
 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض							
شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴	MECHANICAL DATA SHEETS FOR FIRE WATER MAIN PUMPS-ELECTRICAL MOTOR DRIVEN							شماره صفحه: ۱ از ۹
	نسخه	سریال	نوع مدرک	رشته	تجهیزات	صادر کننده	بسته کاری	
	D06	0029	DT	ME	120	PEDCO	GCS	
	BK							

طرح نگهداشت و افزایش تولید ۲۷ مخزن

MECHANICAL DATA SHEETS FOR FIRE WATER MAIN PUMPS - ELECT. MOTOR DRIVEN نگهداشت و افزایش تولید میدان نفتی بینک

D06	JUL. 2023	AFC	H. Adineh	M. Fakharian	A.M.Mohseni	
D05	FEB. 2023	IFA	H. Adineh	M. Fakharian	M. Mehrshad	
D04	DEC. 2022	IFA	H. Adineh	M. Fakharian	M. Mehrshad	
D03	OCT. 2022	IFA	H. Adineh	M. Fakharian	M. Mehrshad	
D02	AUG. 2022	IFA	H. Adineh	M. Fakharian	M. Mehrshad	
D01	MAY. 2022	IFA	H. Adineh	M. Fakharian	M. Mehrshad	
D00	FEB. 2022	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-708860

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:

۰۵۳-۰۷۳-۹۱۸۴

MECHANICAL DATA SHEETS FOR FIRE WATER MAIN PUMPS-ELECTRICAL MOTOR DRIVEN



نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادر کننده	پسته کاری	پروژه
D06	0029	DT	ME	120	PEDCO	GCS	BK


شماره صفحه: ۲ از ۹

REVISION RECORD SHEET

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1	x	x	x	x	x	x	x
2	x	x	x	x	x	x	x
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 <p>NISOC</p>	<p align="center">نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض</p> <p align="center">احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک</p>																															
شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴	<table border="1"> <tr> <th colspan="8">MECHANICAL DATA SHEETS FOR FIRE WATER MAIN PUMPS-ELECTRICAL MOTOR DRIVEN</th> </tr> <tr> <th>پروژه</th> <th>بسته کاری</th> <th>صادر کننده</th> <th>تسهیلات</th> <th>رشته</th> <th>نوع مدرک</th> <th>سریال</th> <th>نسخه</th> </tr> <tr> <td>BK</td> <td>GCS</td> <td>PEDCO</td> <td>120</td> <td>ME</td> <td>DT</td> <td>0029</td> <td>D06</td> </tr> </table>							MECHANICAL DATA SHEETS FOR FIRE WATER MAIN PUMPS-ELECTRICAL MOTOR DRIVEN								پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	BK	GCS	PEDCO	120	ME	DT	0029	D06	شماره صفحه: ۳ از ۹
MECHANICAL DATA SHEETS FOR FIRE WATER MAIN PUMPS-ELECTRICAL MOTOR DRIVEN																																
پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه																									
BK	GCS	PEDCO	120	ME	DT	0029	D06																									
<p align="center">GENERAL NOTES</p>																																
<ol style="list-style-type: none"> 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-0009. with his proposal. Vendor shall submit ITP (Inspection & Testing Plan) with his proposal. 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-GNRL-PEDCO-000-IN-SP-0004. shall be followed. Instead of mechanical seal, vendor shall advise the suitable Packing specification. 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-16.1. Pump drain shall be terminated at skid edge with flange connection and valved. Vendor to indicate which minimum flow pumps can achieve. Nozzle loads shall be 2 times the loads shown in API 610 11th Edition. Electrical motor shall be rated according to project site condition; "Process Basis of Design; BK-GNRL-PEDCO-000-PR-DB-0001". The Suction line size is 12" and discharge line is 10" . Welding repair procedures shall be submitted for approval. Air release valve to be considered by vendor. As the pump jobsite environmental condition is fummy and dusty, any required protection for pumps, panels and electrical parts (in accordance with IPS-E-EL-100) in this regard shall be considered by pump manufacturer. Ultrasonic Test shall be performed for forged shaft. Couplings shall be dry, flexible and spacer type. For electrical motor descriptions, refer to 'Specification For MV Induction Motors' Doc. No.BK-GNRL-PEDCO-000-EL-SP-0017. There is no LCP for main electric motor. There is only LCS to stop (push button, return type) motor. Start (push button, return type) will be done from LCS, Pressure switch of water pipe & F&G system. Providing LCS without Local/Remote selector switch & with ammeter is in vendor scope of work. Pressure sensing lines are in the vendor's scope of supply. The pumps shall furnish not less than 150% of rated capacity at not less than 65% of rated head. Design pressure is 15.4 barg also as per NFPA 20 standard the hydrotest pressure shall not be less than 17.24 barg. Estimated BHP at rated capacity is 199.2 kW by considering 65% efficiency. Range of ambient temperature (min. / max.): 5 / 50 °c , Maximum temperature of metal surface exposed to the sun (°C): 85 °c . Vendor shall consider all of the derating factors for electrical motor power such as API factor, temperature, elevation and coupling factor so that shall not be less than maximum demand power. Also the diesel engine continuous rating available at the coupling, after de-rating required for the type of service, ambient temperature, fuel quality, Altitude, shall exceed the maximum power demand at 100% speed by not less than 10%. The motor service factor: 1 (shall be followed by vendor) 																																



