

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض								
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	MECHANICAL DATA SHEETS FOR FLARE KO DRUM PUMP (API 610)								شماره صفحه: ۱ از ۱۰
	پروژه	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه		
	BK	GCS	PEDCO	120	ME	DT	0024	D06	

طرح نگهداشت و افزایش تولید ۲۷ مخزن

MECHANICAL DATA SHEETS FOR FLARE KO DRUM PUMP

نگهداشت و افزایش تولید میدان نفتی بینک

D06	SEP. 2023	AFC	H.Ghadyani	M.Fakharian	A.M.Mohseni	
D05	MAY. 2023	IFA	H. Adineh	M.Fakharian	A.M.Mohseni	
D04	SEP. 2022	IFA	H. Adineh	M.Fakharian	M. Mehrshad	
D03	APR. 2022	IFA	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	
REV.	Date	Purpose of Issue/Status	Prepared by:	Checked by:	Approved by:	CLIENT Approval

Class: 1	CLIENT Doc. Number: F0Z-708855
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



شماره پیمان:

MECHANICAL DATA SHEETS FOR FLARE KO DRUM PUMP (API 610)

شماره صفحه: ۲ از ۱۰

۰۵۳ - ۰۷۳ - ۹۱۸۴

پروژه

بسته کاری

صادر کننده

تسهیلات

رشته

نوع مدرک

سریال

نسخه

BK

GCS

PEDCO

120

ME

DT

0024

D06

REVISION RECORD SHEET

page	D00	D01	D02	D03	D04
1	x	x	x	x	x
2	x	x	x	x	x
3	x	x	x	x	x
4	x				
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 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 FLARE KO DRUM PUMPS (API 610)		شماره صفحه: ۳ از ۱۰					
	نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادرکننده	پسته کاری	پروژه
	D06	0024	DT	ME	120	PEDCO	GCS	BK

GENERAL NOTES	
1	Mass Density [kg/m3] at Min. / Norm / Max. Temp: 852 / 980 / 1022
2	Viscosity [cP] At Min. / Normal / Max. Temp: 1.03 / 0.46 / 1.5
3	Suction & Discharge line diameters are 2".
4	Mechanical Seal data sheet shall be filled in by vendor as per API 682, 4th edition.
5	A drain line to be considered in barrel and to be pipe up to mounted skid.Pump drain shall be terminated at skid edge with flange connection and valved. Valves in the piping system shall be Welded Flanged type.
6	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".
7	PMI Testing for Alloy Steel Shall be Done.
8	If NPSH margin be less than 1m, NPSH test Shall be Done.
9	API Plan 31-53B shall be considered. (vendor to confirm)
10	Design Condition: (Min./Max.) Design Temperature(°C): 5 / 85 Design Pressure(barg): 9
11	Temperature finalize after depressurizing study.
12	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.
13	Vendor shall submit ITP (Inspection & Testing Plan) with his proposal.
14	Vendor is requested to confirm the material, or propose appropriate alternative.
15	The Tie-in flanges shall conform to ASME B-16.5.
16	Vendor to indicate which minimum flow pumps can achieve.
17	Pumps shall be designed, fabricated, tested, and inspected in accordance with the requirements of API 610 11th edition.
18	Welding repair procedures shall be submitted for approval.
19	If pump is self venting there is no need for vent.
20	Ultrasonic Test shall be performed for forged shaft.
21	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.
22	Spare parts shall be supplied by vendor according to 'MR's appendix for Centrifugal Pumps; Doc. No.: BK-GCS-PEDCO-120-ME-MR-0009"
23	Bearing temperature shall be measured during mechanical run test.
24	For electrical motor descriptions, refer to 'Specification For LV induction Motors' Doc. No. BK-GNRL-PEDCO-000-EL-SP-0010. and 'Specification for MV induction motors' Doc.No. BK-GNRL-PEDCO-000-EL-SP-0017.
25	Electrical motor shall be rated for the end of curve.
26	For site conditions refer to Process Basis of Design Document. Doc.No. BK-GNRL-PEDCO-000-PR-DB-0001.
27	Power Factor, efficiency, frequent, voltage, frequent variation and voltage variation of motor shall be specified by vendor in data sheet.
28	Allowable external forces and moments on nozzle are equal to two times of table 5 of API 610-11th edition.
29	The material shall be in compliance with NACE MR0175/ISO15156 and Specification For Material Requirements in Sour service Document No. BK-GNRL-PEDCO-000-PI-SP-0008
30	Range of Amb.Temp. : Min. ambient temperature: 5 °C , Max. ambient temperature: 50 °C.
31	Coupling shall be flexible with spacer and coupling guard shall be of Non-Spark type.
32	elevation of pump centerline from ground is 76 cm.
33	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.
34	Max Allowable Pressure at Shut-Off(barg) : 9
35	Barometric pressure in Binak new GCS; winter: 14.37 psia summer: 13.26 psia
36	Barrel and pump shall have the same MAWP and to be hydrotest in same value with pump.



احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک



MECHANICAL DATA SHEETS FOR FLARE KO DRUM PUMP (API 610)

شماره صفحه: ۴ از ۱۰

نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادر کننده	بسته کاری	پروژه
D06	0024	DT	ME	120	PEDCO	GCS	BK

API Std. 610 CENTRIFUGAL PUMP DATA SHEET (SI UNIT) - P-2201 A/B (Sheet 1 of 6)

PURCH ORDER NO.

identify a cross referenced paragraph in the document note, and may also contain a drop down list

Delete these notes on completion

COMMENTS:

PUMP MOTOR GEAR TURBINE	DATA SHEETS					
	ITEM No.	ATT	ITEM No.	ATT	ITEM No.	ATT
	P-2201 A		P-2201 B			

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	شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴						شماره صفحه: ۱۰ از ۱۰	
MECHANICAL DATA SHEETS FOR FLARE KO DRUM PUMP (API 610)								
پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	
BK	GCS	PEDCO	120	ME	DT	0024	D06	

API Std. 610 CENTRIFUGAL PUMP DATA SHEET (SI UNIT) - P-2201 A/B (Sheet 2 of 6)

APPLICABLE TO: PROPOSAL	APPLICABLE NTL/INTNTL STANDARD: API 610 - 11th Edition, IPS-G-PM-105
FOR NISOC	UNIT
SITE BINAK Gas Compressor Station	SERVICE
NO. REQ 2(1+1)	TYPE Vertical No. STAGES V.T.A
MANUFACTURER	MODEL VS6 (VTC) SERIAL NO.

LIQUID CHARACTERISTICS					INTERMITTENT
LIQUID TYPE OR NAME :	Units	Maximum	Minimum	Note	SERVICE : • IF INTERMITTENT NO. OF STARTS : PUMPS OPERATE IN: CORROSION DUE TO : (6.12.1.9) EROSION DUE TO : (6.12.1.9) H2S CONCENTRATION (ppm) : (6.12.1.12) 584.6 CHLORIDE CONCENTRATION (ppm) : PARTICULATE SIZE (DIA IN MICRONS) PARTICULATE CONCENTRATION (PPM) SOUR SERVICE: YES
VAPOR PRESSURE :	bara	1		Max & min values refer only to the property listed	
DENSITY : (Note 1)	kg/m³	1022	852		
SPECIFIC HEAT :	kJ/kgC				
VISCOSITY : (Note 2)	cP	1.50	1.03		
OPERATING CONDITIONS (6.1.2)					
	Units	Maximum	Rated	Normal	Min
NPSH _A Datum:			C.L. Impeller		
PUMPING TEMPERATURE :	°C		5(worse case)		
FLOW :	m³/hr		2.20	2.00	
DISCHARGE PRESSURE:	barg		1.6		
SUCTION PRESSURE :	barg	0.6			0.1
DIFFERENTIAL PRESSURE :	bar		1.5		
DIFFERENTIAL HEAD :	m		15.6		
NPSH _A :	m		1		
HYDRAULIC POWER:	KW		0.1		

