



نگهداشت و افزایش تولید میدان نفتی بینک
سطح الارض



احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک

شماره پیمان:

MECHANICAL DATA SHEETS FOR SLUG PUMPS

شماره صفحه: ۱ از ۱۰

۰۵۳-۰۷۳-۹۱۸۴

پروژه	بسته کاری	صادر کننده	تسهيلات	رشته	نوع مدرک	سریال	نسخه
BK	GCS	PEDCO	120	ME	DT	0019	D03

طرح نگهداشت و افزایش تولید ۲۷ مخزن

**MECHANICAL DATA SHEETS FOR SLUG PUMPS
(P-2101 A/B)**

نگهداشت و افزایش تولید میدان نفتی بینک

D03	MAY. 2023	AFC	H. Adineh	M. Fakharian	A.M.Mohseni	
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-708850

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

شماره پیمان:

MECHANICAL DATA SHEETS FOR SLUG PUMPS

۰۳-۰۳-۹۱۸۴

پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه
BK	GCS	PEDCO	120	ME	DT	0019	D03

شماره صفحه: ۲ از ۱۰

REVISION RECORD SHEET

page	D00	D01	D02	D03	D04
1	x	x	x	x	
2	x	x	x	x	
3	x	x	x		
4	x				
5	x	x	x		
6	x	x	x		
7	x				
8	x		x		
9	x		x		
10	x				
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					
37					
38					
39					
40					
41					
42					
43					
44					
45					
46					
47					
48					
49					
50					
51					
52					
53					
54					
55					
56					
57					
58					
59					
60					
61					
62					
63					
64					

page	D00	D01	D02	D03	D04
65					
66					
67					
68					
69					
70					
71					
72					
73					
74					
75					
76					
77					
78					
79					
80					
81					
82					
83					
84					
85					
86					
87					
88					
89					
90					
91					
92					
93					
94					
95					
96					
97					
98					
99					
100					
101					
102					
103					
104					
105					
106					
107					
108					
109					
110					
111					
112					
113					
114					
115					
116					
117					
118					
119					
120					
121					
122					
123					
124					
125					
126					
127					
128					

M



نگهداشت و افزایش تولید میدان نفتی بینک
سطح الارض

احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک



شماره پیمان:

۰۵۳-۰۷۳-۹۱۸۴

MECHANICAL DATA SHEETS FOR SLUG PUMPS

پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه
BK	GCS	PEDCO	120	ME	DT	0019	D03

شماره صفحه: ۳ از ۱۰

طرح نگهداشت و افزایش تولید 27 مخزن

General Notes

- Mass Density [kg/m³] at Min. / Norm / Max. Temp: 1023 / 716 / 649 and Viscosity [cP] At Min. / Normal / Max. Temp: 1.37 / 0.58 / 0.449
- Design Conditions:

