

 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	صادر کننده PEDCO	تسهیلات 110	رشته IN	نوع مدرک DT	سریال 0006	نسخه D05	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

D05	DEC.2022	IFA	P.Hajisadeghi	M.Fakharian	M.Mehrshad	
D04	NOV.2022	IFA	P.Hajisadeghi	M.Fakharian	M.Mehrshad	
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 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:

053 - 073 - 9184

پروژه

بسته کاری

صادرکننده

تسهیلات

رشته

نوع مدرک

سریال

نسخه

BK

W007S

PEDCO

110

IN

DT

0006

D05

شماره صفحه: 2 از 10

REVISION RECORD SHEET

Page	D00	D01	D02	D03	D04
1	X	X	X	X	X
2	X	X	X	X	X
3	X	X			
4	X	X			
5	X	X	X	X	X
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Page	D05	D06	D07	D08	D09
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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 CONTROL/REGULATOR VALVES - EXTENSION OF BINAK B/C MANIFOLD								
شماره پیمان:		پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	شماره صفحه: 3 از 10
053 - 073 - 9184		BK	W007S	PEDCO	110	IN	DT	0006	D05	

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
Specification For Painting	BK-GNRL-PEDCO-000-PI-SP-0006

D05

 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: 053 - 073 - 9184	BK	W007S	PEDCO	110	IN	DT	0006	D05	شماره صفحه: 4 از 10

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-GNRL-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 4.5 barg, and the maximum operating pressure is 8 barg. The capacity of the secured instrument air buffer vessel shall be sized for a minimum instrument air supply pressure of 3 barg.
- Body color of valves shall be selected same as pipe color and actuator shall be green . For more details refer to the latest revision of "Specification For Painting Doc No."BK-GNRL-PEDCO-000-PI-SP-0006 ".

D05

		نگهداشت و افزایش تولید میدان نفتی بینک فعالیت های رو زمینی در بسته های کاری تحت الارض ساخت موقعیت چاه، تأسیسات سرچاهی، خطوط جریانی، تپهلات 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	تپهلات	رشته	نوع مدرک	سریال	نسخه	شماره صفحه: 5 از 10
		BK	W007S	PEDCO	110	IN	DT	0006	D05	

Control Valve										D05	
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-D03 (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.	4.5		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"		ASTM A 106-Gr.B, SMLS, ASME B36.10M			
PROCESS CONDITIONS	10	Fluid				Crude oil					
	11	State				Mixed Gas, Hydrocarbon, Water /3 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 (GI) / Gas Specific Gravity					0.908/0.8				
	20	Compressibility Factor(Z)(vapor)				-	0.94				
	21	Viscosity (vapor/oil/water)				cP	0.011/8.89/0.69				
	CALCULATED RESULTS	22	Specific Heats Ratio(Cp/Cv) (vapor/liquid)				-	1.27/1.13			
23		Vapour Pressure (True Vapor Pressure of Liquid Phase - HYSYS result)				bar-g	12.78				
24		Critical Pressure (liquid)				bar-g	291.2				
25		Flow Coefficient Cv (max-case)				-	20.32 (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		3" (VTC)(Note4)		POSITIONER (Note 5)	50	Type	Electro-Pneumatic Smart	
		29	Rated Cv		VTA			51	Input Signal	4-20 mA-HART Smart	
		30	End conn. & Rating IN/OUT		RF Flange # 600 ASME B16.5 (VTC)			52	Power Supply	24 VDC loop powered	
		31	Leakage class		IV			53	Electrical Connection	ISO M20x 1.5	
	32	Body/Bonnet Material		ASTM A216 GR. WCB		54		Increase/Decrease Air	Increase to Open(VTC)		
	33	Body/Bonnet Type		GLOBE (Balanced) / Standard Bolted Flange Bonnet		55		Lock Last Position	Failure Position/Close		
	34	Flow Direction		FLOW TEND TO OPEN(VTC)		56	Output Signal	3-15 Psi			
	35	Packing Material		P.T.F.E.		57	I.P./Ex.Protect.	Gauge	65 / EEExia Yes		
	36	Trim Type		SINGLE SEATED/CAGE		58	MFR/Model	LCD requirement	(NOTE 4) Yes		
	37	Characteristic		EQUAL PERCENTAGE (VTC)		59	Type	Qty.	N/A N/A		
	38	Guiding		(NOTE 4)		60	MFR	Model	N/A N/A		
	39	Rated Travel		(NOTE 4)		61	I.P.	Ex.Protect.	N/A N/A		
	40	Plug/Disk Material		SS316 (Note 6)		62	MFR	Model	N/A N/A		
	41	Seat Material		SS316 (Note 6)		63	Type	Qty.	N/A N/A		
	42	Cage/Guid Material		SS316 (Note 6)		64	Power Supply	N/A			
	43	Stem Material		SS316 (Note 6)		65	Contacts / Rating	N/A			
	44	Trim Material		SS316 (Note 6)		66	Switching Position	N/A			
	ACTUATOR	45	MFR	Model	(NOTE 4)	(NOTE 4)	SWITCHES	67	I.P.	Ex.Protect.	N/A N/A
46		Size	Eff.Area	(NOTE 4)	(NOTE 4)	68		MFR	Model	N/A N/A	
47		Air Failure	Handwheel	FAIL CLOSE	TOP MOUNTED	AIR SET		69	Set Pressure	Yes (NOTE 4)	
48		Air Action	Orientation	AIR TO OPEN	VERT. UP			70	Filter	Gauge	Yes Yes
49		Actuator Type	Spring Return and Diaphragm Type				71	Pnumatic Conn.	1/4 " NPTF		
50		AIR	Min/ Max/ Des. (Barg)	3 (Note3)	7		8	72	MFR	Model	(NOTE 4) (NOTE 4)
		51	MFR	Model	(NOTE 4)	(NOTE 4)	TESTS	73	Hydro. Pressure	API 598	
		52						74	Leakage Class	Certificate Required	
		53						75	Performance Test	Required	
		54						OPTIONS	76	Internal Tubing	Required(with Double Ferrule Compression conn.)
	55					77	Tube Material		316 S.S L		
	56					78	Cable Gland		M20, Nickel plated brass		
	57					79	Cable Entry		M20 x 1.5		
	PURCHASE	Manufacturer		(Note 4)							
		Model		(Note 4)							