SITE AND UTILITY DATA																																													
LOCATION: OUTDOOR UNHEATED MOUNTED AT : ELECTRIC AREA CLASSIFICATION: (6.1.22) ZONE 1 GROUP II B TEMP CLASS T3 SITE DATA : ELEVATION (MSL) : 12.5 m RANGE OF DESIGN TEMPS:MIN / MAX 5 85 °C RELATIVE HUMIDITY: MIN / MAX 0 100 % (@ 25.6 °C) UNUSUAL CONDITIONS: UTILITY CONDITIONS : <table border="1"> <tr> <th>ELECTRICITY :</th> <th>DRIVERS</th> <th>HEATING</th> <th>CONTROL</th> <th>SHUTDOWN</th> </tr> <tr> <td>VOLTAGE</td> <td>400</td> <td></td> <td></td> <td></td> </tr> <tr> <td>PHASE</td> <td>3</td> <td></td> <td></td> <td></td> </tr> <tr> <td>HERTZ</td> <td>50</td> <td></td> <td></td> <td></td> </tr> </table>			ELECTRICITY :	DRIVERS	HEATING	CONTROL	SHUTDOWN	VOLTAGE	400				PHASE	3				HERTZ	50				COOLING WATER : <table border="1"> <tr> <th></th> <th>RETURN</th> <th>DESIGN</th> </tr> <tr> <td>TEMP</td> <td></td> <td></td> </tr> <tr> <td>PRESS.</td> <td></td> <td></td> </tr> <tr> <td>SOURCE</td> <td></td> <td></td> </tr> </table> COOLING WATER CHLORIDE CONCENTRATION: INSTRUMENT AIR : kg MIN kg STEAM <table border="1"> <tr> <th></th> <th>DRIVERS</th> <th>HEATING</th> </tr> <tr> <td>TEMP</td> <td></td> <td></td> </tr> <tr> <td>PRESS.</td> <td></td> <td></td> </tr> </table>			RETURN	DESIGN	TEMP			PRESS.			SOURCE				DRIVERS	HEATING	TEMP			PRESS.		
ELECTRICITY :	DRIVERS	HEATING	CONTROL	SHUTDOWN																																									
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	DRIVERS	HEATING																																											
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PERFORMANCE					DRIVER (7.1.5) (Note 27)	
PROPOSAL CURVE NO.	RPM				Driver Type	MOTOR
As Tested Curve No.					GEAR	NO
IMPELLER DIA.: RATED	MAX.	MIN.			VARIABLE SPEED REQUIRED	NO
RATED POWER Kw	EFFICIENCY				SOURCE OF VARIABLE SPEED	
RATED CURVE BEP FLOW (at rated impeller dia)					OTHER	
MIN FLOW : kJ/Nm³					MANUFACTURER	
PREFERRED OPERATING REGION (6.1.11)	to				NAMEPLATE POWER AND POWER FACTOR	@Site Condition KW
ALLOWABLE OPERATING REGION	to				Nominal RPM	
MAX HEAD @ RATED IMPELLER					RATED LOAD RPM	
MAX POWER @ RATED IMPELLER					FRAME OR MODEL	
NPSH3 AT RATED FLOW :					ORIENTATION	Vertical
CL PUMP TO U/S BASEPLATE					LUBE	
NPSH MARGIN AT RATED FLOW :					BEARING TYPE:	
SPECIFIC SPEED (6.1.9)					RADIAL	/
SUCTION SPECIFIC SPEED LIMIT					THRUST	/
SUCTION SPECIFIC SPEED					STARTING METHOD	D.O.L/ Open Discharge Valve
MAX. ALLOW. SOUND PRESS. LEVEL REQD (6.1.14)			85.00	(dBA)	INSULATION/TEMP. RISE	F/B
EST MAX SOUND PRESS. LEVEL					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%

