

 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 CONTROL/REGULATOR 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	
شماره صفحه: 1 از 10								

طرح نگهداشت و افزایش تولید 27 مخزن

DATA SHEETS FOR CONTROL/REGULATOR VALVES - EXTENSION OF BINAK B/C MANIFOLD

نگهداشت و افزایش تولید میدان نفتی بینک

D03	OCT.2022	IFA	P.Hajisadeghi	M.Fakharian	M.Mehrshad	
D02	AUG.2022	IFA	P.Hajisadeghi	M.Fakharian	M.Mehrshad	
D01	JUN.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: 2		Client Doc. Number: F9Z-707976				
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 CONTROL/REGULATOR VALVES - EXTENSION OF BINAK B/C
MANIFOLD



شماره پیمان:

053 - 073 - 9184

نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادرکننده	بسته کاری	پروژه
D03	0006	DT	IN	110	PEDCO	W007S	BK

شماره صفحه: 2 از 10

REVISION RECORD SHEET

Page	D00	D01	D02	D03	D04	Page	D00	D01	D02	D03	D04
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2	X	X	X	X		66					
3	X	X				67					
4	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					
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63						127					
64						128					

 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 CONTROL/REGULATOR 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 0006	نسخه D03	شماره صفحه: 3 از 10

REFERENCE DOCUMENTS :

Specification For Instrumentation	BK-GNRL-PEDCO-000-IN-SP-0001
Process Basis Of Design	BK-GNRL-PEDCO-000-PR-DB-0001
P&ID - Extension of Binak B/C Manifold	BK-W007S-PEDCO-110-PR-PI-0001
Piping Material Specification	BK-SSGRL-PEDCO-110-PI-SP-0001
Instrument & Control System Design Criteria	BK-SSGRL-PEDCO-110-IN-DC-0002
Process Flow Diagram - Extension of Binak B/C Manifold	BK-W007S-PEDCO-110-PR-PF-0001
Specification for Control Valve	BK-GNRL-PEDCO-000-IN-SP-0005
Process Design Criteria	BK-GNRL-PEDCO-000-PR-DC-0001

 NISOC		نگهداشت و افزایش تولید میدان نفتی بینک فعالیت های روزمینی 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 CONTROL/REGULATOR VALVES - EXTENSION OF BINAK B/C MANIFOLD							
شماره پیمان:	پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	شماره صفحه: 4 از 10
053 - 073 - 9184	BK	W007S	PEDCO	110	IN	DT	0006	D03	

GENERAL NOTES:

- The electrical equipment shall be suitable for hazardous area Zone 2, gas group IIB, temperature class T4.
 - Flow direction shall be specified on the valve body.
 - All flanges shall be in accordance with ASME B16.5.
 - Each valve shall be furnished with name plate as per "specification for control valves" with No. "BK-GNRAL-PEDCO-000-IN-SP-0005".
 - The following items shall be considered:
 - Design standard for globe valves: IPS-M-IN-160, BS1873
 - Design standard for plug valves: IPS-M-IN-160 API 599
 - Valve bonnet and bottom flanges shall be of bolted construction with fully retained gaskets
 - Trim and seat shall be easily replaceable. seat should be damped or backed up by a seat retainer
 - Packing material / Packing construction: Teflon/Chevron type
 - Material test certificate
 - Dimensional check
 - Hydrostatic test
 - Performance and mechanical operation test
 - Testy certificate including pressure test, visual, Dimensional and nude
 - Seal leakage test
 - Casting examination for valves 6 inches and larger in class 600 and higher as per ANSI B 16.34
 - Casting quality valves shall NDT (RT tested)
 - Mill test certificate for all metallic parts
 - Screwed bolt-type limit stops, e.g. on the control valve stem, adjustable over the full length of the stroke shall be applied. the vendor shall set the limit/travel stops at the required minimum or maximum valve opening.
 - Environmental Condition For Field Instrumentation Of BINAK oilfield Shall Be Considered As Per The Following:
 - 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 % (Note */ Note**)
 - DB FOR Winter HVAC Design: 6 °C Note *

* Refer to " HVAC Design Criteria; N.I.O.C. NO.: F-1-B-422001".

** Refer to "NISOC Meteorological Studies Report".
- Relative Humidity:**
- Maximum Design relative humidity (%): 100Minimum Design relative humidity (%): 0
- Below content to be considered in process condition for all control valves:
 - H₂S Mol% = W007S ,W035 , W028 , W046S =0.0003 / W018S , W008N = 0.0004
 - CO₂ Mol%= W007S ,W035 , W028 , W046S = 0.0014 / W018S, W008N = 0.0022
 - CL- Content in formation water is 133504 ppm
 - MAX. Water CUT: ASMARI =20% , BANGESTAN =60%
 - All Control valves shall be IP 65 and weather proof.
 - Standard ISA75.01 for sizing of Control valves shall be considered by vendor.
 - In accordance to IPS-E-IN-160, Control valve body size normally shall not be less than half of normal line size.
 - 2 Nos. Eye-Bolt and 2 Nos. Jack Bolt for each valve to be supplied by vendor.
 - Quick Change Trim type control valve to be designed by vendor.
 - Main parameters such as Noise level, vibration, actuator sizing, valve construction material, CV factor, Fluid specification, ... to be specified as per standard by vendor.
 - The stroking time shall be lower than 5 second for valves up to 4" and 1 second per inch diameter for bigger ones. (VTC)
 - Actuators shall be sized for a minimum air pressure of 3 barg. The normal operating pressure is 4 barg, and the maximum operating pressure is 10 barg. The capacity of the secured instrument air buffer vessel shall be sized for a minimum instrument air supply pressure of 3 barg.

