size					
Axial thrust reduction by				Rad. Bearing	Type				Diameter max					mm
Total clearance	Impeller		mm	Axial. Bearing	Size				Spacer length					mm
	Bal. Drum		mm	Line shaft bearing				Baseplate						
	Shaft bushes		mm	Bearing bracket No.				Anchor bolts supplied by		Vendor				
	Wear plate		mm	Lubrication				Driver	Supplied by	Vendor				
Wall thickness rot sheath / stat. cas				Lubrication device					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				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:

MECHANICAL DATA SHEETS FOR SUMP PUMPS

053-073-9184

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)

Material (VTC)

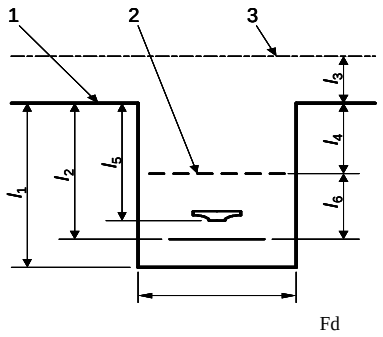
API class I-1 (According to API-610) (NOTES 6,15,17)

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:

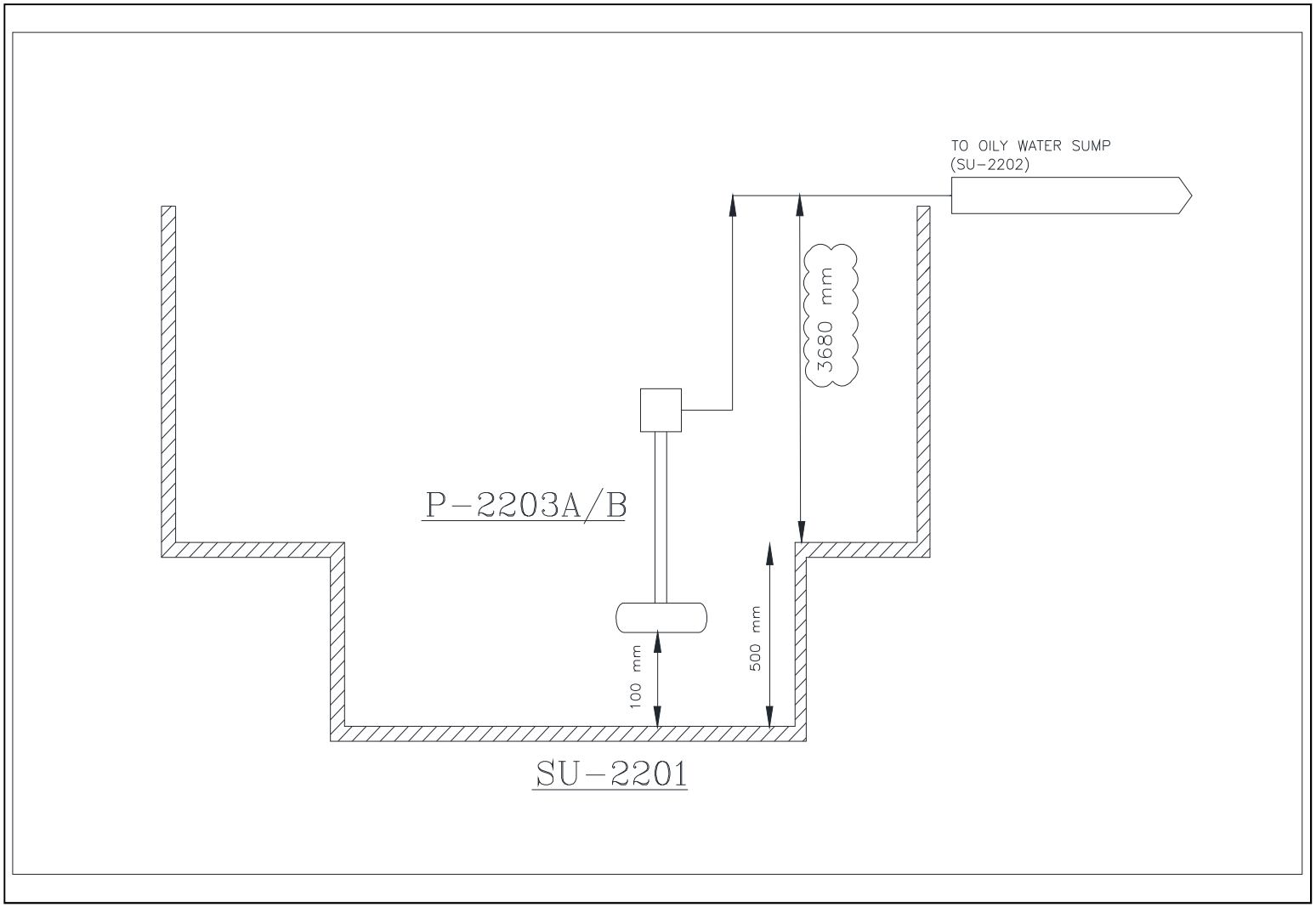
Grade Elevation	1		m
Low Liquid Level	2	0.1	m
C.L. Of Discharge	3		m
Sump Depth	l_1	4.18	m
Pump Length	l_2		m
Grade to Disch.	l_3		m
Grade to Low Liquid Level	l_4		m
Grade to 1st Stg Impl'r.	l_5		m
Submergence Req'd	l_6		m
Sump Diameter	Fd		m



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
500 mm
100 mm
SU-2201