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شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	MECHANICAL DATA SHEETS FOR FLARE KO DRUM PUMP (API 610) <table><tr><td>نسخه</td><td>سریال</td><td>نوع مدرک</td><td>رشته</td><td>تسهیلات</td><td>صادر کننده</td><td>بسته کاری</td><td>پروژه</td></tr><tr><td>D06</td><td>0024</td><td>DT</td><td>ME</td><td>120</td><td>PEDCO</td><td>GCS</td><td>BK</td></tr></table>	نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادر کننده	بسته کاری	پروژه	D06	0024	DT	ME	120	PEDCO	GCS	BK	شماره صفحه: ۱۰ از ۱۶
نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادر کننده	بسته کاری	پروژه											
D06	0024	DT	ME	120	PEDCO	GCS	BK											

API Std. 610 CENTRIFUGAL PUMP DATA SHEET (SI UNIT) - P-2201 A/B (Sheet 3 of 6)

CONSTRUCTION																																																													
API PUMP TYPE: <u>VS6</u> [Based on API 610 definitions] SEE ALSO PAGE 6 NOZZLE CONNECTIONS: (6.5.5) (Notes 3,28) <table><tr><th>Size</th><th>Facing</th><th>Rating</th><th>Position</th></tr><tr><td></td><td>RF</td><td>300</td><td>SIDE</td></tr><tr><td></td><td>RF</td><td>300</td><td>SIDE</td></tr></table> SUCTION DISCHARGE PRESSURE CASING AUX. CONNECTIONS: (6.4.3.2) <table><tr><th>No.</th><th>Size</th><th>Type</th><th>Facing</th><th>Rating</th><th>Posn.</th></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>BAL./LEAK OFF</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>DRAIN</td><td></td><td></td><td>RF</td><td>300</td><td></td></tr><tr><td>VENT</td><td></td><td></td><td>RF</td><td>300</td><td></td></tr><tr><td>PRESSURE GAGE</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>TEMP GAGE</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>WARM-UP LINE</td><td></td><td></td><td></td><td></td><td></td></tr></table> Drain Valve Supplied By <u>VENDOR</u> DRAINS MANIFOLDED <u>VENDOR</u> VENT Valve Supplied By <u>VENDOR</u> VENTS MANIFOLDED <u>YES</u> THREAD, CONS FOR PIPELINE SERVICE & < 50°C (6.4.3.2) _____ SPECIAL FITTINGS FOR TRANSITIONING (6.4.3.3) _____ CYLINDRICAL THREADS REQUIRED (6.4.3.8) _____ GUSSET SUPPORT REQUIRED <u>YES</u> If Needed MACHINED AND STUDDED CONNECTIONS (6.4.3.12) _____ VS 6 DRAIN _____ DRAIN TO SKID EDGE <u>YES</u>	Size	Facing	Rating	Position		RF	300	SIDE		RF	300	SIDE	No.	Size	Type	Facing	Rating	Posn.							BAL./LEAK OFF						DRAIN			RF	300		VENT			RF	300		PRESSURE GAGE						TEMP GAGE						WARM-UP LINE						CASING MOUNTING: CASING TYPE: (6.3.10) _____ OH3 BACKPULLOUT LIFTING DEVICE REQD. (9.1.2.6) _____ CASE PRESSURE RATING: (Note 36) MAWP : (6.3.5) <u>40</u> barg @ _____ °C HYDROTEST : <u>1.5*MAWP</u> barg @ _____ °C HYDROTEST OH PUMP AS ASSEMBLY <u>YES</u> SUCT'N PRESS. REGIONS DESIGNED FOR MAWP <u>YES</u> ROTATION: (VIEWED FROM COUPLING END) - IMPELLERS INDIVIDUALLY SECURED : <u>YES</u> - 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) _____ MANUFACTURER _____ MODEL _____ RATING (POWER/100 RPM) _____ SPACER LENGTH _____ mm SERVICE FACTOR <u>min 1.5</u> RIGID (Note 31) <u>NO</u> COUPLING WITH HYDRAULIC FIT (7.2.10) _____ COUPLING BALANCED TO ISO 1940-1 G6.3 (7.2.3) <u>YES</u> COUPLING WITH PROPRIETARY CLAMPING DEVICE (7.2.11) _____ COUPLING IN COMPLIANCE WITH (7.2.4) <u>API 610 compliant</u> COUPLING GUARD STANDARD PER (7.2.13.a) <u>ISO 14120</u> Window on Coupling Guard _____
Size	Facing	Rating	Position																																																										
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MATERIAL (6.12.1.1) APPENDIX H CLASS <u>S-6</u> (VTC) MIN DESIGN METAL TEMP (6.12.4.1) <u>5</u> °C REDUCED-HARDNESS MATERIALS REQ'D (6.12.1.12.1) <u>YES</u> (Note 29) 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 <u>Level 2</u>		BASEPLATE API BASEPLATE NUMBER : _____ BASEPLATE CONSTRUCTION (7.3.14) _____ BASEPLATE DRAINAGE (7.3.1) <u>Entire Baseplate Drain Pan</u> MOUNTING : _____ NON-GROUT CONSTRUCTION : (7.3.13) _____ VERTICAL LEVELING SCREWS : <u>REQUIRED</u> LONGITUDINAL DRIVER POSITIONING SCREWS : <u>REQUIRED</u> SUPPLIED WITH : GROUT AND VENT HOLES <u>YES</u> DRAIN CONNECTION <u>YES</u> MOUNTING PADS SIZED FOR BASEPLATE LEVELING (7.3.5) _____ MOUNTING PADS TO BE MACHINED (7.3.6) _____ PROVIDE SPACER PLATE UNDER ALL EQUIPMENT FEET _____ OTHER _____ REMARKS : _____ _____ _____ _____																																																											
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) <u>FLOOD</u> 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 <u>VENDOR</u> OIL VISC. ISO GRADE VG _____ CONSTANT LEVEL OILER : <u>REQUIRED</u>																																																													