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		DATA SHEETS FOR CONTROL/REGULATOR VALVES - EXTENSION OF BINAK B/C MANIFOLD								
شماره پیمان: 053 - 073 - 9038		پرژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	شماره صفحه: 5 از 10
		BK	W007S	PEDCO	110	IN	DT	0006	D03	

Control Valve										D03	
GENERAL	1	Tag No.				FCV-1701A					
	2	Service				FROM W018S					
	3	Line No.		P&ID No.		CRD-110-171A-FN05-4"-PT		BK-W007S-PEDCO-110-PR-PI-0001-D02 (3 of 6)			
	4	Area Classification				Zone 2, IIB, T4					
	5	Ambient Temperature		°C	Min.	Max.	-5		50		
	6	Available Air Supply Pressure		barg	Min.	Max.	3		8		
	7	Nace Requirement:				Required					
PIPE & LINE	8	Pipe Class		Pipe Sch.		FN05		SCH. 80			
	9	Pipe Line Insulation Line Size		Pipe Material		PT / 4"		API 5L GR.B, SMLS, BE, ASME, B36.10M			
PROCESS CONDITIONS	10	Fluid				Crude oil					
	11	State				mixed / 2 phase					
	12	Valve Design Pressure(barg)/ Actuator Shut Off Pressure DP				93/93					
	13			Units	Max	Norm.	Min.				
	14	Flow Rate(vapor/liquid)		kg/h	195.88/12285.84	178.076/11168.95	59.35/3722.98				
	15	Inlet Pressure		bar-g	12.78	12.78	12.78				
	16	Pressure Drop		bar	1.5						
	17	Inlet Temperature(max)		°C	36.31						
	18	Molecular Weight(MIX)		77.41							
	19	Liquid Specific Gravity (G1) / Gas Specific Gravity		0.908/0.8							
	20	Compressibility Factor(Z)(vapour)		0.94							
	21	Viscosity (vapour/oil/water)		cP	0.011/8.89/0.69						
	22	Specific Heats Ratio(Cp/Cv) (vapour/liquid)		1.27/1.13							
	CALCULATED RESULTS	23	Overall Vapour Pressure		bar-g	1.51					
24		Critical Pressure (liquid)		bar-g	291.2						
25		Flow Coefficient Cv (max-case)		-							
26		Travel (max-case)		%	20.32 (VTC)						
BODY AND TRIM(Note 6)	27	Body size		(NOTE 4)-(VTA)							
	28	Rated Cv									
	29	End conn. & Rating IN/OUT		RF Flange # 600 ASME B16.5 (VTC)							
	30	Leakage class		IV							
	31	Body/Bonnet Material		ASTM A216 GR. WCB							
	32	Body/Bonnet Type		GLOBE / Standard Bolted Flange Bonnet							
	33	Flow Direction		FLOW TEND TO OPEN(VTC)							
	34	Packing Material		P.T.F.E.							
	35	Trim Type		SINGLE SEATED/CAGE							
	36	Characteristic		EQUAL PERCENTAGE (VTC)							
	37	Guiding		(NOTE 4)							
	38	Rated Travel		(NOTE 4)							
	39	Plug/Disk Material		SS316							
	40	Seat Material		SS316							
	41	Cage/Guid Material		SS316							
	42	Stem Material		SS316							
	43	Trim Material		SS316							
	44	MFR	Model	(NOTE 4)		(NOTE 4)					
	ACTUATOR	45	Size	Eff.Area	(NOTE 4)	(NOTE 4)					
		46	Air Failure	Handwheel	FAIL CLOSE	TOP MOUNTED					
47		Air Action	Orientation	AIR TO OPEN	VERT. UP						
48		Actuator Type		spring return and diaphragm type							
49		AIR Press.	Mini/Max/Des.	(Barg)	4 (Note3)	7.5	8.5				
50		MFR	Model	(NOTE 4)		(NOTE 4)					
PURCHASE	Manufacturer	(Note 4)									
		Model	(Note 4)								
	POSITIONER (Note 5)		51	Type	Electro-Pneumatic Smart						
		52	Input Signal	4-20 mA-HART Smart							
		53	Power Supply	24 VDC loop powered							
		54	Electrical Connection	ISO M20x 1.5							
		55	Increase/Decrease Air	Increase to Open(VTC)							
		56	Lock Last Position	Failure Position/Close							
		57	Output Signal	3-15 Psi							
		58	I.P./Ex.Protect.	Gauge	65 / EExia	Yes					
		59	MFR/Model	LCD requirement	(NOTE 4)					Yes	
		60	Type	Qty.	N/A		N/A				
		61	MFR	Model	N/A		N/A				
		62	I.P.	Ex.Protect.	N/A		N/A				
63	MFR	Model	N/A		N/A						
SOLENOID VALVE	64	Type	Qty.	N/A		N/A					
	65	Power Supply	N/A								
	66	Contacts / Rating	N/A								
	67	Switching Position	N/A								
	68	I.P.	Ex.Protect.	N/A		N/A					
	69	MFR	Model	N/A		N/A					
SWITCHES	70	Type	Qty.	N/A		N/A					
	71	Power Supply	N/A								
	72	Contacts / Rating	N/A								
	73	Switching Position	N/A								
	74	I.P.	Ex.Protect.	N/A		N/A					
	75	MFR	Model	N/A		N/A					
AIR SET	76	Set Pressure	Yes (NOTE 4)								
	77	Filter	Gauge	Yes	Yes						
	78	Pnumatic Conn.	1/4" NPTF								
	79	MFR	Model	(NOTE 4)		(NOTE 4)					
	80	Hydro. Pressure	API 598								
	81	Leakage Class	Certificate Required								
TESTS	82	Performance Test	Required								
	83	Internal Tubing	Required(with Double Ferrule Compression conn.)								
	84	Tube Material	316 S.S.L								
	85	Cable Gland	M20, Nickel plated brass								
	86	Cable Entry	M20 x 1.5								
	87	Options									