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شماره صفحه: ۴ از ۹

شماره پیمان:
۰۵۳-۰۷۳-۹۱۸۴

MECHANICAL DATA SHEETS FOR FIRE WATER MAIN PUMPS-ELECTRICAL MOTOR DRIVEN

پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه
BK	GCS	PEDCO	120	ME	DT	0029	D06

CENTRIFUGAL PUMP DATA SHEET (SI UNIT) - P-2301 A (Sheet 1 of 6)

CLIENT: National Iranian South Oil Company (NISOC)

PROJECT TITLE: BINAK Gas Compressor Station

JOB NUMBER:

EQUIPMENT NUMBER: P-2301 A

EQUIPMENT SERVICE: Fire Water Main Pumps - Electrical Motor Driven

SERIAL NUMBER:

REQ. / SPEC NO. : BK-GCS-PEDCO-120-ME-SP-0005.

PURCH ORDER NO.

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contain calculated values based on input data; do not change.



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



When you have completed the DS, highlight the whole page format cells pattern none
Delete these notes on completion

COMMENTS:

	DATA SHEETS			
	ITEM No.	ATT	ITEM No.	ATT
PUMP	P-2301 A	YES		
MOTOR				
GEAR				
TURBINE				

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شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴	MECHANICAL DATA SHEETS FOR FIRE WATER MAIN PUMPS-ELECTRICAL MOTOR DRIVEN							شماره صفحه: ۵ از ۹																					
	پروژه	بسته کاری	صادرکننده	تهیهات	رشته	نوع مدرک	سریال		نسخه																				
	BK	GCS	PEDCO	120	ME	DT	0029	D06																					
CENTRIFUGAL PUMP DATA SHEET (SI UNIT) - P-2301 A (Sheet 2 of 6)																													
APPLICABLE TO: PROPOSAL				APPLICABLE NTL/INTNL STANDARD: NFPA20 (2019) & IPS-M-PM-125, IPS-E-EL-100 (1)																									
FOR NISOC				UNIT																									
SITE BINAK Gas Compressor Station				SERVICE Fire Water Main Pumps - Electrical Motor Driven																									
NO. REQ 1 PUMP SIZE				TYPE No. STAGES																									
MANUFACTURER				MODEL BB1 (V.T.C) SERIAL NO.																									
LIQUID CHARACTERISTICS																													
	Units	Maximum	Minimum	Note	SERVICE : INTERMITTENT																								
LIQUID TYPE OR NAME :	Water			Max & min	• IF INTERMITTENT NO. OF STARTS :																								
VAPOR PRESSURE :	bara	0.0087	0.1219	values refer	PUMPS OPERATE IN:																								
DENSITY :	kg/m³	997		only to the	CORROSION DUE TO : (6.12.1.9)																								
SPECIFIC HEAT :	kJ/kgC	4.186		property	EROSION DUE TO : (6.12.1.9)																								
VISCOSITY :	cP	1		listed	H2S CONCENTRATION (ppm) : (6.12.1.12) N.A.																								
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	50	33		5																								
