		MECHANICAL DATA SHEETS FOR SUMP PUMPS						شماره صفحه: ۱ از ۵

شماره پیمان:	پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	
۰۵۳-۰۷۳-۹۱۸۴	BK	GCS	PEDCO	120	ME	DT	0023	D03	

طرح نگهداشت و افزایش تولید ۲۷ مخزن

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

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

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

نگهداشت و افزایش تولید میدان نفتی بینک

سطح الارض

احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک

NISOC

شماره پیمان:	پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه
۰۵۳-۰۷۳-۹۱۸٤	BK	GCS	PEDCO	120	ME	DT	0023	D03

MECHANICAL DATA SHEETS FOR SUMP PUMPS

شماره صفحه: ۲ از ۵

REVISION RECORD SHEET

page	D00	D01	D02	D03	D04	page	D00	D01	D02	D03	D04
1	x	x	x	x		65					
2	x	x	x	x		66					
3	x	x	x	x		67					
4	x		x	x		68					
5	x		x	x		69					
6						70					
7						71					
8						72					
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64						128					

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

شماره پیمان:		MECHANICAL DATA SHEETS FOR SUMP PUMPS								شماره صفحه: ۳ از ۵
۰۵۳-۰۷۳-۹۱۸٤	پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه		
	BK	GCS	PEDCO	120	ME	DT	0023	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. Pui OCT. 2023

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.

	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک						شماره صفحه: ٤ از ٥

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MECHANICAL DATA SHEETS FOR SUMP PUMPS

شماره پیمان:	پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه
٠٥٣-٠٧٣-٩١٨٤	BK	GCS	PEDCO	120	ME	DT	0023	D03

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

Corporate name	**Centrifugal pump Data sheet**		Rev.:
NISOC			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**			rated	**5.50**	m³/h	NPSH at rated flow		Plant- NPSHA	**9.4**	m
Solids	Type		Flow	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 Top				max.	**0.10**	barg	Pump power input		rated impeller dia.		kW
Density at Top	**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 Top	**0.5**	cP	Total head rated		**19.90**	m	Steam turbine power output rated				kW
Specific heat at Top		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
				Rating/facing			Bearing					
Impeller diameter	max		mm	Outlet Flange	Size/Position	**2'' / Up**	Seal Chamber					
	rated		mm		Rating/facing (14)	**150# / RF**	Cooler for seal flush					
	min		mm	Vent connection			Oil cooler					
Pump length vertical pumps		mm	Drain connection			Flush			Liquid		Quantity
Barrel dia. vertical pumps		mm	Shaft seal manufacture			Lantern ring					
Casing split			Type, size (NOTE 7)		**Mech. Seal**	Mechanical ring					
Casing seal type			Flush plan (VTC)		**11+61**	Gland/Seal plate		**N/A**		D03
Impeller type			Material code			Manufacture				
Casing support			Soft packing ring dimension			Coupling (NOTE 20)	Type, Size			
Rotation(looking from driver)			Rad. Bearing	Type			Diameter max			mm
Axial thrust reduction by			Axial. Bearing	Size			Spacer length			mm
Total clearance	Impeller	mm	Line shaft bearing			Baseplate				
	Bal. Drum	mm	Bearing bracket No.			Anchor bolts supplied by		**Vendor**		
	Shaft bushes	mm	Lubrication			Driver	Supplied by		**Vendor**	
	Wear plate	mm	Lubrication device				Mounted by		**Vendor**	
Wall thickness rot sheath / stat. cas										

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%**

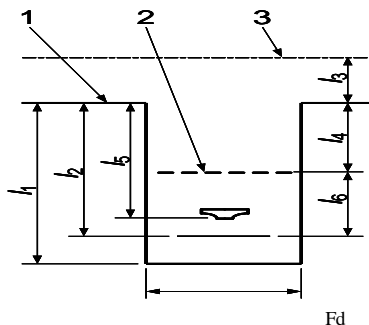| شماره پیمان:	MECHANICAL DATA SHEETS FOR SUMP PUMPS							شماره صفحه: ۵ از ۵
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ISO Std. 5199 CENTRIFUGAL PUMP DATA SHEET (SI UNIT)

◁ D03 ▷

Material (VTC)

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

Casing		Bearing bush			Gland plate & gasket	
Discharge casing		Balance disc-drum			Rotor ring	Inner/outer
Suction casing		Bal. counter disc-drum bus.		Mecan. Seal	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			Gland Plate	
Wear ring casing		Column pipe		Stuffing box	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