طرح نگهداشت و افزایش تولید ۲۷ مخزن

MECHANICAL DATA SHEETS FOR DIESEL PUMP
(P-2206)
نگهداشت و افزایش تولید میدان نفتی بینک

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

Class: 2 | **CLIENT Doc. Number: F0Z-708857**

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	شرکت توسعه پتروایران HIRGAN ENERGY
شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴	MECHANICAL DATA SHEETS FOR DIESEL PUMP	شماره صفحه: ۲ از ۵

پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه
BK	GCS	PEDCO	120	ME	DT	0026	D05

REVISION RECORD SHEET

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۰۵۳-۰۷۳-۹۱۸۴	پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	
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GENERAL NOTES

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

2. 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.

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

4. 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 as a subvendors.

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

6. 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.

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

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

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

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

11. Pump starts with open delivery valve.

12. Electrical motor shall be rated for site condition.

13. The suction & discharge line size is 2". Nozzles shall be in accordance with ASME B16.5

14. 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".

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

16. Pump material shall be selected based on Annex H API 610 11th Edition.

17. If pump is self venting there is no need for vent .

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 flexible with spacer.

21. Bearing temperature shall be measured during mechanical run test.

22. Max. allow. sound press. level shall be 85 d BA.

23. For site conditions refer to Process Basis of Design document. Doc.No. BK-GNRAL-PEDCO-000-PR-DB-0001.

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

25. Power Factor, efficiency, frequent, voltage, frequent variation and voltage variation of motor shall be specified by vendor in data sheet.

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

27 Vendor shall specify minimum flow for best pump selection.

28 Pumping Temp. (Min. / Max.) (°C): 5 / 50

29 Suction Pressure (Min/ Max.) (barg): 0 / 0.11

30 Due to continous minimum flow line by orifice, Pump rated flow = Rated process flow (5.5 m3/hr) + Pump min flow.

31 Max Allowable Pressure at Shut-Off at rated impeller (barg): 2.1

32 Hydraulic power (Kw): 0.3 D05

33 Minimum design metal temperature (°c): 5

34 Design Temperature (°c): 5 / 85

35 Differential pressure has been calculated by considering over design criteria for selected pump. D05

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۰۵۳-۰۷۳-۹۱۸۴		

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

Corporate name	D05 Centrifugal pump Data sheet	Rev.:	
NISOC		Data:	
		Name:	

Plant:	BINAK Gas Compressor Station	Service:	Diesel Oil 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		Motor	LV Induction Electric Motor	P-2206
Standby							

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

Test (3)	Material (16)	Hydrostatic	Complete Unit	Inspection	Perform.	NPSH (7)	Sound Level	Final inspection	Approved documents
Refer.	ISO 5199	ISO 5199	ISO 5199	ISO 5199	ISO 5199	ISO 5199	ISO 5199	ISO 5199	ISO 5199
Witn. by	Certified	Witnessed	Witnessed	Witnessed	Witnessed	Witnessed	Witnessed	Certified	Certified

D05 Operating Condition (11)

Liquid	Diesel Fuel Oil		Flow	rated (30)	5.5+min flow	m³/h	NPSH at rated flow	Plant- NPSHA	10 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 (29)	Min.	0.00	barg	Pump power input rated		kW
pH-value at T_{op}				max.	0.11	barg	Pump power input	rated impeller dia.	kW
Density at T_{normal}	850	kg/m³	Outlet gage pressure rated		0.95	barg		max. impeller dia.	kW
Vapour press. at T_{max}	Negligible	bara	Differential pressure rated (35)		2.00	bar	Electric. Driver power output rated (Note 25)		kW
Kinematic vis. at T_{normal}	4.8	cP	Total head rated		24.00	m	Steam turbine power output rated		kW
Specific heat at T_{op}		J/Kg.K	Shut-off head			m	Performance curve No.		

D05 Construction Features

Design		barg	Max. allowable work press		By vendor	barg	Cooling water condition	N.A.
Number of Stages	1		Test pressure		1.5*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 (13)	-/150# / RF		Bearing	
	rated	mm	Outlet Flange	Size/Position	/ Top		Seal Chamber	
	min	mm		Rating/facing (13)	-/150# / RF		Cooler for seal flush	
Pump length vertical pumps		mm	Vent connection (17)				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 (6)		Mechanical Seal		Mechanical ring	
Impeller type			Flush plan (VTA)		11		Gland/Seal plate	N.A.
Casing support			Material code				Coupling (20): Manufacture	
Rotation(looking from driver)			Soft packing ring dimension		N.A.		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 23,25)

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	D05 ± 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./Open Discharge valve

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

Material (VTA)

API class S-1 (According to API-610) (5, 16)

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-0023.

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