

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک فعالیت های رو زمینی در بسته های کاری تحت الارض ساخت موقعیت چاه، تأسیسات سرچاهی، خطوط جریانی، تسهیلات برق رسانی مربوط به موقعیت W007S و توسعه چندراهه کلاستر بینک DATA SHEETS FOR ON OFF / SHUTDOWN VALVES - EXTENSION OF BINAK B/C MANIFOLD							 	
	شماره پیمان: 053 - 073 - 9184	پروژه BK	بسته کاری W007S	صادر کننده PEDCO	تسهیلات 110	رشته IN	نوع مدرک DT	سریال 0005	نسخه D03

طرح نگهداشت و افزایش تولید 27 مخزن

DATA SHEETS FOR ON OFF / SHUTDOWN VALVES - EXTENSION OF BINAK B/C MANIFOLD

نگهداشت و افزایش تولید میدان نفتی بینک

D03	AUG.2023	AFC	P.Hajisadeghi	M.Fakharian	A.M.Mohseni	
D02	AUG.2022	IFA	P.Hajisadeghi	M.Fakharian	M.Mehrshad	
D01	MAY.2022	IFA	P.Hajisadeghi	M.Fakharian	M.Mehrshad	
D00	MAR.2022	IFC	P.Hajisadeghi	M.Fakharian	M.Mehrshad	
Rev.	Date	Purpose of Issue / Status	Prepared by:	Checked by:	Approved by:	CLIENT Approval

Class: 1

CLIENT Doc. Number: F9Z-707975

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 فعالیت های رو زمینی در بسته های کاری تحت الارض ساخت موقعیت چاه، تأسیسات سرچاهی، خطوط جریانی، تسهیلات برق رسانی مربوط به موقعیت W007S و توسعه چندراهه کلاستر بینک								
	DATA SHEETS FOR ON OFF / SHUTDOWN VALVES - EXTENSION OF BINAK B/C MANIFOLD								
شماره پیمان: 053 - 073 - 9184	پروژه BK	بسته کاری W007S	صادرکننده PEDCO	تسهیلات 110	رشته IN	نوع مدرک DT	سریال 0005	نسخه D03	شماره صفحه: 12 از 10

REVISION RECORD SHEET

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2	X	X	X	X		66					
3	X	X				67					
4	X		X	X		68					
5	X	X	X	X		69					
6	X	X	X	X		70					
7	X	X	X	X		71					
8	X	X	X	X		72					
9	X	X	X	X		73					
10	X	X	X	X		74					
11						75					
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 NISOC		نگهداشت و افزایش تولید میدان نفتی بینک فعالیت های رو زمینی در بسته های کاری تحت الارض ساخت موقعیت چاه، تأسیسات سرچاهی، خطوط جریانی، تسهیلات برق رسانی مربوط به موقعیت W007S و توسعه چندراهه کلاستر بینک DATA SHEETS FOR ON OFF / SHUTDOWN VALVES - EXTENSION OF BINAK B/C MANIFOLD								
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053 - 073 - 9184		BK	W007S	PEDCO	110	IN	DT	0005	D03	

REFERENCE DOCUMENTS :

- | | |
|---|-------------------------------|
| 1. Specification for Instrumentation | BK-GNRAL-PEDCO-000-IN-SP-0001 |
| 2. Process Basis Of Design | BK-GNRAL-PEDCO-000-PR-DB-0001 |
| 3. P&ID - Extension of Binak B/C Manifold | BK-W007S-PEDCO-110-PR-PI-0001 |
| 4. Piping Material Specification | BK-SSGRL-PEDCO-110-PI-SP-0001 |
| 5. Instrument & Control System Design Criteria | BK-SSGRL-PEDCO-110-IN-DC-0002 |
| 6. Process Flow Diagram - Extension of Binak B/C Manifold | BK-W007S-PEDCO-110-PR-PF-0001 |
| 7. Specification for ON OFF / Shutdown Valves | BK-GNRAL-PEDCO-000-IN-SP-0006 |
| 8. Instrument Hook-up Diagram - Extension of Binak B/C Manifold | BK-W007S-PEDCO-110-IN-DG-0003 |