<u>Min./Max. Design Temperature(°C)</u>	<u>Max. Design Pressure(barg)</u>
5 / 85	23.3
- 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 Motor data sheet, "DOC NO.:BK-GCS-PEDCO-120-EL-DT-0008" with his proposal.
- Vendor shall submit ITP (Inspection & Testing Plan) with his proposal.
- The motors, pump mechanical seal, 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.
- Vendor is requested to confirm the material, or propose appropriate alternative.
- For Instrumentation, Project specification 'Specification For Instrument and Control of package Unit System (PU)' Doc. No. BK-GNRAL-PEDCO-000-IN-SP-0004 and other instrument specification which to be attached to MR shall be followed.
- 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.
- 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
- Valves in the piping system shall be Welded Flanged type.
- Supplier to indicate which minimum flow pumps can achieve.
- Pumps shall be designed, fabricated, tested, and inspected in accordance with the requirements of API 610 11th & IPS-G-PM-105(3).
- Nozzle loads shall be 2 times the loads shown in API 610 11th Edition.
- Pump starts Automatically with open delivery valve.
- Electrical motor shall be rated for the end of curve.
- The Suction line size is 4" and discharge line size is 3".
- The Material shall be followed in accordance with NACE MR0175/ISO15156 and Technical Specification for Material Requirements in sour service. Doc.No: BK-GNRAL-PEDCO-000-PI-SP-0008.
- H2S content is 6707.6 ppmw.
- Pump Manufacturer shall supply all instrumentation for mechanical seals as per API 682 4th Edition and project requirements.
- Based on project instrumentation specification, these equipments are classified as Type B (Connected to DCS/ESD):
Centrifugal Pump Package.
- Welding repair procedures shall be submitted for approval.
- Refer to hazardous area classification layout Doc. No.: BK-GCS-PEDCO-120-SA-PY-0002 , all instrumentation and electrical devices shall be suitable for: ZONE 2 & Gas group IIA, Temperature class T3.
- 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.
- Spare parts shall be supplied by vendor according to 'MR's appendix for Centrifugal Pumps ' Doc. No. BK-GCS-PEDCO-120-ME-MR-0009.
- Couplings shall be dry, flexible and spacer type and coupling guards shall be of Non-Spark type.
- Bearing temperature shall be measured during mechanical run test.
- For electrical motor descriptions, refer to 'Specification For LV & MV Induction Motors' Doc. No.BK-GNRAL-PEDCO-000-EL-SP-0010 & 0017 .
- Minimum Design Metal Tem (MDMT)= 5 °C
- Turn down and design (rated) flow rates are 30% and 110 % of normal flow rate respectively.
- API Plan 31+53B shall be considered.
- PMI Testing For Alloy Steel Shall be Done.
- Power Factor, efficiency, frequent, voltage, frequent variation and voltage variation of motor shall be specified by vendor in data sheet.
- All drain and vents (If any) to be manifolded, valved and routed to the skid edge. a drain line to be considered in barrel and to be pipe up to mounted skid.
- Range of ambient temperature: Min. ambient temperature: 5 °C , Max. ambient temperature: 50 °C
- Pump is not installed directly on the ground and at least 20~30 cm height for pedestal is considered.
- Max Allowable Pressure at Shut-Off (barg): 23.3
- Barrel and pump shall have the same MAWP and to be hydrotest in same value with pump.



NISOC

تجهه‌داشت و افزايش توليد ميدان نفتي بينک
سطح الارض

احداث رديف تراکم گاز در ايستگاه جمع آوري بينک



شماره پيمان:

۰۵۳-۰۷۳-۹۱۸۴

MECHANICAL DATA SHEETS FOR SLUG PUMPS

پروژه	بسته کاری	صادرکننده	تسهيلات	رشته	نوع مدرک	سريال	نسخه
BK	GCS	PEDCO	120	ME	DT	0019	D03

شماره صفحه: ۱۰ از ۱۰

طرح تجهه‌داشت و افزايش توليد 27 مخزن

APPLICABLE TO: PROPOSAL	APPLICABLE INTL/INTNL STANDARD: API 610-11th Ed.& IPS-G-PM-105(3)
FOR NISOC	UNIT
SITE BINAK Gas Compressor Station	SERVICE SLUG PUMP
NO. REQ 2 (1+1) PUMP SIZE	TYPE VS6 (V.T.A) No. STAGES
MANUFACTURER	MODEL V.T.A. SERIAL NO. V.T.A.

LIQUID CHARACTERISTICS

LIQUID TYPE OR NAME :	Units	Maximum	Minimum	Note	SERVICE :	INTERMITTENT
		water+hydrocarbon		Max & min	• IF INTERMITTENT NO. OF STARTS :	
VAPOR PRESSURE :	bara	6.50		values refer	PUMPS OPERATE IN:	
DENSITY : (NOTE 1)	kg/m ³			only to the	CORROSION DUE TO : (6.12.1.9)	CO₂, H₂S
SPECIFIC HEAT :	kJ/kgC			property	EROSION DUE TO : (6.12.1.9)	
VISCOSITY : (NOTE 1)	cP			listed	H2S CONCENTRATION (ppm) : (6.12.1.12)	6707.6
OPERATING CONDITIONS (6.1.2)					CHLORIDE CONCENTRATION (ppm) :	
	Units	Maximum	Rated	Normal	Min	PARTICULATE SIZE (DIA IN MICRONS)
NPSH _a Datum:		C.L. Impeller				PARTICULATE CONCENTRATION (PPM)
PUMPING TEMPERATURE :	°C	23.22			8.82	
MECHANICAL FLOW :	m ³ /hr		11	10.00	3.50	
SUCTION PRESSURE :	barg	5.75	19.5			
DIFFERENTIAL PRESSURE :	bar		14.0			
DIFFERENTIAL HEAD :	m		199.5			
NPSH _a :	m		0.9			
HYDRAULIC POWER:	KW		4.30			