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 4.5 barg but 3 barg working pressure as minimum , shall be considered for actuator sizing .
- Shall be finalized by vendor and client agreement at quatoia stage.
- 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، تمهيلات 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	پست کاری	صادر کننده	تمهيلات	رشته	نوع مدارک	سریال	نسخه	شماره صفحه: 6 از 10
		BK	W007S	PEDCO	110	IN	DT	0006	D05	

Control Valve										D05	
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-D03 (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.	4.5		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"		ASTM A 106-Gr.B, SMLS,ASME B36.10M	
PROCESS CONDITIONS	10	Fluid				Crude oil					
	11	State				mixed / 3 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 (True Vapor Pressure of Liquid Phase - HYSYS result)				bar-g	12.78				
	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			3" (VTC)(Note4)						
	28	Rated Cv			VTA						
	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 (Balanced) / 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 (Note 6)						
	40	Seat Material			SS316 (Note 6)						
	41	Cage/Guid Material			SS316 (Note 6)						
	42	Stem Material			SS316 (Note 6)						
	43	Trim Material			SS316 (Note 6)						
	44	MFR	Model	(NOTE 4)							
	ACTUATOR	45	Size	Eff.Area	(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.	Min/ Max/ Des.	(Barg)	3 (Note3)	7	8				
PURCHASE	50	MFR	Model	(NOTE 4)							
	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.Protec.	Gauge	65 / EExia	Yes						
	59	MFR/Model	LCD requirement	(NOTE 4)	Yes						
TESTS	60	Type	Qty.	N/A							
	61	MFR	Model	N/A							
	62	I.P.	Ex.Protec.	N/A							
	63	MFR	Model	N/A							
	64	Type	Qty.	N/A							
	65	Power Supply			N/A						
	66	Contacts / Rating			N/A						
	67	Switching Position			N/A						
	68	I.P.	Ex.Protec.	N/A							
	69	MFR	Model	N/A							
OPTIONS	70	Set Pressure	Yes (NOTE 4)								
	71	Filter	Gauge	Yes							
	72	Pnumatic Conn.	1/4 " NPTF								
	73	MFR	Model	(NOTE 4)							
	74	Hydro. Pressure	API 598								
	75	Leakage Class	Certificate Required								
	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 4.5 barg but 3 barg working pressure as minimum , shall be considered for actuator sizing .
- Shall be finalized by vendor and client agreement at quotaion stage.
- 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 stellited facing shall be supplied for valve plugs and guides with solid stellited 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 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: 053 - 073 - 9038		پروژه BK	بسته کاری W007S	صادر کننده PEDCO	تسهیلات 110	رشته IN	نوع مدرک DT	سریال 0006	نسخه D05	شماره صفحه: 7 از 10

