پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه
BK	GCS	PEDCO	120	ME	DT	0025	D05

طرح نگهداشت و افزایش تولید ۲۷ مخزن

MECHANICAL DATA SHEETS FOR POTABLE WATER PUMP

نگهداشت و افزایش تولید میدان نفتی بینک

Rev.	Date	Purpose of Issue / Status	Prepared by:	Checked by:	Approved by:	CLIENT Approval
D05	JUL. 2023	AFC	H. Adineh	M.Fakharian	A.M.Mohseni	
D04	MAR. 2023	AFC	H. Adineh	M.Fakharian	M.Mehrshad	
D03	SEP. 2022	AFC	H. Adineh	M.Fakharian	M.Mehrshad	
D02	MAR. 2022	AFC	H. Adineh	M.Fakharian	M.Mehrshad	
D01	JAN. 2022	IFA	H. Adineh	M.Fakharian	M.Mehrshad	
D00	DEC. 2021	IFA	H. Adineh	M.Fakharian	M.Mehrshad	

Class: 1 — **CLIENT Doc. Number: F0Z-708856**

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	x	x
2	x	x	x	x	x	x
3	x	x	x		x	
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GENERAL NOTES

1. Min. / Max. Design temperature (°c): 5 / 85
2. For electrical motor descriptions, refer to 'Specification For LV Induction Motors' Doc. No. BK-GNRAL-PEDCO-000-EL-SP-0010.
3. Vendor shall fill in the blanks and return the completed data sheet along with Motor data sheet, "Doc. No.: BK-GCS-PEDCO-120 -EL-DT-0008. 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.
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 with close discharge valve.
13. Electrical motor shall be rated for site condition.
14. The suction & discharge line size 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. If pump is self venting there is no need for vent .
19. Ultrasonic Test shall be performed for forged shaft.
20. 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.
21. Couplings shall be dry, flexible and spacer type.
22. Bearing temperature shall be measured during mechanical run test.
23. Max. allow. sound press. level shall be 85 d BA.
24. For site conditions refer to Process Basis of Design document. Doc.No. BK-GNRAL-PEDCO-000-PR-DB-0001.
25. For electrical motor descriptions, refer to 'Specification For LV induction Motors' 'Doc. No.BK-GNRAL-PEDCO-000-EL-SP-0010.
26. Power Factor, efficiency, frequent, voltage, frequent variation and voltage variation of motor shall be specified by vendor in data sheet.
27. Max Allowable Pressure at Shut-Off at rated impeller (barg): 3.8
28. Minimum Design Metal Tem (MDMT) = 5℃.
29. Vendor to provide the pump with mentioned flow rate or minimum available flow rate at market.
30. Allowable external forces and moments on nozzle should be conformed to Spec. No.: BK-GCS-PEDCO-120-ME-SP-0004.
31. All drain and vents (If any) to be manifolded, valved and routed to the skid edge.
32. Range of ambient temperature: Min. ambient temperature: 5 °C , Max. ambient temperature: 50 °C
33. Pumping Temp. (Min. / Max.) (°C): 5 / 50
34. Hydraulic power (Kw): 0.5
35. Min./Max. suction pressure (barg) : -0.05 / 0.15
36. For Instrumentation, Project specification 'Specification For Instrument and Control of package Unit System (PU)' Doc. No.BK-GNRAL-PEDCO-000-IN-SP-0004 and hazardous area classification and other instrument specification which to be attached to MR shall be followed.

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 POTABLE WATER PUMP	شماره صفحه: ٤ از ٥

پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه
BK	GCS	PEDCO	120	ME	DT	0025	D05

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

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

Plant: BINAK Gas Compressor Station

Service: Potable 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	Horizontal	OH2(VTC)		Motor	LV Induction Electric Motor	P-2209
Standby							

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	ISO 5199
Witn. by	Certified	Witnessed	Witnessed	Witnessed	Witnessed	Witnessed	Certified	Certified

Operating Condition (12)

Liquid		Potable Water		Flow	rated	5.50	m³/h	NPSH at rated flow	Plant- NPSHA 8.6 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	rated		barg	Pump power input rated	kW
pH-value at T_{op}					max.	0.15	barg	Pump power input	rated impeller dia. kW
Density at Tnorm		1024	kg/m³	Outlet gage pressure rated		2.95	barg		max. impeller dia. kW
Vapour press. at Max.T		0.1	bara	Differential pressure rated		3.00	bar	Electric. Driver power output rated (25)	kW
Kinematic vis. at Tnorm		1.6	cP	Total head rated		29.90	m	Steam turbine power output rated	kW
Specific heat at T_{op}			J/Kg.K	Shut-off head (Note 27)			m	Performance curve No.	

Construction Features

Design			barg	Max. allowable work press			barg	Cooling water condition		N.A.				
Number of Stages		1		Test pressure		1.5 x MAWP	barg	Cooling (C) Series (s)		N.A.				
Self priming		NO		Inlet Flange	Size/Position	" / End		Heating (H), Parallel (p)	C	H	S	P	Quantity	
Impeller diameter	max		mm		Rating/facing (14)	-/150# / RF		Bearing						
	rated		mm	Outlet Flange	Size/Position	" / Top		Seal Chamber						
	min		mm		Rating/facing (14)	-/150# / RF		Cooler for seal flush						
Pump length vertical pumps			mm	Vent connection (18)				Oil cooler						
Barrel dia. vertical pumps			mm	Drain connection		-/150# / RF		Flush		Liquid			Quantity	
Casing split				Shaft seal manufacture				Lantern ring						
Casing seal type				Type, size (7)		Mechanical Seal		Mechanical ring						
Impeller type				Flush plan (VTA)		11		Gland/Seal plate						
Casing support				Material code				Coupling (21)	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 (24,26)

Location	❍ Partial sides	● Outdoor	● Unheated	Site data:	Elevation	m	Barometer	mbar
❍ Winterization REQ'D		❍ Tropicalization REQ'D		Range of ambient temps: MIN/MAX				˚C
Unusual condition		❍ Dust	❍ Fumes	❍ Others	Relative humidity: MIN/MAX			0/100	%
Driver	Volt. 400	Hertz 50	Phase 3		Max Voltage Variation			± 10%	
Type of protection					Max Frequency Variation			± 5%	
Temperature rise class / Insulation class					Max Volt. and Frequency Variation together			± 10%	
Electric Area Classification		Safe area			Starting Method			D.O.L./Close Discharge valve	

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

شماره پیمان:	MECHANICAL DATA SHEETS FOR POTABLE WATER PUMP								شماره صفحه: ۵ از ۵
۰۵۳-۰۷۳-۹۱۸٤	پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	
	BK	GCS	PEDCO	120	ME	DT	0025	D05	

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

Material (VTA)

API class I-2 (According to API-610) (6, 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	N.A.	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				

Remarks

For P&ID refer to BK-GCS-PEDCO-120-PR-PI-0024

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