NOTES:

- All materials shall be in accordance with 'Piping Material Specification' , "Document No.: BK-SSGRL-PEDCO-110-PI-SP-0001".
- VTA: Vendor To Advise VTC: Vendor To Confirm
- Minimum of instrument air pressure supply is 4 barg but 3 barg as minimum working pressure, shall be considered for actuator sizing .
- Shall be stated by vendor at quotaion stage. Control valve size shall not be less than half of normal line size.
- Bypass line and isolating valve shall be considered for valve positioner by vendor.
- Trim part material shall be considered as minimum 316SS and hard face or any equal hard steel. Hardened stainless steel or stellite facing shall be supplied for valve plugs and guides with solid stellite seat rings for Erosice or cavitation/flashing services as per Control valve specification BK- GENRL-PEDCO-000-IN-SP-0005

	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 CONTROL/REGULATOR VALVES - EXTENSION OF BINAK B/C MANIFOLD							
	شماره پیمان:	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال
053 - 073 - 9038	BK	W007S	PEDCO	110	IN	DT	0006	D03

Control Valve										D03	
GENERAL	1	Tag No.				FCV-1701B					
	2	Service				FROM W046S					
	3	Line No.		P&ID No.		CRD-110-171B-FN05-4"-PT		BK-W007S-PEDCO-110-PR-PI-0001-D02 (3 of 6)			
	4	Area Classification				Zone 2, IIB,T4					
	5	Ambient Temperature		°C	Min.	Max.		-5		50	
	6	Available Air Supply Pressure		barg	Min.	Max.		3		8	
	7	Nace Requirement:				Required					
PIPE & LINE	8	Pipe Class		Pipe Sch.		FN05		SCH. 80			
	9	Pipe Line Insulation Line Size		Pipe Material		PT / 4"		API 5L GR.B, SMLS, BE, ASME, B36.10M			
PROCESS CONDITIONS	10	Fluid				Crude oil					
	11	State				mixed / 2 phase					
	12	Valve Design Pressure(barg)/ Actuator Shut Off Pressure DP				93/93					
	13					Units	Max	Norm.	Min.		
	14	Flow Rate(vapor/liquid)				kg/h	712.24/18451.85	647.492/16774.41	431.66/11182.94		
	15	Inlet Pressure				bar-g	12.78	12.78	12.78		
	16	Pressure Drop				bar	1.5				
	17	Inlet Temperature(max)				°C	31.37				
	18	Molecular Weight(MIX)				39.09					
	19	Liquid Specific Gravity (G1) / Gas Specific Gravity				0.952/0.8					
	20	Compressibility Factor(Z)(vapour)				0.94					
	21	Viscosity (vapour/oil/water)				cP	0.011/6.25/0.77				
	22	Specific Heats Ratio(Cp/Cv) (vapour/liquid)				1.276/3.66					
	CALCULATED RESULTS	23	Vapour Pressure				bar-g	2.29			
24		Critical Pressure (liquid)				bar-g	1140				
25		Flow Coefficient Cv (max-case)				40.052 (VTC)					
26		Travel (max-case)				%	BY VENDOR				
BODY AND TRIM(Note 6)	27	Body size		(NOTE 4)-(VTA)		POSITIONER (Note 5)	51	Type	Electro-Pneumatic Smart		
	28	Rated Cv					52	Input Signal	4-20 mA-HART Smart		
	29	End conn. & Rating IN/OUT		RF Flange # 600 ASME B16.5 (VTC)			53	Power Supply	24 VDC loop powered		
	30	Leakage class		IV			54	Electrical Connection	ISO M20x 1.5		
	31	Body/Bonnet Material		ASTM A216 GR. WCB			55	Increase/Decrease Air	Increase to Open(VTC)		
	32	Body/Bonnet Type		GLOBE / Standard Bolted Flange Bonnet		56	Lock Last Position	Failure Position/Close			
	33	Flow Direction		FLOW TEND TO OPEN(VTC)		57	Output Signal	3-15 Psi			
	34	Packing Material		P.T.F.E.		58	I.P./Ex.Protect.	Gauge	65 / EExia	Yes	
	35	Trim Type		SINGLE SEATED/CAGE		59	MFR/Model	LCD requirement	(NOTE 4)	Yes	
	36	Characteristic		EQUAL PERCENTAGE (VTC)		SOLENOID VALVE	60	Type	Qty.	N/A	
	37	Guiding		(NOTE 4)			61	MFR	Model	N/A	
	38	Rated Travel		(NOTE 4)			62	I.P.	Ex.Protect.	N/A	
	39	Plug/Disk Material		SS316			63	MFR	Model	N/A	
	40	Seat Material		SS316		SWITCHES	64	Type	Qty.	N/A	
	41	Cage/Guid Material		SS316			65	Power Supply	N/A		
	42	Stem Material		SS316			66	Contacts / Rating	N/A		
	43	Trim Material		SS316			67	Switching Position	N/A		
	44	MFR	Model	(NOTE 4)	(NOTE 4)		68	I.P.	Ex.Protect.	N/A	
	ACTUTOR	45	Size	Eff.Area	(NOTE 4)	(NOTE 4)	AIR SET	69	MFR	Model	N/A
		46	Air Failure	Handwheel	FAIL CLOSE	TOP MOUNTED		70	Set Pressure	Yes (NOTE 4)	
47		Air Action	Orientation	AIR TO OPEN	VERT. UP	71		Filter	Gauge	Yes	
48		Actuator Type	spring return and diaphragm type			72		Pnumatic Conn.	1/4 " NPTF		
49		AIR Press.	Min/ Max/ Des.	(Barg)	4 (Note3)	7.5	8.5	73	MFR	Model	(NOTE 4)
PURCHASE	50	MFR	Model	(NOTE 4)	(NOTE 4)	TESTS	74	Hydro. Pressure	API 598		
	75	Leakage Class	Certificate Required				76	Performance Test	Required		
	OPTIONS	77	Internal Tubing	Required(with Double Ferrule Compression conn.)			78	Tube Material	316 S.S L		
		79	Cable Gland	M20, Nickel plated brass			80	Cable Entry	M20 x 1.5		