FLOW :	m³/hr		454.2																										
DISCHARGE PRESSURE : (6.3.2)	barg		10.4																										
SUCTION PRESSURE :	barg	0.83	0.81		0.08																								
DIFFERENTIAL PRESSURE :	bar		10.3																										
DIFFERENTIAL HEAD :	m		105.0																										
NPSH _d :	m		8.8																										
HYDRAULIC POWER: (Note 23)	KW		129.50																										
SITE AND UTILITY DATA																													
LOCATION: OUTDOOR UNHEATED UNDER SUNSHADE MOUNTED AT : TROPICALISATION REQ'D ELECTRIC AREA CLASSIFICATION: (6.1.22) ZONE SAFE GROUP TEMP CLASS SITE DATA : ELEVATION (MSL) : 12.5 m BAROMETER : 990.77 mBar RANGE OF DESIGN TEMPS: MIN / MAX 5 85 °C RELATIVE HUMIDITY: MIN / MAX 0 100 % (@ 25.6 °C) UNUSUAL CONDITIONS: NA UTILITY CONDITIONS : ELECTRICITY : DRIVERS HEATING CONTROL SHUTDOWN VOLTAGE 3300 PHASE 3 HERTZ 50					COOLING WATER : <table><tr><td></td><td>RETURN</td><td>DESIGN</td></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><tr><td></td><td>DRIVERS</td><td>HEATING</td></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.		
	RETURN	DESIGN																											
TEMP																													
PRESS.																													
SOURCE																													
	DRIVERS	HEATING																											
TEMP																													
PRESS.																													
PERFORMANCE					DRIVER (7.1.5)																								
PROPOSAL CURVE NO. RPM As Tested Curve No. IMPELLER DIA.: RATED MAX. MIN. mm RATED POWER Kw EFFICIENCY (%) RATED CURVE BEP FLOW (at rated impeller dia) m³/hr MIN FLOW : kJ/Nm³ m³/hr PREFERRED OPERATING REGION (6.1.11) to m³/hr ALLOWABLE OPERATING REGION to m³/hr MAX HEAD @ RATED IMPELLER m MAX POWER @ RATED IMPELLER kW NPSH3 AT RATED FLOW : m CL PUMP TO U/S BASEPLATE m NPSH MARGIN AT RATED FLOW : m SPECIFIC SPEED (6.1.9) SUCTION SPECIFIC SPEED LIMIT SUCTION SPECIFIC SPEED MAX. ALLOW. SOUND PRESS. LEVEL REQ'D (6.1.14) 85 (dBA) @ 1 m EST MAX SOUND PRESS. LEVEL (dBA) MAX. SOUND POWER LEVEL REQ'D (6.1.14) EST MAX SOUND POWER LEVEL					Driver Type INDUCTION MOTOR GEAR NO VARIABLE SPEED REQUIRED NO SOURCE OF VARIABLE SPEED OTHER MANUFACTURER NAMEPLATE POWER @ Site Condition KW Nominal RPM RATED LOAD RPM FRAME OR MODEL ORIENTATION HORIZONTAL LUBE BEARING TYPE: RADIAL / THRUST / STARTING METHOD D.O.L/Open Discharge Valve SEE DRIVER DATA SHEET Note 1 Max Voltage Variation ±10% Max Frequency Variation ±5% Max Voltage and Frequency Variation together ±10% RTD / Type YES / PT100 (According to IPS-M-EL-132)																								

