



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

۰۵۳-۰۷۳-۹۱۸۴

پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه
BK	GCS	PEDCO	120	ME	DT	0023	D05

شماره صفحه: ۱ از ۵

طرح نگهداشت و افزایش تولید ۲۷ مخزن

MECHANICAL DATA SHEETS FOR SUMP PUMPS

نگهداشت و افزایش تولید میدان نفتی بینک

D05	SEP.2024	IFA	V.Amjadi	M. Fakharian	M.Sadeghian	
D04	AUG.2024	IFA	V.Amjadi	M. Fakharian	M.Sadeghian	
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



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D05	0023	DT	ME	120	PEDCO	GCS	BK

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REVISION RECORD SHEET

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نسخه	سریال	نوع مدارک	رشته	تجهیزات	صادر کننده	بسته کاری	پروژه
D05	0023	DT	ME	120	PEDCO	GCS	BK

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GENERAL NOTES

- Design Conditions: Min./Max Design Temp.°C Max.Design Press.(barq)
5 / 85 2.5
- For electrical motor descriptions, refer to 'Specification For LV Electro Motors' Doc. No. BK-GNRAL-PEDCO-000-EL-SP-0010.
- 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.
- Vendor shall submit ITP (Inspection & Testing Plan) with his proposal.
- The motors,pump coupling and pump accessories shall be supplied from the project's approved vendor list (A.V.L.).
- Vendor is requested to confirm the material, or propose appropriate alternative.
- 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.
- NPSH test shall be done & witnessed if the margin of NPSHr & NPSHa is less than 1.
- The Tie-in flanges shall conform to ASME B-16.5.
- Supplier to indicate which minimum flow pumps can achieve.
- Pumps shall be designed, fabricated, tested, and inspected in accordance with the requirements of ISO 5199 latest edition.
- Pump starts automatically with open delivery valve.
- Electrical motor shall be rated for the end of curve.
- The discharge line is 2".
- 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".
- Based on project instrumentation specification, these equipments are classified as Type B (Connected to DCS/ESD):Centrifugal Pump Package
- Pump material shall be selected based on Annex H API 610 11th Edition. (vendor to confirm)
- Ultrasonic Test shall be performed for forged shaft.
- 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.
- Couplings shall be dry, flexible and spacer type.
- Bearing temperature shall be measured during mechanical run test.
- Max Allowable Pressure at Shut-Off is 2.5 barg.
- For site conditions refer to Process basis of design document; Doc.No: BK-GNRAL-PEDCO-000-PR-DB-0001.in data sheet.
- Minimum Design Metal Tem (MDMT) = 5°C.
- Vendor to provide the pump with mentioned flow rate or minimum available flow rate at market.
- Max. allow. Sound press. Level =85 dBA.
- Allowable external forces and moments on nozzle should be conformed to Spec. No.: BK-GCS-PEDCO-120-ME-SP-0004.
- All drain and vents (If any) to be manifolded, valved and routed to the skid edge.
- Range of ambient temperature: Min. ambient temperature: 5 °C , Max. ambient temperature: 50 °C
- Hydraulic power (Kw): 0.31
- 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.
- The Sump pump is in pit. Sump dimintions 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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۰۳-۰۷۳-۹۱۸۴

پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه
BK	GCS	PEDCO	120	ME	DT	0023	D05

شماره صفحه: ۴ از ۵

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, 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.
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.
	Assembly shaft seal	Supplier	Order No.
	Piping		Proposal No.
	Auxiliary system		Contract No.
	Shaft seal		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
Wttn. by	Certified	Witnessed	Witnessed	Witnessed	Witnessed	NOTE 27	Certified	Certified

Operating Condition (NOTE 12)

Liquid	Drain Water	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	bar	Pump power input rated (NOTE 2)	
pH-value at T _{op}			max.	0.10	bar		rated impeller dia.	kW
Density at T _{op}	1024	kg/m ³	Outlet gage pressure rated	2.00	bar		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	Design	Max. allowable work press	Design	Cooling water condition	N.A.
Number of Stages	Number of Stages	Test pressure	1.5 x MAWP	Cooling (C) Series (s)	N.A.
Self priming	Self priming	Inlet Flange	Size/Position	Heating (H), Parallel (p)	C H S P
Impeller diameter	max	mm	Rating/facing	Bearing	
	rated	mm	Size/Position	Seal Chamber	
	min	mm	Rating/facing (14)	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	Casing split	Shaft seal manufacture	Lantern ring		
Casing seal type	Casing seal type	Type, size (NOTE 7)	Mech. Seal	Mechanical ring	
Impeller type	Impeller type	Flush plan (VTC)	11+61	Gland/Seal plate	N/A
Casing support	Casing support	Material code		Manufacture	
Rotation(looking from driver)	Rotation(looking from driver)	Soft packing ring dimension		Type, Size	
Axial thrust reduction by	Rad. Bearing	Type		Diameter max	mm
	Impeller	mm	Axial. Bearing	Spacer length	mm
Total clearance	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
Wall thickness rot sheath / stat. cas	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	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	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		Zone 1, IIB, T3		Max Volt. and Frequency Variation together				± 10%



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شماره صفحه: ۵ از ۵

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

Material (VTC)

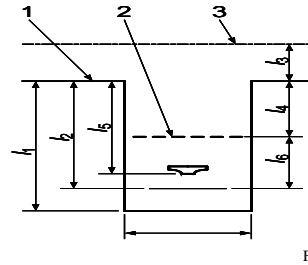
API class	S-6 (According to API-610)	(NOTES 6.15,17)
Casing	Bearing bush	Mecan. Seal
Discharge casing	Balance disc-drum	
Suction casing	Bal. counter disc-drum bus.	
Stage casing	Contrain.shell / Stat.casing	
Suction impeller	Rotor sheath / can	
Impeller	Magnet material	
Diffuser	Barrel	
Wear ring casing	Column pipe	Stuffing box
Wear ring impeller	Bearing bracket	
Wear plate / lining	Motor stool	Shaft sleeve
Case bush	Coupling	Throat bush
Casing gaskets	Coupling guard	Paint
Shaft	Base plate	

According to "Specification for Painting";
Doc. No. BK-GNRL-PEDCO-000-PI-SP-0006

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	0.65 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	0.5 (VTC) 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.)