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شماره پیمان: 053 - 073 - 9184	پروژه BK	بسته کاری W007S	صادر کننده PEDCO	تسهیلات 110	رشته IN	نوع مدرک DT	سریال 0005	نسخه D03	شماره صفحه: 4 از 10

GENERAL NOTES:

1. Calculations shall be provided for each completely piped actuated valve assembly (including solenoid valve), the stroking times i.e. to close and to open.
2. The duty, failure action and stroke time shall all be approved by the Purchaser.
3. The actuator shall be designed to operate the valve through its full stroke.
4. The maximum valve stroking time to achieve the safety position shall be defined according to size of the body (5 seconds for body until 4", 1 second per inch for body greater than 4").
5. The piping indicates corrosion allowance selected as per document "PIPELINE MATERIAL SPECIFICATION, No. " BK-SSGRL-PEDCO-110-PL-SP-0001 " :
6. Hydro-test duration shall be in accordance with API 6D.
7. All ball valves shall be fitted with suitable 'end of travel' stops at the fully open and fully closed positions and a local position indicator. The design shall prevent the ingress of foreign material and corrosion products which would impair the operation of the stops. Devices capable of locking the valves in their safe position (ESDV in open or closed position) shall be provided for maintenance and shall be vendor's standard proven design.
8. Vendor shall guarantee and demonstrate the required stroking speed, during the Functional Test (FAT).
9. A manual hand valve shall be provided in pneumatic control system in order to bypass the solenoid valves. So, the valves could be open and closed using this manual valve by pressurizing and depressurizing the pneumatic line. The facilities shall be provided in order to lock and unlock this manual valve using a special key.
10. All accessories shall be mounted, together with solenoid valve, etc., on a 316SS sub-plate. Tubing shall be suitably sized TP 316L stainless steel with stainless steel double ferrule compression fittings.
11. Solenoid valve shall be selected in accordance with low power type.
12. All on/off valves shall be preferably fitted with single acting, spring return pneumatic actuators, completed with mounting kit.
13. The actuator shall be fail-safe in operation (as specified in data sheets) in loss of electrical signal or loss of air supply.
14. The spring return actuator shall be "pre stressed".
15. Pneumatic actuators will be sized on the basis of a minimum safety factor of 1.25 and a minimum air pressure of 4 Barg. The valve actuator torque shall be in excess of the required valve torque under all operating conditions.
15. The actuators shall be powered by instrument air supply. The actuators shall be sized in accordance with the maximum pressure drop specified in the data sheets and the minimum header pressure of 3 bar (g). The actuators shall be able to operate at the maximum air pressure 10 (barg) and shall be tested at 1.5 times of the maximum air supply. design pressure for Air system shall be considered 12.5 barg.
16. All actuators and accessories shall be clearly and permanently identified by nameplate. The nameplate shall be in stainless steel and affixed to the VALVE, actuator and accessories.
17. Partial Stroking test or pilot valve to be considered for 15% of valve closing stroke.
18. Disc/seat material shall be resilient to give a tight shut off feature.
19. Environmental Condition For Field Instrumentation of BINAK Complex Shall Be Considered As Per The Following:
 Temperature:
 Maximum ambient temperature: 50 (°C)
 Minimum ambient temperature: -5 (°C)
 Maximum steel surface exposed to sun: 85 (°C)
 Maximum summer dry bulb: - (°C)
 DB/RH for Summer HVAC Design: 41 °C / 61 %
 DB FOR Winter HVAC Design: 6 °C
 Relative Humidity:
 • Maximum Design relative humidity (%): 100
 • Minimum Design relative humidity (%): 0
20. In services where the differential pressure over the valve results in a temperature drop which Will cause freezing of the stuffing box and ice formation on the stem, extended bonnet shall be provided. Valve stem extension shall be detachable for easy replacements.
21. At least two stem seals shall be provided with facility for injection of secondary sealant and with stainless steel fittings.
 - Stem seal shall be replaceable while the valve is in closed operation position.
22. Valves in safety related services should have been fire tested and certification to be provided.
23. Flow direction shall be permanently and clearly indicated on the valve body.
24. External grounding shall be provided for each solenoid valve
25. Short stroke single acting pneumatic piston actuators shall preferably be used on emergency shutdown service.
26. Valve color shall be Gray as per Project Specification For Painting, Doc.No.BK-GNRL-PEDCO-000-PI-SP-0006. Actuator color shall be Red for ESD application.