Control Valve											
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-D03 (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.	4.5		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"		ASTM A 106-Gr.B, SMLS,ASME B36.10M			
PROCESS CONDITIONS	10	Fluid				Crude oil					
	11	State				mixed / 3 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					
	18	Liquid Specific Gravity (G1) / Gas Specific Gravity				0.901/0.8					
	19	Compressibility Factor(Z)(vapor)				0.94					
	20	Viscosity (vapor/oil/water)				cP	0.011/7.60/0.58				
	21	Specific Heats Ratio(Cp/Cv) (vapor/liquid)				1.25/1.17					
	CALCULATED RESULTS	22	Vapour Pressure (True Vapor Pressure of Liquid Phase - HYSYS result)				bar-g	11.78			
23		Critical Pressure (liquid)				bar-g	291.2				
24		Flow Coefficient Cv (max-case)				-	21.03 (VTC)				
25		Travel (max-case)				%	BY VENDOR				
26		Sound Pressure Level				dBA	Max. 85 dBA(VTC)	Max. 85 dBA(VTC)	Max. 85 dBA(VTC)		
BODY AND TRIM(Note 6)		27	Body size		3" (VTC)(Note4)		POSITIONER (Note 5)	51	Type		Electro-Pneumatic Smart
	28	Rated Cv		VTA		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 (Balanced) / 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 / EEExia	Yes	
	35	Trim Type		SINGLE SEATED/CAGE		59	MFR/Model	LCD requirement	(NOTE 4)	Yes	
	36	Characteristic		EQUAL PERCENTAGE (VTC)		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 (Note 6)		63	MFR	Model	N/A	N/A	
	40	Seat Material		SS316 (Note 6)		64	Type	Qty.	N/A	N/A	
	41	Cage/Guid Material		SS316 (Note 6)		65	Power Supply		N/A		
	42	Stem Material		SS316 (Note 6)		66	Contacts / Rating		N/A		
	43	Trim Material		SS316 (Note 6)		67	Switching Position		N/A		
	ACTUTOR	44	MFR	Model	(NOTE 4)	(NOTE 4)	SWITCHES	68	I.P.	Ex.Protect.	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
48		Actuator Type		Spring Return and Diaphragm Type			72	Pnumatic Conn.		1/4 " NPTF	
49		AIR Press.	Mini/ Max/ D (Barg)	3 (Note3)	7		8	73	MFR	Model	(NOTE 4)
TESTS		50	MFR	Model	(NOTE 4)	(NOTE 4)	74	Hydro. Pressure		API 598	
		75	Leakage Class		Certificate Required		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		
	81	Cable Entry		M20 x 1.5							
	82	Cable Entry		M20 x 1.5							
PURCHASE	Manufacturer		(Note 4)								
	Model		(Note 4)								

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 4.5 barg but 3 barg working pressure as minimum , shall be considered for actuator sizing .

4- Shall be finalized by vendor and client agreement at quotation stage.

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 stelled facing shall be supplied for valve plugs and guides with solid stelled seat rings for Erosice or cavitation/flushing 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، تسمیلات 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	تسمیلات	رشته	نوع مدرک	سریال	نسخه	شماره صفحه: 8 از 10
		BK	W007S	PEDCO	110	IN	DT	0006	D05	

Control Valve										D05			
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-D03 (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.	4.5		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"		ASTM A 106-Gr.B, SMLS,ASME B36.10M				
PROCESS CONDITIONS	10	Fluid					Crude oil						
	11	State					mixed / 3 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)(vapor)					0.94						
	21	Viscosity (vapor/oil/water)					cP	0.012/5.39/0.60					
	22	Specific Heats Ratio(Cp/Cv) (vapor/liquid)					1.24/1.12						
	23	Vapour Pressure (True Vapor Pressure of Liquid Phase - HYSYS result)					bar-g	11.95					
CALCULATED RESULTS	24	Critical Pressure (liquid)					bar-g	1081					
	25	Flow Coefficient Cv (max-case)					70.72 (VTC)						
	26	Travel (max-case)					BY VENDOR						
BODY AND TRIM(Note 6)	27	Body size		3" (VTC)(Note4)			POSITIONER (Note 5)	51	Type	Electro-Pneumatic Smart			
	28	Rated Cv		VTA				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 (Balanced) / 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 / EEExia	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 (Note 6)			63	MFR	Model	N/A	N/A		
	40	Seat Material		SS316 (Note 6)			SWITCHES	64	Type	Qty.	N/A	N/A	
	41	Cage/Guid Material		SS316 (Note 6)				65	Power Supply	N/A			
	42	Stem Material		SS316 (Note 6)				66	Contacts / Rating	N/A			
	43	Trim Material		SS316 (Note 6)				67	Switching Position	N/A			
	ACTUATOR	44	MFR	Model	(NOTE 4)		(NOTE 4)	AIR SET	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			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			72	Pnumatic Conn.	1/4 " NPTF				
49		AIR Press.	Min/ Max/ Des.	(Barg)	3 (Note3)	7	8	73	MFR	Model	(NOTE 4)	(NOTE 4)	
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				
PURCHASE	Manufacturer		(Note 4)										
	Model		(Note 4)										