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شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴	MECHANICAL DATA SHEETS FOR FIRE WATER MAIN PUMPS-ELECTRICAL MOTOR DRIVEN							شماره صفحه: ۹ از ۸
	پروژه BK	بسته کاری GCS	صادر کننده PEDCO	تجهیزات 120	رشته ME	نوع مدرک DT	سریال 0029	
CENTRIFUGAL PUMP DATA SHEET (SI UNIT) - P-2301 A (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-0006, "Specification for Painting"					& DATA APPROVAL PRIOR TO SHIPMENT. YES			
PUMP:					TEST WITH SUBSTITUTE SEAL (8.3.3.2.b) _____			
PUMP SURFACE PREPARATION _____					MATERIAL CERTIFICATION REQUIRED CASING YES			
PRIMER AS PER PROJECT PAINTING SPEC.					SHAFT YES (6.12.1.8) IMPELLER YES			
FINISH COAT AS PER PROJECT PAINTING SPEC.					OTHER YES Casing and impeller Wear ring _____			
BASEPLATE:					CASTING REPAIR WELD PROCEDURE APPR REQD YES			
BASEPLATE SURFACE PREPARATION _____					INSPECTION REQUIRED FOR CONNECTION WELDS (6.12.3.4.d) _____			
PRIMER: AS PER PROJECT PAINTING SPEC.					LIQUID PENETRANT YES MAG PARTICLE _____			
FINISH COAT AS PER PROJECT PAINTING SPEC.					ULTRASONIC _____ RADIOGRAPHY YES			
DETAILS OF LIFTING DEVICES _____					INSPECTION REQUIRED FOR CASTINGS _____			
SHIPMENT: (8.4.1) EXPORT					LIQUID PENETRANT YES MAG PARTICLE YES			
EXPORT BOXING REQUIRED YES					ULTRASONIC YES RADIOGRAPHY _____			
OUTDOOR STORAGE MORE THAN 6 MONTHS YES					HARDNESS TEST REQUIRED (8.2.2.7) _____			
SPARE ROTOR ASSEMBLY PACKAGED FOR:					ADDNL SUBSURFACE EXAMINATION (6.12.1.5) (8.2.1.3) _____			
ROTOR STORAGE ORIENTATION (9.2.8.2) _____					FOR _____			
SHIPPING & STORAGE CONTAINER FOR VERT STORAGE (9.2.8.3) _____					METHOD _____			
N ₂ PURGE (9.2.8.4) _____					PMI TESTING REQUIRED (8.2.2.8) _____			
SPARE PARTS					COMPONENTS TO BE TESTED _____			
START-UP YES					RESIDUAL UNBALANCE TEST (J.4.1.2) _____			
NORMAL MAINTENANCE YES					NOTIFICATION OF SUCCESSFUL SHOP YES			
					PERFORMANCE TEST (8.1.1.c) (8.3.3.5) YES			
ITEM No	PUMP	DRIVER	GEAR	BASE	TOTAL			
OTHER PURCHASER REQUIREMENTS					BASEPLATE TEST (7.3.21) _____			
COORDINATION MEETING REQUIRED (10.1.3) YES					HYDROSTATIC WIT			
MAXIMUM DISCHARGE PRESSURE TO INCLUDE _____					HYDROSTATIC TEST OF BOWLS & COLUMN (9.3.13.2) _____			
OPERATION TO TRIP SPEED _____					PERFORMANCE TEST WIT			
MAX DIA. IMPELLERS AND/OR NO OF STAGES YES					TEST IN COMPLIANCE WITH (8.3.3.2) NFPA 20			
CONNECTION DESIGN APPROVAL (9.2.1.4) YES					TEST DATA POINTS TO (8.3.3.3) NFPA 20			
TORSIONAL ANALYSIS / REPORT (6.9.2.10) NO					TEST TOLERANCES TO (8.3.3.4) TABLE 16			