SITE AND UTILITY DATA

LOCATION: OUTDOOR UNHEATED	COOLING WATER :		
MOUNTED AT :	TEMP	RETURN	DESIGN
ELECTRIC AREA CLASSIFICATION: (6.1.22) ZONE 2	PRESS.		
GROUP II A TEMP CLASS T3	SOURCE		
SITE DATA :	COOLING WATER CHLORIDE CONCENTRATION:		
ELEVATION (MSL) : _____ m	INSTRUMENT AIR :	MIN	_____ kg
RANGE OF DESIGN TEMPS: MIN / MAX _____ °C	STEAM		
RELATIVE HUMIDITY: MIN / MAX 0 100 % (@ 25.6 °C)	TEMP	DRIVERS	
UNUSUAL CONDITIONS:	PRESS.		
UTILITY CONDITIONS :			
ELECTRICITY :			
VOLTAGE 400			
PHASE 3			
HERTZ 50			

PERFORMANCE

DRIVER (7.1.5) (NOTES 3,16,29,34)

PROPOSAL CURVE NO. _____ RPM _____	Driver Type MOTOR
As Tested Curve No. _____	GEAR NO
IMPELLER DIA.: RATED _____ MAX. _____ MIN. _____ mm	VARIABLE SPEED REQUIRED NO
RATED POWER _____ Kw EFFICIENCY _____ (%)	SOURCE OF VARIABLE SPEED _____
RATED CURVE BEP FLOW (at rated impeller dia) _____ m ³ /hr	OTHER _____
MIN FLOW : _____ kJ/Nm ³ _____ m ³ /hr	MANUFACTURER _____
PREFERRED OPERATING REGION (6.1.11) _____ to _____ m ³ /hr	NAMEPLATE POWER AND POWER FACTOR @Site Condition _____ KW
ALLOWABLE OPERATING REGION _____ to _____ m ³ /hr	Nominal RPM _____
MAX HEAD @ RATED IMPELLER _____ m	RATED LOAD RPM _____
MAX POWER @ RATED IMPELLER _____ kW	FRAME OR MODEL _____
NPSH ₃ AT RATED FLOW : _____ m	ORIENTATION VERTICAL
CL PUMP TO U/S BASEPLATE _____ m	LUBE _____
NPSH MARGIN AT RATED FLOW : _____ m	BEARING TYPE: _____
SPECIFIC SPEED (6.1.9) _____	RADIAL _____ /
SUCTION SPECIFIC SPEED LIMIT _____	THRUST _____ /
SUCTION SPECIFIC SPEED _____	STARTING METHOD D.O.I. (OPEN DISCHARGE VALVE)
MAX. ALLOW. SOUND PRESS. LEVEL REQ'D (6.1.14) 85 (dBA) @ 1 m	INSULATION/TEMP. RISE F/B
EST MAX SOUND PRESS. LEVEL _____ (dBA)	Max Voltage Variation ±10%
MAX. SOUND POWER LEVEL REQ'D (6.1.14) _____	Max Frequency Variation ±5%
EST MAX SOUND POWER LEVEL _____	Max Voltage 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:

۰۵۳-۰۷۳-۹۱۸۴

MECHANICAL DATA SHEETS FOR SLUG PUMPS

پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه
BK	GCS	PEDCO	120	ME	DT	0019	D03

شماره صفحه: ۱۰ از ۱۶

طرح نگهداشت و افزایش تولید 27 مخزن

CONSTRUCTION

API PUMP TYPE: **VS6 (VTC)** [Based on API 610 definitions]

SEE ALSO PAGE 6

NOZZLE CONNECTIONS: (6.5.5) **NOTES 10,14,17**

	Size	Facing	Rating	Position
SUCTION		RF	300	SIDE
DISCHARGE		RF	300	SIDE

PRESSURE CASING AUX. CONNECTIONS: (6.4.3.2) **NOTES 10, 11**

	No.	Size	Type	Facing	Rating	Posn.
BAL./LEAK OFF						
DRAIN				RF		
VENT				RF		
PRESSURE GAGE						
TEMP GAGE						
WARM-UP LINE						