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	DATA SHEETS FOR ON OFF / SHUTDOWN VALVES - EXTENSION OF BINAK B/C MANIFOLD								
شماره پیمان:	پروژه	بسته کاری	صادر کننده	تهیلات	رشته	نوع مدرک	سریال	نسخه	شماره صفحه: 7 از 10
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On-Off Valve															
TAG NO:		ESDV-1701C		P&ID NO :		BK-W007S-PEDCO-110-PR-PI-0001 (4/6)					SERVICE:		FROM W008N		
FLUID STATE:		CRUDE OIL		PHASE:		D03 LIQUID					AREA CLASSIFICATION:		Zone 2, IIB T4		
SERVICE CONDITION									UNITS	Max.	Norm.	Min.	Shut-Off		
	1	FLOW RATE							kg/h	11347.0	10288.03	3782.3447	-		
	2	INLET PRESSURE							bar(g)	-	12.78	-	-		
	3	OUTLET PRESSURE							bar(g)	-	12.78	-	-		
	4	DIFFERENTIAL PRESSURE							bar	-	-	-	93		
	5	INLET TEMPERATURE							°C	46.19	-	33.9	-		
	6	DENSITY(Mix./Gas/Liquid)							kg/m3	-	443.9/13.05/909.7	-	-		
	7	VISCOSITY (GAS/LIQ.)							CP	-	0.011/15.20	-	-		
	8	VAPOR PRESSURE Pv							bar(a)	-	-	-	-		
	CRITICAL PRESSURE							bar(g)	-	291.2	-	-			
LINE	10	PIPE LINE SIZE		IN		4"		Single Acting , Spring Return							
		PIPE LINE SIZE		OUT		4"							VTA		
	11	PIPING CLASS/PIPE LINE INSULATION				LN15/ PAINTED									
VALVE BODY & BONNET	12	TYPE		Full Bore Ball Valve/Traction Mounted/API 3000											
	13	SIZE		4"											
	14	MAX PRESS./TEMP		As per Piping Material Specification											
	15	MFR. & MODEL		VTA											
	16	BODY / BONNET MATL		API 60K (Note 3 in Below Table)											
	17	LINER MATERIAL / ID		VTA											
	18	END				4"/ API 3000		ACTUATOR (Note 25 in Previous Page)							
		CONNECTION				4"/ API 3000									
	19	FLG FACE FINISH		RTJ											
	20	END EXT./MATL.		N/A											
	21	FLOW DIRECTION		(Note 23 in Previous Page)											
	22	TYPE OF BONNET		Standard											
	23	LUBE & ISO VALVE		No											
	24	PACKING MATERIAL		PACKING TYPE		PTFE		Standard		POSITIONER					
	25	ENTRY DESIGN		Top Entry											
	26	NACE REQUIREMENTNACE (MR-0175/ISO 15156)		Yes											
27	TRIM TYPE		VTA												
28	SIZE		RATED TRAVEL		VTA		VTA		LIMIT SWITCHES						
29	CHARACTERISTICS		On/Off												
30	BALANCED / UNBALANCED		BALLANCED												
31	RATED Cv		FL		XT		VTA						VTA		VTA
32	PLUG / BALL / DISK MATERIAL		API 75K (Note 3 in Below Table)												
33	SEAT MATERIAL		PTFE												
34	SEAT TYPE		Soft Seat												
35	CAGE / GUIDE MATERIAL		VTA												
36	STEM / MATERIAL		Forged 13% chromium steel (Acc. to Reference 7 & Notes 20,21 in Previous Page)												
37	LEAKAGE CLASS		ANSI Class V1												
SOLENOID VALVE	38	TAG NO		ESOV-1701C ((Note 24 in Previous Page)							AIR SET				
	39	TYPE		3 Way											
	40	BODY MATERIAL		WEATHER IP.		AISI 316 S.S		IP-65							
	41	ELE. CERTIFICATE		ELE. CONNECTION		EEx "d", IIB T4		ISO M20 x 1.5		TEST					
	42	MANUAL RESET		Yes											
	43	POWER SUPPLY		24 VDC											
	44	PNEU. CONNECTION		1/4" NPT											
45	FUSIBLE LEAKAGE		No												
46	BLOCK RELAY		No												
47	QUICK EXHUST		Yes												
48	FILTER REGULATOR		Yes												
49	VOLUME TANK		No												
50	MECHANICAL POSITION INDICATOR		Required							OPTION					
51	MANUAL PNE. BYPASS VALVE FOR SOLENOID VALVE		Yes												
										93 PASSIVE FIRE PROTECTION					
										94 API 6FA REQUIREMENTS					
										95 SIL 3 REQUIREMENTS					
										96 PARTIAL STROKING VALVE TEST					