NOTES:

- All materials shall be in accordance with 'Piping Material Specification' , "Document No.: BK-SSGRL-PEDCO-110-PI-SP-0001".
- VTA: Vendor To Advise VTC: Vendor To Confirm
- Minimum of instrument air pressure supply is 4 barg but 3 barg as minimum working pressure, shall be considered for actuator sizing .
- Shall be stated by vendor at quotation stage. Control valve size shall not be less than half of normal line size.
- Bypass line and isolating valve shall be considered for valve positioner by vendor.
- Trim part material shall be considered as minimum 316SS and hard face or any equal hard steel. Hardened stainless steel or stellite facing shall be supplied for valve plugs and guides with solid stellite seat rings for Erosive or cavitation/flashing services as per Control valve specification BK- GENRL-PEDCO-000-IN-SP-0005

	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 CONTROL/REGULATOR VALVES - EXTENSION OF BINAK B/C MANIFOLD							
	شماره پیمان:	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال
053 - 073 - 9038	BK	W007S	PEDCO	110	IN	DT	0006	D03

Control Valve										D03	
GENERAL	1	Tag No.				FCV-1701C					
	2	Service				FROM W008N					
	3	Line No.		P&ID No.		CRD-110-171C-FN05-4"-PT		BK-W007S-PEDCO-110-PR-PI-0001-D02 (4 of 6)			
	4	Area Classification				Zone 2, IIB,T4					
	5	Ambient Temperature		°C	Min.	Max.	-5		50		
	6	Available Air Supply Pressure		barg	Min.	Max.	3		8		
	7	Nace Requirement:				Required					
PIPE & LINE	8	Pipe Class		Pipe Sch.		FN05		SCH. 80			
	9	Pipe Line Insulation Line Size		Pipe Material		PT / 4"		API 5L GR.B, SMLS, BE, ASME, B36.10M			
PROCESS CONDITIONS	10	Fluid				Crude oil					
	11	State				mixed / 2 phase					
	12	Valve Design Pressure(barg)/ Actuator Shut Off Pressure DP				93/93					
	13					Units	Max	Norm.	Min.		
	14	Flow Rate(vapor/liquid)				kg/h	218.94/12262.78	199.04/11147.99	66.34/3715.99		
	15	Inlet Pressure				bar-g	12.78	12.78	12.78		
	16	Pressure Drop				bar	1.5				
	17	Inlet Temperature(max)				°C	46.19				
	18	Molecular Weight(MIX)					77.41				
	19	Liquid Specific Gravity (GI) / Gas Specific Gravity					0.901/0.8				
	20	Compressibility Factor(Z)(vapour)				-	0.94				
	21	Viscosity (vapour/oil/water)				cP	0.011/7.60/0.58				
	22	Specific Heats Ratio(Cp/Cv) (vapour/liquid)				-	1.25/1.17				
	CALCULATED RESULTS	23	Vapour Pressure				bar-g	1.33			
24		Critical Pressure (liquid)				bar-g	291.2				
25		Flow Coefficient Cv (max-case)				-	21.03 (VTC)				
26		Travel (max-case)				%	BY VENDOR				
27		Sound Pressure Level				dBA	Max. 85 dBA(VTC)	Max. 85 dBA(VTC)	Max. 85 dBA(VTC)		
BODY AND TRIM(Note 6)		28	Body size		(NOTE 4)-(VTA)		POSITIONER (Note 5)	51	Type	Electro-Pneumatic Smart	
	29	Rated Cv				52		Input Signal	4-20 mA-HART Smart		
	30	End conn. & Rating IN/OUT		RF Flange # 600 ASME B16.5 (VTC)		53		Power Supply	24 VDC loop powered		
	31	Leakage class		IV		54		Electrical Connection	ISO M20x 1.5		
	32	Body/Bonnet Material		ASTM A216 GR. WCB		55		FlowDirection	Flow to Open(VTC)		
	33	Body/Bonnet Type		GLOBE / Standard Bolted Flange Bonnet		56		Lock Last Position	Failure Position/Close		
	34	Flow Direction		FLOW TEND TO OPEN(VTC)		57	Output Signal	3-15 Psi			
	35	Packing Material		P.T.F.E.		58	I.P./Ex.Protect.	Gauge	65 / EExia	Yes	
	36	Trim Type		SINGLE SEATED/CAGE		59	MFR/Model	LCD requirement	(NOTE 4)	Yes	
	37	Characteristic		EQUAL PERCENTAGE (VTC)		SOLENOID VALVE	60	Type	Qty.	N/A	
	38	Guiding		(NOTE 4)			61	MFR	Model	N/A	
	39	Rated Travel		(NOTE 4)			62	I.P.	Ex.Protect.	N/A	
	40	Plug/Disk Material		SS316		SWITCHES	63	MFR	Model	N/A	
	41	Seat Material		SS316			64	Type	Qty.	N/A	
	42	Cage/Guid Material		SS316			65	Power Supply	N/A		
	43	Stem Material		SS316			66	Contacts / Rating	N/A		
	44	Trim Material		SS316			67	Switching Position	N/A		
	ACTUTOR	45	MFR		Model	(NOTE 4)	(NOTE 4)	AIR SET	68	I.P.	Ex.Protect.
46		Size		Eff.Area	(NOTE 4)	(NOTE 4)	69		MFR	Model	N/A
47		Air Failure		Handwheel	FAIL CLOSE	TOP MOUNTED	70		Set Pressure	Yes (NOTE 4)	
48		Air Action		Orientation	AIR TO OPEN	VERT. UP	71	Filter	Gauge	Yes	
49		Actuator Type		spring return and diaphragm type			72	Pnumatic Conn.	1/4 " NPTF		
50		AIR Press.		Min/ Max/ D (Barg)	4 (Note3)	7.5	8.5	73	MFR	Model	(NOTE 4) (NOTE 4)
PURCHASE	51	MFR		Model	(NOTE 4)	(NOTE 4)	TESTS	74	Hydro. Pressure	API 598	
	52	Leakage Class						75	Leakage Class	Certificate Required	
	53	Performance Test						76	Performance Test	Required	
	54	Internal Tubing						77	Internal Tubing	Required(with Double Ferrule Compression conn.)	
OPTIONS	55	Tube Material					78	Tube Material	316 S.S L		
	56	Cable Gland					79	Cable Gland	M20, Nickel plated brass		
	57	Cable Entry					80	Cable Entry	M20 x 1.5		