Drain Valve Supplied By

SUPPLIER

M DRAINS MANIFOLDED

SUPPLIER

VENT Valve Supplied By

VENTS MANIFOLDED

THREAD. CONS FOR PIPELINE SERVICE & < 50°C (6.4.3.2)

NO

SPECIAL FITTINGS FOR TRANSITIONING (6.4.3.3)

NO

CYLINDRICAL THREADS REQUIRED (6.4.3.8)

NO

GUSSET SUPPORT REQUIRED

YES

If Needed

MACHINED AND STUDDED CONNECTIONS (6.4.3.12)

NO

VS 6 DRAIN

External

DRAIN TO SKID EDGE

MATERIAL (6.12.1.1)

APPENDIX H CLASS

S-8

NOTES 18,19

MIN DESIGN METAL TEMP (6.12.4.1)

5

°C

REDUCED-HARDNESS MATERIALS REQ'D (6.12.1.12.1)

YES

Applicable Hardness Standard (6.12.1.12.3)

BARREL :

CASE :

DIFFUSERS

IMPELLER :

IMPELLER WEAR RING :

CASE WEAR RING :

SHAFT:

Bowl (if VS-type)

Inspection Class (**Note 4**)

Level 2

BEARINGS AND LUBRICATION (6.10.1.1)

BEARING (TYPE / NUMBER): (6.11.4)

RADIAL /

THRUST /

REVIEW AND APPROVE THRUST BEARING SIZE : (9.2.5.2.4)

LUBRICATION : (6.10.2.2) (6.11.3) (9.2.6)

FLOOD

PRESSURE LUBE SYSTEM TO ISO 10438- (9.2.6.5)

ISO 10438 DATA SHEETS ATTACHED

Pressurized Lube Oil System mtd on pump baseplate

Location of Pressurized Lube Oil System mounted on baseplate :

INTERCONNECTING PIPING PROVIDED BY

SUPPLIER

OIL VISC. ISO GRADE

VG

CONSTANT LEVEL OILER :

REQUIRED

CASING MOUNTING:

VERTICAL

CASING TYPE: (6.3.10)

DIFFUSER

OH3 BACKPULLOUT LIFTING DEVICE REQ'D. (9.1.2.6)

CASE PRESSURE RATING:

MAWP : (6.3.5)

By Supplier barg @

°C

HYDROTEST :

1.5 X MAWP barg @

°C

HYDROTEST OH PUMP AS ASSEMBLY

SUCT'N PRESS. REGIONS DESIGNED FOR MAWP

YES

ROTATION:

(VIEWED FROM COUPLING END)

• IMPELLERS INDIVIDUALLY SECURED :

YES

• BOLT OH 3/4/5 PUMP TO PAD / FOUNDATION :

• PROVIDE SOLEPLATE FOR OH 3/4/5 PUMPS

ROTOR:

SHAFT FLEXIBILITY INDEX (SFI) (9.1.1.3)

First Critical Speed Wet (Multi stage pumps only)

COMPONENT BALANCE TO ISO 1940 G1.0

SHRINK FIT -LIMITED MOVEMENT IMPELLERS (9.2.2.3)

COUPLING:(7.2.3)

(7.2.13.f)

NOTE 27

MANUFACTURER

MODEL

RATING (POWER/100 RPM)

SPACER LENGTH

mm

SERVICE FACTOR

Min 1.5

RIGID

COUPLING WITH HYDRAULIC FIT (7.2.10)

COUPLING BALANCED TO ISO 1940-1 G6.3 (7.2.3)

YES

COUPLING WITH PROPRIETARY CLAMPING DEVICE (7.2.11)

COUPLING IN COMPLIANCE WITH (7.2.4)

API 610 compliant

COUPLING GUARD STANDARD PER (7.2.13.a)

ISO 14120

Window on Coupling Guard

BASEPLATE

API BASEPLATE NUMBER :

BASEPLATE CONSTRUCTION (7.3.14)