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	MECHANICAL DATA SHEETS FOR FLARE KO DRUM PUMP (API 610)							شماره صفحه: ۷ از ۱۰
	شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	پروژه BK	بسته کاری GCS	صادرکننده PEDCO	تجهیزات 120	رشته ME	نوع مدرک DT	

API Std. 610 CENTRIFUGAL PUMP DATA SHEET (SI UNIT) - P-2201 A/B (Sheet 4 of 6)

INSTRUMENTATION	SEAL SUPPORT SYSTEM MOUNTING
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 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 MOUNTED ON PUMP BASEPLATE (7.5.1.4) IDENTIFY LOCATION ON BASEPLATE INTERCONNECTING PIPING BY VENDOR MECHANICAL SEAL (6.8.1) (VTS) SEE ATTACHED ISO 21049/API 682 DATA SHEET (Note 4) 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: FITTINGS TOTAL COOLING WATER HEATING MEDIUM OTHER HEATING PIPING PIPING & APPURTENANCES MANIFOLD PIPING FOR PURCHASER CONNECTION (7.5.1.6) VENT YES DRAIN YES VALVES YES (NOTE 5) COOLING WATER YES 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									
	MECHANICAL DATA SHEETS FOR FLARE KO DRUM PUMP (API 610)							شماره صفحه: ۱۰ از ۸		
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	پروژه BK	بسته کاری GCS	صادرکننده PEDCO	تسهیلات 120	رشته ME	نوع مدرک DT	سریال 0024	نسخه D06		

API Std. 610 CENTRIFUGAL PUMP DATA SHEET (SI UNIT) - P-2201 A/B (Sheet 5 of 6)