PROGRESS REPORTS YES					NPSH (8.3.4.3.1) (8.3.4.3.4) NOTE 6 WIT			
OUTLINE OF PROC FOR OPTIONAL TESTS (10.2.5) _____					NPSH-1ST STG ONLY (8.3.4.3.2) _____			
ADDITIONAL DATA REQUIRING 20 YEARS RETENTION (8.2.1.1) YES					NPSH TESTING TO HI 1.6 OR ISO 9906 (8.3.4.3.3) _____			
LATERAL ANALYSIS REQUIRED (9.1.3.4) (9.2.4.1.3) NO					TEST NPSHA LIMITED TO 110% SITE NPSHA (8.3.3.6) _____			
MODAL ANALYSIS REQUIRED (9.3.9.2) _____					RETEST ON SEAL LEAKAGE (8.3.3.2.d) OBSERVE			
DYNAMIC BALANCE ROTOR (6.9.4.4) YES					RETEST REQUIRED AFTER FINAL HEAD ADJ (8.3.3.7.b) _____			
INSTALLATION LIST IN PROPOSAL (10.2.3.1) YES					COMPLETE UNIT TEST (8.3.4.4.1) WIT			
VFD STEADY STATE DAMPED RESPONSE ANALYSIS (6.9.2.3) NO					SOUND LEVEL TEST (8.3.4.5) WIT			
TRANSIENT TORSIONAL RESPONSE NO					CLEANLINESS PRIOR TO FINAL ASSEMBLY (8.2.2.6) OBSERVE			
BEARING LIFE CALCULATIONS REQUIRED (6.10.1.6) _____					LOCATION OF CLEANLINESS INSPECTION _____			
IGNITION HAZARD ASSMT TO EN 13463-1 (7.2.13.e) _____					NOZZLE LOAD TEST _____			
CASING RETIREMENT THICKNESS DRAWING (10.3.2.3) _____					CHECK FOR CO-PLANAR MOUNTING PAD SURFACES _____			
FLANGES RQD IN PLACE OF SKT WELD UNIONS (7.5.2.8) _____					MECHANICAL RUN TEST UNTIL OIL TEMP STABLE _____			
INCLUDE PLOTTED VIBRATION SPECTRA (6.9.3.3) _____					4 HR. MECH RUN AFTER OIL TEMP STABLE (8.3.4.2.1) WIT			
CONNECTION BOLTING (7.5.1.7) _____					4 HR. MECH RUN TEST (8.3.4.2.2) _____			
CADMIUM PLATED BOLTS PROHIBITED _____					BRG HSG RESONANCE TEST (8.3.4.7) _____			
VENDOR TO KEEP REPAIR AND HT RCDS (8.2.1.1.c) _____					STRUCTURAL RESONANCE TEST (9.3.9.2) _____			
VENDOR SUBMIT TEST PROCEDURES (8.3.1.1) YES					REMOVE / INSPECT HYDRODYNAMIC BEARINGS AFTER TEST (9.2.7.5) _____			
SUBMIT INSPECTION CHECK LIST (8.1.5) NOTE 2 YES					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 _____			

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شماره پیمان: ۰۵۳-۰۰۷۳-۹۱۸۶	MECHANICAL DATA SHEETS FOR FIRE WATER MAIN PUMPS-ELECTRICAL MOTOR DRIVEN							شماره صفحه: ۹ از ۹																									
	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال		نسخه																								
	BK	GCS	PEDCO	120	ME	DT	0029	D06																									
CENTRIFUGAL PUMP DATA SHEET (SI UNIT) - P-2301 A (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 (NOTE 13)																																	
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)																																	
DEFULT TO TABLE 14 YES																																	
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