BASEPLATE DRAINAGE (7.3.1)

MOUNTING :

NON-GROUT CONSTRUCTION : (7.3.13)

VERTICAL LEVELING SCREWS :

REQUIRED

LONGITUDINAL DRIVER POSITIONING SCREWS :

REQUIRED

SUPPLIED WITH :

○ GROUT AND VENT HOLES

YES

○ DRAIN CONNECTION

YES

MOUNTING PADS SIZED FOR BASEPLATE LEVELING (7.3.5)

YES

MOUNTING PADS TO BE MACHINED (7.3.6)

YES

PROVIDE SPACER PLATE UNDER ALL EQUIPMENT FEET

YES

OTHER

REMARKS :



NISOC

نگهداشت و افزایش تولید میدان نفتی بینک
سطح الارض

احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک



شماره پیمان:

۰۵۳-۰۷۳-۹۱۸۴

MECHANICAL DATA SHEETS FOR SLUG PUMPS

پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه
BK	GCS	PEDCO	120	ME	DT	0019	D03

شماره صفحه: ۷ از ۱۰

طرح نگهداشت و افزایش تولید 27 مخزن

INSTRUMENTATION

SEE ATTACHED API-670 DATA SHEET _____

ACCELEROMETER (7.4.2.1) _____

Number of Accelerometers _____

Mounting Location of Accelerometers _____

PROVISION FOR MTG ONLY (6.10.2.10) _____

Number of Accelerometers _____

Mounting Location of Accelerometers _____

FLAT SURFACE REQUIRED (6.10.2.11) **YES**

Number of Accelerometers _____

Mounting Location of Accelerometers _____

VIBRATION PROBES (7.4.2.2)

PROVISIONS FOR VIB. PROBES _____

NUMBER PER RADIAL BEARING _____

M NUMBER PER AXIAL BEARING _____

MONITORS AND CABLES SUPPLIED BY (7.4.2.4) _____

TEMPERATURE (7.4.2.3)

PROVISIONS FOR TEMP PROBES _____

RADIAL BEARING TEMP. _____

NUMBER PER RADIAL BEARING _____

THRUST BEARING TEMP. _____

NUMBER PER THRUST BEARING ACTIVE SIDE _____

NUMBER PER THRUST BEARING INACTIVE SIDE _____

TEMP. GAUGES (WITH THERMOWELLS) (9.1.3.6)

PRESSURE GAUGE TYPE _____

Remarks

SEAL SUPPORT SYSTEM MOUNTING

SEAL SUPPORT SYSTEM MOUNTED ON PUMP BASEPLATE _____

(7.5.1.4) **YES**

IDENTIFY LOCATION ON BASEPLATE _____

INTERCONNECTING PIPING BY **SUPPLIER**

MECHANICAL SEAL (6.8.1) NOTE 5.8 (VTS)

SEE ATTACHED ISO 21049/API 682 DATA SHEET **NOTE 8**

ADDITIONAL CENTRAL FLUSH PORT (6.8.9) _____

HEATING JACKET REQ'D. (6.8.11) _____

FLUSH PLAN **31+53B**

HEATING AND COOLING (6.1.17) (VTS)

COOLING REQ'D _____

COOLING WATER PIPING PLAN _____

COOLING WATER PIPING _____

COOLING WATER PIPING MATERIALS _____

COOLING WATER REQUIREMENTS: _____

TOTAL COOLING WATER _____

HEATING MEDIUM _____

OTHER _____

HEATING PIPING _____

PIPING & APPURTENANCES

MANIFOLD PIPING FOR PURCHASER CONNECTION (7.5.1.6)

VENT _____

DRAIN _____

VALVES **YES (NOTE 11)**

COOLING WATER _____

TAG ALL ORIFICES (7.5.2.4) **YES**

SOCKET WELD CONN ON SEAL GLAND (7.5.2.8) _____



NISOC

نگهداشت و افزایش تولید میدان نفتی بینک
سطح الارض

احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک



شماره پیمان:

۰۵۳-۰۷۳-۹۱۸۴

MECHANICAL DATA SHEETS FOR SLUG PUMPS

پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه
BK	GCS	PEDCO	120	ME	DT	0019	D03