NOTE: VTA : VENDOR TO ADVISE

(1) PMS: Piping Material Specification (2) All material shall be suitable for minimum design metal temperature.

(3) As per Piping Material Specification , Doc No. "BK-SSGRL-PEDCO-110-PI-SP-0001", Material Class EE to be applied by vendor.

(4) Manual Reset to be considered for all Emergency Shut off solenoids as per P&ID.

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053 - 073 - 9038	BK	W007S	PEDCO	110	IN	DT	0005	D03	شماره صفحه: 8 از 10

On-Off Valve															
TAG NO:		ESDV-1701D		P&ID NO :		D03		BK-W007S-PEDCO-110-PR-PL-0001 (4/6)		SERVICE: FROM W028					
FLUID STATE:		CRUDE OIL		PHASE:		LIQUID		AREA CLASSIFICATION:			Zone 2, IIB T4				
SERVICE CONDITION								UNITS	Max Flow	Norm. Flow	Min. Flow	Shut-Off			
	1	FLOW RATE						kg/h	29036.5		18147.82225	-			
	2	INLET PRESSURE						bar(g)	-	12.78	-	-			
	3	OUTLET PRESSURE						bar(g)	-	12.78	-	-			
	4	DIFFERENTIAL PRESSURE						bar	-	-	-	93			
	5	INLET TEMPERATURE						°C	44.41	-	32.15	-			
	6	DENSITY(Mix./Gas/Liquid)						kg/m3	-	266.8/13.60/959.1	-	-			
	7	VISCOSITY (GAS/LIQ.)						CP	-	0.01/23.64	-	-			
	8	VAPOR PRESSURE Pv						bar(a)	-	-	-	-			
	CRITICAL PRESSURE						bar(g)	-	1140	-	-				
LINE	10	PIPE LINE SIZE		IN		4"			52	TYPE		Single Acting , Spring Return			
		PIPE LINE SIZE		OUT		4"			53	SIZE		VTA VTA			
	11	PIPNG CLASS/PIPE LINE INSULATION					LN15/ PAINTED		54	SPRING FAIL ACTION		Fail to Close			
VALVE BODY & BONNET	12	TYPE					Full Bore Ball Valve/Trunion Mounted/API 3000		ACTUATOR (Note 25 in Previous Page)	55	MAX ALLOWABLE PRESSURE		VTA		
	13	SIZE					4"			56	MIN REQUIRES PRESSURE		VTA		
	14	MAX PRESS./TEMP					As per Piping Material Specification			57	AVAILABLE AIR SUPPLY PRESS.		MAX/NOR/MIN: 8/7/4.5 barg (Acc. to Reference 2 & Note15 in Previous Page)		
	15	MFR. & MODEL					VTA			58	BENCH RANGE		VTA		
	16	BODY / BONNET MATL					API 60K (Note 3 in Below Table)			59	TRAVELING TIME		5 Sec. (Note 4 in Previous Page)		
	17	LINER MATERIAL / ID					VTA			60	FUNCTION		On/Off		
	18	END CONNECTION				4"/ API 3000		61		LOCAL POSITION INDICATOR		Required			
						4"/ API 3000		62		ACT. ORIENTATION		VTA			
	19	FLG FACE FINISH					RTJ			63	HAND WHEEL TYPE		Declutchable side mounted		
	20	END EXT./MATL.					N/A			64	ADJUSTABLE LIMIT STOP		Yes		
	21	FLOW DIRECTION					(Note 23 in Previous Page)			65	INPUT SIGNAL		24VDC		
	22	TYPE OF BONNET					Standard			66	MFR. & MODEL		VTA		
	23	LUBE & ISO VALVE					No			POSITIONER	67	TYPE		N/A	