NOTES:

- All materials shall be in accordance with 'Piping Material Specification' ,Document No.: BK-SSGRL-PEDCO-110-PI-SP-0001".
- VTA: Vendor To Advise VTC: Vendor To Confirm
- Minimum of instrument air pressure supply is 4 barg but 3 barg as minimum working pressure, shall be considered for actuator sizing .
- Shall be stated by vendor at quotation stage. Control valve size shall not be less than half of normal line size.
- Bypass line and isolating valve shall be considered for valve positioner by vendor.
- Trim part material shall be considered as minimum 316SS and hard face or any equal hard steel. Hardened stainless steel or stellite facing shall be supplied for valve plugs and guides with solid stellite seat rings for Erosion or cavitation/flashing services as per Control valve specification BK- GENRL-PEDCO-000-IN-SP-0005

	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 CONTROL/REGULATOR VALVES - EXTENSION OF BINAK B/C MANIFOLD							
	شماره پیمان:	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال
053 - 073 - 9038	BK	W007S	PEDCO	110	IN	DT	0006	D03

Control Valve										D03	
GENERAL	1	Tag No.				FCV-1701D					
	2	Service				FROM W028					
	3	Line No.		P&ID No.		CRD-110-171D-FN05-4"-PT		BK-W007S-PEDCO-110-PR-PI-0001-D02 (4 of 6)			
	4	Area Classification				Zone 2, IIB,T4					
	5	Ambient Temperature		°C	Min.	Max.		-5		50	
	6	Available Air Supply Pressure		barg	Min.	Max.		3		8	
	7	Nace Requirement:				Required					
PIPE & LINE	8	Pipe Class		Pipe Sch.		FN05		SCH. 80			
	9	Pipe Line Insulation Line Size		Pipe Material		PT / 4"		API 5L GR.B, SMLS, BE, ASME, B36.10M			
PROCESS CONDITIONS	10	Fluid				Crude oil					
	11	State				mixed / 2 phase					
	12	Valve Design Pressure(barg)/ Actuator Shut Off Pressure DP				93/93					
	13					Units	Max	Norm.	Min.		
	14	Flow Rate(vapor/liquid)				kg/h	1316.60/30623.54	1196.917/27839.59	718.15/16703.75		
	15	Inlet Pressure				bar-g	12.78	12.78	12.78		
	16	Pressure Drop				bar	1.5				
	17	Inlet Temperature(max)				°C	44.41				
	18	Molecular Weight(MIX)				39.09					
	19	Liquid Specific Gravity (G1) / Gas Specific Gravity				0.951/0.8					
	20	Compressibility Factor(Z)(vapour)				0.94					
	21	Viscosity (vapour/oil/water)				cP	0.012/5.39/0.60				
	22	Specific Heats Ratio(Cp/Cv) (vapour/liquid)				1.24/1.12					
	CALCULATED RESULTS	23	Vapour Pressure				bar-g	1.87			
24		Critical Pressure (liquid)				bar-g	1081				
25		Flow Coefficient Cv (max-case)				-	70.72 (VTC)				
26		Travel (max-case)				%	BY VENDOR				
27		Sound Pressure Level				dBa	Max. 85 dBA(VTC)	Max. 85 dBA(VTC)	Max. 85 dBA(VTC)		
BODY AND TRIM(Note 6)		28	Body size		(NOTE 4)-(VTA)		POSITIONER (Note 5)	51	Type	Electro-Pneumatic Smart	
	29	Rated Cv				52		Input Signal	4-20 mA-HART Smart		
	30	End conn. & Rating IN/OUT		RF Flange # 600 ASME B16.5 (VTC)		53		Power Supply	24 VDC loop powered		