شماره صفحه: ۱۰ از ۸

طرح نگهداشت و افزایش تولید 27 مخزن

SURFACE PREPARATION AND PAINT

MANUFACTURER'S STANDARD	_____
OTHER (SEE BELOW)	_____
SPECIFICATION NO.	BK-GNRL-PEDCO-000-PI-SP-0006 , "Specification for Painting"
PUMP:	
PUMP SURFACE PREPARATION	_____
PRIMER	AS PER PROJECT PAINTING SPEC.
FINISH COAT	AS PER PROJECT PAINTING SPEC.
BASEPLATE:	
BASEPLATE SURFACE PREPARATION	_____
PRIMER:	AS PER PROJECT PAINTING SPEC.
FINISH COAT	AS PER PROJECT PAINTING SPEC.
DETAILS OF LIFTING DEVICES	_____
SHIPMENT: (8.4.1)	EXPORT
EXPORT BOXING REQUIRED	YES
OUTDOOR STORAGE MORE THAN 6 MONTHS	YES
M	
ROTOR STORAGE ORIENTATION (9.2.8.2)	_____
SHIPPING & STORAGE CONTAINER FOR VERT STORAGE (9.2.8.3)	_____
N ₂ PURGE (9.2.8.4)	_____
SPARE PARTS	NOTE 26
START-UP	YES
NORMAL MAINTENANCE	YES

TEST

SHOP INSPECTION (8.1.1)	YES
PERFORMANCE CURVE & DATA APPROVAL PRIOR TO SHIPMENT.	YES
TEST WITH SUBSTITUTE SEAL (8.3.3.2.b)	NO
MATERIAL CERTIFICATION REQUIRED	YES
SHAFT (6.12.1.8) IMPELLER	YES
OTHER (Casing and impeller Wear ring)	NOTE 18
CASTING REPAIR WELD PROCEDURE APPR REQD	YES
INSPECTION REQUIRED FOR CONNECTION WELDS (6.12.3.4.d)	_____
LIQUID PENETRANT	YES
ULTRASONIC	_____
INSPECTION REQUIRED FOR CASTINGS	NOTE 26
LIQUID PENETRANT	YES
ULTRASONIC (NOTE 24)	_____
HARDNESS TEST REQUIRED (8.2.2.7)	_____
ADDNL SUBSURFACE EXAMINATION (6.12.1.5) (8.2.1.3)	_____
FOR METHOD	_____
PMI TESTING REQUIRED (8.2.2.8) (NOTE 33)	YES
COMPONENTS TO BE TESTED	_____
RESIDUAL UNBALANCE TEST (I.4.1.2)	_____
NOTIFICATION OF SUCCESSFUL SHOP PERFORMANCE TEST (8.1.1.c) (8.3.3.5) (WIT)	YES
BASEPLATE TEST (7.3.21)	_____
HYDROSTATIC	WIT
HYDROSTATIC TEST OF BOWLS & COLUMN (9.3.13.2)	WIT
PERFORMANCE TEST	WIT
TEST IN COMPLIANCE WITH (8.3.3.2)	8.3.3.2
TEST DATA POINTS TO (8.3.3.3)	8.3.3.3
TEST TOLERANCES TO (8.3.3.4)	_____
NPSH (8.3.4.3.1) (8.3.4.3.4) (NOTE 9)	WIT
NPSH-1ST STG ONLY (8.3.4.3.2)	_____
NPSH TESTING TO HI 1.6 OR ISO 9906 (8.3.4.3.3)	_____
TEST NPSHA LIMITED TO 110% SITE NPSHA (8.3.3.6)	_____
RETEST ON SEAL LEAKAGE (8.3.3.2.d)	_____
RETEST REQUIRED AFTER FINAL HEAD ADJ (8.3.3.7.b)	_____
COMPLETE UNIT TEST (8.3.4.4.1)	WIT
SOUND LEVEL TEST (8.3.4.5)	WIT
CLEANLINESS PRIOR TO FINAL ASSEMBLY (8.2.2.6)	NON-WIT
LOCATION OF CLEANLINESS INSPECTION	_____
NOZZLE LOAD TEST	_____
CHECK FOR CO-PLANAR MOUNTING PAD SURFACES	_____
MECHANICAL RUN TEST UNTIL OIL TEMP STABLE	WIT
4 HR. MECH RUN AFTER OIL TEMP STABLE (8.3.4.2.1)	WIT
4 HR. MECH RUN TEST (8.3.4.2.2)	_____
BRG HSG RESONANCE TEST (8.3.4.7)	_____
STRUCTURAL RESONANCE TEST (9.3.9.2)	_____
REMOVE / INSPECT HYDRODYNAMIC BEARINGS AFTER TEST (9.2.7.5)	_____
AUXILIARY EQUIPMENT TEST (8.3.4.6)	_____
EQUIPMENT TO BE INCLUDED IN AUXILIARY TESTS	_____
LOCATION OF AUXILIARY EQUIPMENT TEST	_____
IMPACT TEST	_____
REMOVE CASING AFTER TEST	_____