	24	PACKING MATERIAL		PACKING TYPE		PTFE Standard		68	MFR. & MODEL		N/A				
25	ENTRY DESIGN					Top Entry		69	ON INCR SIGNAL OUTPUT INCR / DECR		N/A				
26	NACE REQUIREMENTNACE (MR-0175/ISO 15156)					Yes		70	GAUGES		N/A				
TRIM	27	TRIM TYPE					VTA		LIMIT SWITCHES	71	CAM CHARACTERISTIC		N/A		
	28	SIZE		RATED TRAVEL		VTA VTA		72		AIR CONNECTION		N/A			
	29	CHARACTERISTICS					On/Off			75	TAG NO. :		EZSC-1701D / EZSO-01701D		
	30	BALANCED / UNBALANCED					BALLANCED			76	TYPE QUANTITY		Magnetically operated "REED" contacts 2		
	31	RATED Cv		FL XT		VTA VTA VTA		77		CONTACTS / RATING		110V DC , 10A			
	32	PLUG / BALL / DISK MATERIAL					API 75K (Note 3 in Below Table)			78	ACTUATION POINT		Fully Open/Close		
	33	SEAT MATERIAL					PTFE			79	ENCLOSURE MATERIAL		Die Cast Aluminum		
	34	SEAT TYPE					Soft Seat			80	WEATHER PROTECTION		IP-65		
	35	CAGE / GUIDE MATERIAL					VTA			81	ELEC. CERTIFICATE ELEC. CONNECTION		EEx "d", IIB T4 ISO M20 × 1.5		
	36	STEM / MATERIAL					Forged, 13% chromium steel (Acc. to Reference 7 & Notes 20,21 in Previous Page)			82	MFR. & MODEL		VTA		
37	LEAKAGE CLASS					ANSI Class VI		AIR SET	83	SET PRESSURE		VTA			
SOLENOID VALVE	38	TAG NO					ESOV-1701D (Note 24 in Previous Page)		84	PNEUMATIC CONNECTION		1/4" NPT			
	39	TYPE					3 Way		85	GAUGES FILTER		Required Required			
	40	BODY MATERIAL		WEATHER IP.		AISI 316 S.S IP-65			86	MFR. & MODEL		Will Be Finalized Later			
	41	ELE. CERTIFICATE		ELE. CONNECTION		EEx "d", IIB T4 ISO M20 x 1.5			TEST	87	ANSI/FCI LEAKAGE CLASS		Required		
	42	MANUAL RESET					Yes			88	HYDRO PRESSURE		Required		
	43	POWER SUPPLY					24 VDC			89	FUNCTIONAL TEST		Required		
	44	PNEU. CONNECTION					1/4" NPT			90					
SPECIAL / ACCESS.	45	FUSIBLE LEAKAGE					No		91						
	46	BLOCK RELAY					No		92						
	47	QUICK EXHUST					Yes		OPTION	93	PASSIVE FIRE PROTECTION		No		
	48	FILTER REGULATOR					Yes			94	API 6FA REQUIREMENTS		Yes (Note 22 in Previous Page)		
	49	VOLUME TANK					No			95	SIL 3 REQUIREMENTS		Yes		
	50	MECHANICAL POSITION INDICATOR					Required			96	PARTIAL STROKING VALVE TEST		Yes		
	51	MANUAL PNE. BYPASS VALVE FOR SOLENOID VALVE					Yes								

NOTE: VTA : VENDOR TO ADVISE

(1) PMS: Piping Material Specification (2) All material shall be suitable for minimum design metal temperature.

(3) As per Piping Material Specification , Doc No. "BK-SSGRL-PEDCO-110-P1-SP-0001", Material Class EE to be applied by vendor.

(4) Manual Reset to be considered for all Emergency Shut off solenoids as per P&ID.