SURFACE PREPARATION AND PAINT						TEST		
MANUFACTURER'S STANDARD						SHOP INSPECTION (8.1.1)		Yes
OTHER (SEE BELOW)						PERFORMANCE CURVE		
SPECIFICATION NO. BK-GNRAL-PEDCO-000-PI-SP-0012 "Specification for Painting"						& DATA APPROVAL PRIOR TO SHIPMENT.		YES
PUMP:						TEST WITH SUBSTITUTE SEAL (8.3.3.2.b)		NO
PUMP SURFACE PREPARATION						MATERIAL CERTIFICATION REQUIRED		YES
PRIMER						SHAFT (6.12.1.8) IMPELLER		YES
FINISH COAT						OTHER (Casing and Impeller Wear ring)		NOTE 6
BASEPLATE:						CASTING REPAIR WELD PROCEDURE APPR REQD		YES
BASEPLATE SURFACE PREPARATION						INSPECTION REQUIRED FOR CONNECTION WELDS (6.12.3.4.d)		
PRIMER:						LIQUID PENETRANT		YES
FINISH COAT						ULTRASONIC		
DETAILS OF LIFTING DEVICES						INSPECTION REQUIRED FOR CASTINGS		
SHIPMENT: (8.4.1)						LIQUID PENETRANT		MAG PARTICLE
EXPORT BOXING REQUIRED						ULTRASONIC		RADIOGRAPHY
OUTDOOR STORAGE MORE THAN 6 MONTHS						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 7) YES
						COMPONENTS TO BE TESTED		
						RESIDUAL UNBALANCE TEST (J.4.1.2)		
						NOTIFICATION OF SUCCESSFUL SHOP		
						PERFORMANCE TEST (8.1.1.c) (8.3.3.5)		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 8) 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)		
						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		
						4 HR. MECH RUN AFTER OIL TEMP STABLE (8.3.4.2.1)		WIT
						4 HR. MECH RUN TEST (8.3.4.2.2)		WIT
						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		PER EN 13445
								PER ASME SECTION VIII
						REMOVE CASING AFTER TEST		

ITEM No	PUMP	DRIVER	GEAR	BASE	TOTAL

OTHER PURCHASER REQUIREMENTS	
COORDINATION MEETING REQUIRED (10.1.3)	YES
MAXIMUM DISCHARGE PRESSURE TO INCLUDE	
MAX RELATIVE DENSITY	YES 1022 kg/m³
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	
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)	YES

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک	 شماره صفحه: ۱۰ از ۹																
شماره پیمان:	MECHANICAL DATA SHEETS FOR FLARE KO DRUM PUMP (API 610)																	
۰۵۳-۰۷۳-۹۱۸۴	<table><tr><td>پروژه</td><td>بسته کاری</td><td>صادر کننده</td><td>تجهیزات</td><td>رشته</td><td>نوع مدرک</td><td>سریال</td><td>نسخه</td></tr><tr><td>BK</td><td>GCS</td><td>PEDCO</td><td>120</td><td>ME</td><td>DT</td><td>0024</td><td>D06</td></tr></table>	پروژه	بسته کاری	صادر کننده	تجهیزات	رشته	نوع مدرک	سریال	نسخه	BK	GCS	PEDCO	120	ME	DT	0024	D06	
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BK	GCS	PEDCO	120	ME	DT	0024	D06											

API Std. 610 CENTRIFUGAL PUMP DATA SHEET (SI UNIT) - P-2201 A/B (Sheet 6 of 6)

1	Note	VERTICAL TYPE (FIG 1.1)	VS6	Rev
2	REMARKS	For P&ID refer to BK-GCS-PEDCO-120-PR-PI-0020		
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VERTICAL PUMPS

PUMP THRUST:

(+) UP

(-) DOWN

STATIC THRUST

AT MIN FLOW

AT RATED FLOW

AT MAX FLOW

MAX THRUST

SOLEPLATE REQUIRED

SOLEPLATE Length x Width

SOLEPLATE THICKNESS

MOUNTING FLANGE REQUIRED

COLUMN PIPE:

DIAMETER

LENGTH

NUMBER

SPACING

GUIDE BUSHINGS:

NUMBER

LINE SHAFT BEARING SPACING

GUIDE BUSHING LUBE:

VERTICAL PUMPS (CONT'D)

LINE SHAFT:

LINE SHAFT DIAMETER

TUBE DIAMETER

LINE SHAFT COUPLING:

LINESHAFT CONNECTION

SUCTION STRAINER TYPE

LEVEL CONTROL

IMPELLER COLLETS ACCEPTABLE

HARDENED SLEEVES UNDER BEARINGS (9.3.10.5)

RESONANCE TEST

STRUCTURAL ANALYSIS (9.3.5)

DRIVER ALIGNMENT SCREWS

SUCTION CAN

SUCTION CAN

SEPARTATE MOUNTING PLATE (9.3.8.3.1)