OTHER PURCHASER REQUIREMENTS

COORDINATION MEETING REQUIRED (10.1.3)	YES
MAXIMUM DISCHARGE PRESSURE TO INCLUDE	YES
OPERATION TO TRIP SPEED	_____
MAX DIA. IMPELLERS AND/OR NO OF STAGES	YES
CONNECTION DESIGN APPROVAL (9.2.1.4)	_____
TORSIONAL ANALYSIS / REPORT (6.9.2.10)	_____
PROGRESS REPORTS	YES
OUTLINE OF PROC FOR OPTIONAL TESTS (10.2.5)	_____
ADDITIONAL DATA REQUIRING 20 YEARS RETENTION (8.2.1.1)	_____
LATERAL ANALYSIS REQUIRED (9.1.3.4) (9.2.4.1.3)	_____
MODAL ANALYSIS REQUIRED (9.3.9.2)	_____
DYNAMIC BALANCE ROTOR (6.9.4.4)	_____
INSTALLATION LIST IN PROPOSAL (10.2.3.1)	YES
VFD STEADY STATE DAMPED RESPONSE ANALYSIS (6.9.2.3)	_____
TRANSIENT TORSIONAL RESPONSE	_____
BEARING LIFE CALCULATIONS REQUIRED (6.10.1.6)	YES
IGNITION HAZARD ASSMT TO EN 13463-1 (7.2.13.e)	_____
CASING RETIREMENT THICKNESS DRAWING (10.3.2.3)	_____
FLANGES RQD IN PLACE OF SKT WELD UNIONS (7.5.2.8)	YES
INCLUDE PLOTTED VIBRATION SPECTRA (6.9.3.3)	_____
CONNECTION BOLTING (7.5.1.7)	SS
CADMIUM PLATED BOLTS PROHIBITED	_____
VENDOR TO KEEP REPAIR AND HT RCDS (8.2.1.1.c)	YES
VENDOR SUBMIT TEST PROCEDURES (8.3.1.1)	YES
SUBMIT INSPECTION CHECK LIST (8.1.5) (NOTE 4)	YES



نگهداشت و افزایش تولید میدان نفتی بینک
سطح الارض



احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک

شماره پیمان:

MECHANICAL DATA SHEETS FOR SLUG PUMPS

۰۵۳-۰۷۳-۹۱۸۴

نسخه	سریال	نوع مدرک	رشته	تهیهات	صادرکننده	بسته کاری	پروژه
D03	0019	DT	ME	120	PEDCO	GCS	BK