	31	Leakage class		IV		54		Electrical Connection	ISO M20x 1.5		
	32	Body/Bonnet Material		ASTM A216 GR. WCB		55		FlowDirection	Flow to Open(VTC)		
	33	Body/Bonnet Type		GLOBE / Standard Bolted Flange Bonnet		56		Lock Last Position	Failure Position/Close		
	34	Flow Direction		FLOW TEND TO OPEN(VTC)		57	Output Signal	3-15 Psi			
	35	Packing Material		P.T.F.E.		58	I.P./Ex.Protect.	Gauge	65 / EEExia	Yes	
	36	Trim Type		SINGLE SEATED/CAGE		59	MFR/Model	LCD requirement	(NOTE 4)	Yes	
	37	Characteristic		EQUAL PERCENTAGE (VTC)		SOLENOID VALVE	60	Type	Qty.	N/A	
	38	Guiding		(NOTE 4)			61	MFR	Model	N/A	
	39	Rated Travel		(NOTE 4)			62	I.P.	Ex.Protect.	N/A	
	40	Plug/Disk Material		SS316		63	MFR	Model	N/A		
	41	Seat Material		SS316		SWITCHES	64	Type	Qty.	N/A	
	42	Cage/Guid Material		SS316			65	Power Supply	N/A		
	43	Stem Material		SS316			66	Contacts / Rating	N/A		
	44	Trim Material		SS316			67	Switching Position	N/A		
	ACTUTOR	45	MFR		Model	(NOTE 4)	(NOTE 4)	68	I.P.	Ex.Protect.	N/A
46		Size		Eff.Area	(NOTE 4)	(NOTE 4)	69	MFR	Model	N/A	
47		Air Failure		Handwheel	FAIL CLOSE	TOP MOUNTED	70	Set Pressure	Yes (NOTE 4)		
48		Air Action		Orientation	AIR TO OPEN	VERT. UP	71	Filter	Gauge	Yes	
49		Actuator Type		spring return and diaphragm type			72	Pnumatic Conn.	1/4 " NPTF		
50		AIR Press.		Mini/ Max/ Des.	(Barg)	4 (Note3)	7.5	8.5	73	MFR	Model
PURCHASE	51	MFR		Model	(NOTE 4)	(NOTE 4)	74	Hydro. Pressure	API 598		
	52	Leakage Class					75	Leakage Class	Certificate Required		
	53	Performance Test					76	Performance Test	Required		
	54	Internal Tubing					77	Internal Tubing	Required(with Double Ferrule Compression conn.)		
OPTIONS	55	Tube Material					78	Tube Material	316 S.S L		
	56	Cable Gland					79	Cable Gland	M20, Nickel plated brass		
57	Cable Entry					80	Cable Entry	M20 x 1.5			

NOTES:

- All materials shall be in accordance with 'Piping Material Specification' , "Document No.: BK-SSGRL-PEDCO-110-PI-SP-0001".
- VTA: Vendor To Advise VTC: Vendor To Confirm
- Minimum of instrument air pressure supply is 4 barg but 3 barg as minimum working pressure, shall be considered for actuator sizing .
- Shall be stated by vendor at quotation stage. Control valve size shall not be less than half of normal line size.
- Bypass line and isolating valve shall be considered for valve positioner by vendor.
- Trim part material shall be considered as minimum 316SS and hard face or any equal hard steel. Hardened stainless steel or stellite facing shall be supplied for valve plugs and guides with solid stellite seat rings for Erosion or cavitation/flashing services as per Control valve specification BK- GENRL-PEDCO-000-IN-SP-0005

	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 CONTROL/REGULATOR VALVES - EXTENSION OF BINAK B/C MANIFOLD							
	شماره پیمان:	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال
053 - 073 - 9038	BK	W007S	PEDCO	110	IN	DT	0006	D03