PROVIDE SEPARATE SOLEPLATE (9.3.8.3.3)

DRAIN PIPED TO SURFACE (9.3.13.5)

BOWL HEAD CALCULATION REQUIRED

THICKNESS

LENGTH

DIAMETER

YES

YES

MATERIALS (additional)

SUCTION CAN / BARREL:

DISCHARGE HEAD :

BOWL SHAFT :

LINESHAFT :

LINESHAFT HARDFACING :

BELLMOUTH :

BOWL BEARING :

LINESHAFT BEARING :

LINESHAFT SLEEVES :

BEARING RETAINER :

SHAFT ENCLOSING TUBE :

DISCHARGE COLUMN :

PRESSURE RATING:

HEAD

COLUMN PIPE

BOWL

MAWP

HYDRO

SUMP ARRANGEMENT

SUMP DIMENSIONS :

GRADE ELEVATION

LOW LIQUID LEVEL

C.L. OF DISCHARGE

SUMP DEPTH

PUMP LENGTH

GRADE TO DISCH.

GRADE TO LOW LIQUID LVL

GRADE TO 1ST STG IMPL'R.

SUBMERGENCE REQ'D

SUMP DIAMETER

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l_1

l_2

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l_5

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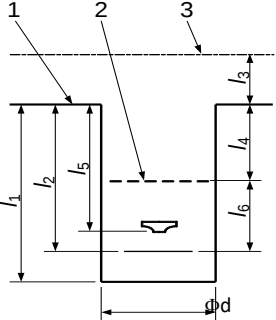
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 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک																																
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API Std. 610 CENTRIFUGAL PUMP DATA SHEET (SI UNIT) - P-2201 A/B (Sheet 6 of 6)																																	
PRESSURE VESSEL DESIGN CODE REFERENCES																																	
THESE REFERENCES MUST BE LISTED BY THE MANUFACTURER CASTING FACTORS USED IN DESIGN (TABLE 3) SOURCE OF MATERIAL PROPERTIES																																	
WELDING AND REPAIRS																																	
THESE REFERENCES MUST BE LISTED BY THE PURCHASER. (DEFAULT TO TABLE 11 IF NO PURCHASER PREFERENCE IS STATED) ALTERNATE WELDING CODES AND STANDARDS WELDING REQUIREMENT (APPLICABLE CODE OR STANDARD) WELDER/OPERATOR QUALIFICATION WELDING PROCEDURE QUALIFICATION NON-PRESSURE RETAINING STRUCTURAL WELDING SUCH AS BASEPLATES OR SUPPORTS MAGNETIC PARTICLE OR LIQUID PENETRANT EXAMINATION OF PLATE EDGES POSTWELD HEAT TREATMENT POSTWELD HEAT TREATMENT OF CASING FABRICATION WELDS																																	
MATERIAL INSPECTION																																	
THESE REFERENCES MUST BE LISTED BY THE PURCHASER ALTERNATIVE MATERIAL INSPECTIONS AND ACCEPTANCE CRITERIA (SEE TABLE 15) (8.2.2.5)																																	
DEFAULT TO TABLE 14 YES																																	
<table><thead><tr><th>TYPE OF INSPECTION</th><th>METHOD</th><th>FOR FABRICATIONS</th><th>FOR CASTINGS</th></tr></thead><tbody><tr><td>RADIOGRAPHY</td><td></td><td></td><td></td></tr><tr><td>ULTRASONIC INSPECTION</td><td></td><td></td><td></td></tr><tr><td>MAGNETIC PARTICLE INSPECTION</td><td></td><td></td><td></td></tr><tr><td>LIQUID PENETRANT INSPECTION</td><td></td><td></td><td></td></tr><tr><td>VISUAL INSPECTION (all surfaces)</td><td></td><td></td><td></td></tr></tbody></table>										TYPE OF INSPECTION	METHOD	FOR FABRICATIONS	FOR CASTINGS	RADIOGRAPHY				ULTRASONIC INSPECTION				MAGNETIC PARTICLE INSPECTION				LIQUID PENETRANT INSPECTION				VISUAL INSPECTION (all surfaces)			
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