شماره صفحه: ۱۰ از ۹

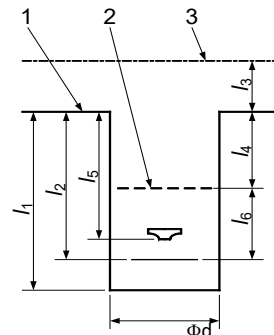
طرح نگهداشت و افزایش تولید 27 مخزن

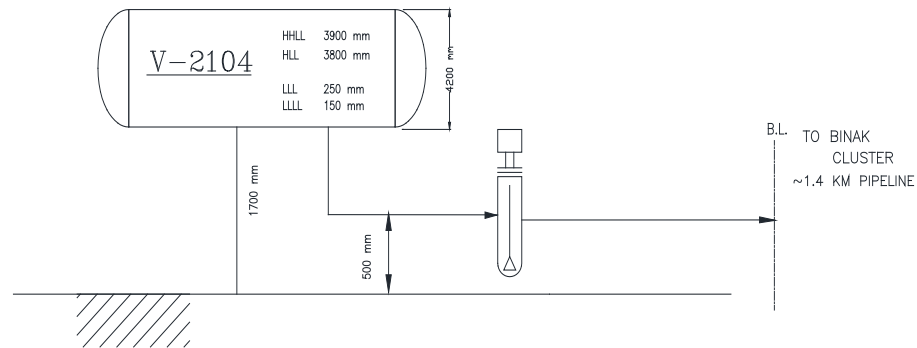
1	Note	VERTICAL TYPE (FIG 1.1)	VS6
2		REMARKS	
3			
4			

VERTICAL PUMPS			VERTICAL PUMPS (CONT'D)		
PUMP THRUST:	(+) UP	(-) DOWN	LINE SHAFT:		
STATIC THRUST	_____ N	_____ N	LINE SHAFT DIAMETER	_____ mm	
AT MIN FLOW	_____ N	_____ N	TUBE DIAMETER	_____ mm	
AT RATED FLOW	_____ N	_____ N	LINE SHAFT COUPLING:		
AT MAX FLOW	_____ N	_____ N	LINESHAFT CONNECTION	_____	
MAX THRUST	_____ N	_____ N			
SOLEPLATE REQUIRED			• SUCTION STRAINER TYPE	_____	
SOLEPLATE Length x Width	_____ m	X _____ m	• LEVEL CONTROL	_____	
SOLEPLATE THICKNESS		_____ mm	IMPELLER COLLETS ACCEPTABLE	_____	
MOUNTING FLANGE REQUIRED			HARDENED SLEEVES UNDER BEARINGS (9.3.10.5)	_____	
COLUMN PIPE:			RESONANCE TEST	_____	
DIAMETER		_____ mm	STRUCTURAL ANALYSIS (9.3.9)	_____	
LENGTH		_____ m	DRIVER ALIGNMENT SCREWS	_____	
NUMBER		_____	SUCTION CAN		
SPACING		_____ m	SUCTION CAN	THICKNESS _____ mm	
GUIDE BUSHINGS:				LENGTH _____ m	
NUMBER				DIAMETER _____ mm	
LINE SHAFT BEARING SPACING		_____ mm		SEPARATE MOUNTING PLATE (9.3.8.3.1)	YES
GUIDE BUSHING LUBE:		_____		PROVIDE SEPARATE SOLEPLATE (9.3.8.3.3)	YES
				DRAIN PIPED TO SURFACE (9.3.13.5)	_____
				BOWL HEAD CALCULATION REQUIRED	_____

MATERIALS (additional)					
SUCTION CAN / BARREL:			LINESHAFT SLEEVES:		
DISCHARGE HEAD :	• _____		BEARING RETAINER :		
BOWL SHAFT :			SHAFT ENCLOSING TUBE :		
LINESHAFT :			DISCHARGE COLUMN :		
LINESHAFT HARDFACING :			PRESSURE RATING:	MAWP	HYDRO
BELLMOUTH :			HEAD	_____	_____
BOWL BEARING :			COLUMN PIPE	_____	_____
LINESHAFT BEARING :			BOWL	_____	_____

SUMP ARRANGEMENT					
SUMP DIMENSIONS :					
GRADE ELEVATION	1	_____	m		
LOW LIQUID LEVEL	2	_____	m		
C.L. OF DISCHARGE	3	_____	m		
SUMP DEPTH	l_1	_____	m		
PUMP LENGTH	l_2	_____	m		
GRADE TO DISCH.	l_3	_____	m		
GRADE TO LOW LIQUID LVL	l_4	_____	m		
GRADE TO 1ST STG IMPL'R.	l_5	_____	m		
SUBMERGENCE REQ'D	l_6	_____	m		
SUMP DIAMETER	Φd	_____	m		





P-2101A/B

**HANI
CAL
DATA**

**SHEE
TS
FOR
SLUG**

**PUMP
S
(P-
2101
A/B)**

نگهداش

ت و

افزایش

تولید

TS FOR SLUG PUMPS