Control Valve										D03		
GENERAL	1	Tag No.				FCV-1701E						
	2	Service				FROM W035						
	3	Line No.		P&ID No.		CRD-110-171E-FN05-4"-PT		BK-W007S-PEDCO-110-PR-PI-0001-D02 (5 of 6)				
	4	Area Classification				Zone 2, IIB,T4						
	5	Ambient Temperature		°C	Min.	Max.		-5		50		
	6	Available Air Supply Pressure		barg	Min.	Max.		3		8		
	7	Nace Requirement:				Required						
PIPE & LINE	8	Pipe Class		Pipe Sch.		FN05		SCH. 80				
	9	Pipe Line Insulation Line Size		Pipe Material		PT / 4"		API 5L GR.B, SMLS, BE, ASME, B36.10M				
PROCESS CONDITIONS	10	Fluid				Crude oil						
	11	State				mixed / 2 phase						
	12	Valve Design Pressure(barg)/ Actuator Shut Off Pressure DP				93/93						
	13					Units	Max	Norm.	Min.			
	14	Flow Rate(vapor/liquid)				kg/h	1278.20/30661.96	1162.004/27874.51	697.2/16724.7			
	15	Inlet Pressure				bar-g	12.78	12.78	12.78			
	16	Pressure Drop				bar	1.5					
	17	Inlet Temperature(max)				°C	40.71					
	18	Molecular Weight(MIX)				39.09						
	19	Liquid Specific Gravity (G1) / Gas Specific Gravity				0.953/0.8						
	20	Compressibility Factor(Z)(vapour)				0.94						
	21	Viscosity (vapour/oil/water)				cP	0.012/5.60/0.64					
	22	Specific Heats Ratio(Cp/Cv) (vapour/liquid)				1.25/1.12						
	CALCULATED RESULTS	23	Vapour Pressure				bar-g	1.99				
24		Critical Pressure (liquid)				bar-g	1140					
25		Flow Coefficient Cv (max-case)				-	69.02 (VTC)					
26		Travel (max-case)				%	BY VENDOR					
BODY AND TRIM(Note 6)	27	Body size		(NOTE 4)-(VTA)		POSITIONER (Note 5)	51	Type	Electro-Pneumatic Smart			
	28	Rated Cv					52	Input Signal	4-20 mA-HART Smart			
	29	End conn. & Rating IN/OUT		RF Flange # 600 ASME B16.5 (VTC)			53	Power Supply	24 VDC loop powered			
	30	Leakage class		IV			54	Electrical Connection	ISO M20x 1.5			
	31	Body/Bonnet Material		ASTM A216 GR. WCB			55	FlowDirection	Flow to Open(VTC)			
	32	Body/Bonnet Type		GLOBE / Standard Bolted Flange Bonnet			56	Lock Last Position	Failure Position/Close			
	33	Flow Direction		FLOW TEND TO OPEN(VTC)			57	Output Signal	3-15 Psi			
	34	Packing Material		P.T.F.E.			58	I.P./Ex.Protect.	Gauge	65 / EExia	Yes	
	35	Trim Type		SINGLE SEATED/CAGE		59	MFR/Model	LCD requirement	(NOTE 4)	Yes		
	36	Characteristic		EQUAL PERCENTAGE (VTC)		SOLENOID VALVE	60	Type	Qty.	N/A	N/A	
	37	Guiding		(NOTE 4)			61	MFR	Model	N/A	N/A	
	38	Rated Travel		(NOTE 4)			62	I.P.	Ex.Protect.	N/A	N/A	
	39	Plug/Disk Material		SS316			63	MFR	Model	N/A	N/A	
	ACTUTOR	40	Seat Material		SS316		SWITCHES	64	Type	Qty.	N/A	N/A
		41	Cage/Guid Material		SS316			65	Power Supply	N/A		
		42	Stem Material		SS316			66	Contacts / Rating	N/A		
		43	Trim Material		SS316			67	Switching Position	N/A		
		44	MFR	Model	(NOTE 4)		(NOTE 4)	68	I.P.	Ex.Protect.	N/A	N/A
		45	Size	Eff.Area	(NOTE 4)		(NOTE 4)	69	MFR	Model	N/A	N/A
		46	Air Failure	Handwheel	FAIL CLOSE	TOP MOUNTED	AIR SET	70	Set Pressure	Yes (NOTE 4)		
47		Air Action	Orientation	AIR TO OPEN	VERT. UP	71		Filter	Gauge	Yes	Yes	
48		Actuator Type		spring return and diaphragm type		TESTS	72	Pnumatic Conn.	1/4 " NPTF			
49		AIR Press.	Mini/Max/Des.	(Barg)	4 (Note3)		7.5	8.5	73	MFR	Model	(NOTE 4)
50	MFR	Model	(NOTE 4)		(NOTE 4)		74	Hydro. Pressure	API 598			
PURCHASE	Manufacturer	(Note 4)		OPTIONS	75	Leakage Class	Certificate Required					
	Model	(Note 4)			76	Performance Test	Required					
	77	Internal Tubing	Required(with Double Ferrule Compression conn.)									
	78	Tube Material	316 S.S L									
79	Cable Gland	M20, Nickel plated brass		80	Cable Entry	M20 x 1.5						

NOTES:

- All materials shall be in accordance with "Piping Material Specification" ,"Document No.: BK-SSGRL-PEDCO-110-PI-SP-0001".
- VTA: Vendor To Advise VTC: Vendor To Confirm
- Minimum of instrument air pressure supply is 4 barg but 3 barg as minimum working pressure, shall be considered for actuator sizing .
- Shall be stated by vendor at quotation stage. Control valve size shall not be less than half of normal line size.
- Bypass line and isolating valve shall be considered for valve positioner by vendor.
- Trim part material shall be considered as minimum 316SS and hard face or any equal hard steel. Hardened stainless steel or stellite facing shall be supplied for valve plugs and guides with solid stellite seat rings for Erosion or cavitation/flashing services as per Control valve specification BK- GENRL-PEDCO-000-IN-SP-0005

	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 CONTROL/REGULATOR VALVES - EXTENSION OF BINAK B/C MANIFOLD									
شماره پیمان: 053 - 073 - 9038		پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	
		BK	W007S	PEDCO	110	IN	DT	0006	D03	
شماره صفحه: 10 از 10										
Control Valve										
GENERAL	1	Tag No.				FCV-1701F				
	2	Service				FROM W007S				
	3	Line No.		P&ID No.		CRD-110-171F-FN05-4"-PT		BK-W007S-PEDCO-110-PR-PI-0001-D02 (5 of 6)		
	4	Area Classification				Zone 2, IIB,T4				
	5	Ambient Temperature		°C	Min.	Max.	-5		50	
	6	Available Air Supply Pressure		barg	Min.	Max.	3		8	
	7	Nace Requirement:				Required				
PIPE & LINE	8	Pipe Class		Pipe Sch.		FN05		SCH. 80		
	9	Pipe Line Insulation Line Size		Pipe Material		PT / 4"		API 5L GR.B, SMLS, BE, ASME, B36.10M		
PROCESS CONDITIONS	10	Fluid				Crude oil				
	11	State				mixed / 2 phase				
	12	Valve Design Pressure(barg)/ Actuator Shut Off Pressure DP				93/93				
	13					Units	Max	Norm.	Min.	
	14	Flow Rate(vapor/liquid)				kg/h	515.64/12260.413	468.769/11145.83	5572.91/5572.91	
	15	Inlet Pressure				bar-g	12.78	12.78	12.78	
	16	Pressure Drop				bar	1.5			
	17	Inlet Temperature(max)				°C	41.77			
	18	Molecular Weight(MIX)					39.09			
	19	Liquid Specific Gravity (G1) / Gas Specific Gravity					0.952/0.8			
	20	Compressibility Factor(Z)(vapour)				-	0.94			
	21	Viscosity (vapour/oil/water)				cP	0.012/5.54/0.63			
	CALCULATED RESULTS	22	Specific Heats Ratio(Cp/Cv) (vapour/liquid)				-	1.25/1.12		
23		Vapour Pressure				bar-g	1.96			
24		Critical Pressure (liquid)				bar-g	1140			
25		Flow Coefficient Cv (max-case)				-	61.76 (VTC)			
26		Travel (max-case)				%	BY VENDOR			
27		Sound Pressure Level				dBA	Max. 85 dBA(VTC)	Max. 85 dBA(VTC)	Max. 85 dBA(VTC)	
BODY AND TRIM(Note 6)		28	Body size		(NOTE 4)-(VTA)		POSITIONER (Note 5)	51	Type	Electro-Pneumatic Smart
	29	Rated Cv				52		Input Signal	4-20 mA-HART Smart	
	30	End conn. & Rating IN/OUT		RF Flange # 600 ASME B16.5 (VTC)		53		Power Supply	24 VDC loop powered	
	31	Leakage class		IV		54		Electrical Connection	ISO M20x 1.5	
	32	Body/Bonnet Material		ASTM A216 GR. WCB		55		Increase/Decrease Air	Increase to Open(VTC)	
	33	Body/Bonnet Type		GLOBE / Standard Bolted Flange Bonnet		56	Lock Last Position	Failure Position/Close		
	34	Flow Direction		FLOW TEND TO OPEN(VTC)		57	Output Signal	3-15 Psi		
	35	Packing Material		P.T.F.E.		58	I.P./Ex.Protect.	Gauge 65 / EExia Yes		
	36	Trim Type		SINGLE SEATED/CAGE		59	MFR/Model	LCD requirement (NOTE 4) Yes		
	37	Characteristic		EQUAL PERCENTAGE (VTC)		SOLENOID VALVE	60	Type	Qty.	
	38	Guiding		(NOTE 4)			61	MFR	Model	
	39	Rated Travel		(NOTE 4)			62	I.P.	Ex.Protect.	
	40	Plug/Disk Material		SS316			63	MFR	Model	
	41	Seat Material		SS316		SWITCHES	64	Type	Qty.	
	42	Cage/Guid Material		SS316			65	Power Supply	N/A	
	43	Stem Material		SS316			66	Contacts / Rating	N/A	
	44	Trim Material		SS316			67	Switching Position	N/A	
	ACTUATOR	45	MFR		Model		(NOTE 4)	(NOTE 4)		
		46	Size	Eff.Area	(NOTE 4)	(NOTE 4)	AIR SET	70	Set Pressure	Yes (NOTE 4)
47		Air Failure	Handwheel	FAIL CLOSE	TOP MOUNTED	71		Filter	Gauge Yes Yes	
48		Air Action	Orientation	AIR TO OPEN	VERT. UP	72		Pnumatic Conn.	1/4 " NPTF	
49		Actuator Type	spring return and diaphragm type			TESTS	73	MFR	Model	
50		AIR Press.	Min/ Max/ Des.	(Barg)	4 (Note3)		7.5	8.5	(NOTE 4)	(NOTE 4)
51		MFR	Model		(NOTE 4)		(NOTE 4)			
PURCHASE	52	Manufacturer		(Note 4)		OPTIONS	74	Hydro. Pressure	API 598	
	53	Model		(Note 4)			75	Leakage Class	Certificate Required	
	54						76	Performance Test	Required	
	55						77	Internal Tubing	Required(with Double Ferrule Compression conn.)	
56					78	Tube Material	316 S.S L			
57					79	Cable Gland	M20, Nickel plated brass			
58					80	Cable Entry	M20 x 1.5			

NOTES:

1- All materials shall be in accordance with 'Piping Material Specification' , "Document No.: BK-SSGRL-PEDCO-110-PI-SP-0001".

2- VTA: Vendor To Advise VTC: Vendor To Confirm

3- Minimum of instrument air pressure supply is 4 barg but 3 barg as minimum working pressure, shall be considered for actuator sizing .

4- Shall be stated by vendor at quotation stage. Control valve size shall not be less than half of normal line size.

5- Bypass line and isolating valve shall be considered for valve positioner by vendor.

6- Trim part material shall be considered as minimum 316SS and hard face or any equal hard steel. Hardened stainless steel or stellite facing shall be supplied for valve plugs and guides with solid stellite seat rings for Erosion or cavitation/flashing services as per Control valve specification BK- GENRL-PEDCO-000-IN-SP-0005