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 4.5 barg but 3 barg working pressure as minimum , shall be considered for actuator sizing .
- Shall be finalized by vendor and client agreement at quotation stage.
- 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: 053 - 073 - 9038		پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	شماره صفحه: 9 از 10
		BK	W007S	PEDCO	110	IN	DT	0006	D05	

Control Valve												
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-D03 (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.	4.5		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"		ASTM A 106-Gr.B, SMLS, ASME B36.10M				
PROCESS CONDITIONS	10	Fluid				Crude oil						
	11	State				mixed / 3 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					
		Molecular Weight(MIX)					39.09					
	18	Liquid Specific Gravity (G1) / Gas Specific Gravity					0.953/0.8					
	19	Compressibility Factor(Z)(vapour)				-	0.94					
	20	Viscosity (vapour/oil/water)				cP	0.012/5.60/0.64					
	21	Specific Heats Ratio(Cp/Cv) (vapour/liquid)				-	1.25/1.12					
	CALCULATED RESULTS	22	Vapour Pressure (True Vapor Pressure of Liquid Phase - HYSYS result)				bar-g	12.4				
23		Critical Pressure (liquid)				bar-g	1140					
24		Flow Coefficient Cv (max-case)				-	69.02 (VTC)					
25		Travel (max-case)				%	BY VENDOR					
26		Sound Pressure Level				dBA	Max. 85 dBA(VTC)	Max. 85 dBA(VTC)	Max. 85 dBA(VTC)			
BODY AND TRIM(Note 6)		27	Body size		3" (VTC)(Note4)		POSITIONER (Note 5)	51	Type		Electro-Pneumatic Smart	
		28	Rated Cv		VTA			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 (Balanced) / 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.Protec.	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.Protec.	N/A	N/A	
	39	Plug/Disk Material		SS316 (Note 6)			63	MFR	Model	N/A	N/A	
	40	Seat Material		SS316 (Note 6)		SWITCHES	64	Type	Qty.	N/A	N/A	
	41	Cage/Guid Material		SS316 (Note 6)			65	Power Supply		N/A		
	42	Stem Material		SS316 (Note 6)			66	Contacts / Rating		N/A		
43	Trim Material		SS316 (Note 6)		67		Switching Position		N/A			
ACTUTOR	44	MFR	Model	(NOTE 4)		AIR SET	68	I.P.	Ex.Protec.	N/A	N/A	
	45	Size	Eff.Area	(NOTE 4)			69	MFR	Model	N/A	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	Yes	
	48	Actuator Type		Spring Return and Diaphragm Type		72	Pnumatic Conn.		1/4 " NPTF			
	49	AIR Press.	Min/ Max/ Des.	(Barg)	3 (Note3)	7	8	73	MFR	Model	(NOTE 4)	(NOTE 4)
	50	MFR	Model	(NOTE 4)		TESTS	74	Hydro. Pressure		API 598		
					75		Leakage Class		Certificate Required			
					76		Performance Test		Required			
					77		Internal Tubing		Required(with Double Ferrule Compression conn.)			
PURCHASE	Manufacturer		(Note 4)		OPTIONS	78	Tube Material		316 S.S L			
	Model		(Note 4)			79	Cable Gland		M20, Nickel plated brass			
						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 4.5 barg but 3 barg working pressure as minimum , shall be considered for actuator sizing .

4- Shall be finalized by vendor and client agreement at quotaion stage.

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

		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	شماره صفحه: 10 از 10
		BK	W007S	PEDCO	110	IN	DT	0006	D05	

Control Valve										D03	
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.	4.5		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"		ASTM A 106-Gr.B, SMLS,ASME B36.10M			
PROCESS CONDITIONS	10	Fluid				Crude oil					
	11	State				mixed / 3 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 (G) / Gas Specific Gravity				0.952/0.8					
	20	Compressibility Factor(Z)(vapor)				0.94					
	21	Viscosity (vapor/oil/water)				cP	0.012/5.54/0.63				
	22	Specific Heats Ratio(Cp/Cv) (vapor/liquid)				1.25/1.12					
	CALCULATED RESULTS	23	Vapour Pressure (True Vapor Pressure of Liquid Phase - HYSYS result)				bar-g	12.27			
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		3" (VTC)(Note4)		POSITIONER (Note 5)	51	Type		Electro-Pneumatic Smart
	29	Rated Cv		VTA		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 (Balanced) / 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	N/A
	38	Guiding		(NOTE 4)			61	MFR	Model	N/A	N/A
	39	Rated Travel		(NOTE 4)			62	I.P.	Ex.Protect.	N/A	N/A
	40	Plug/Disk Material		SS316 (Note 6)		SWITCHES	63	MFR	Model	N/A	N/A
	41	Seat Material		SS316 (Note 6)			64	Type	Qty.	N/A	N/A
	42	Cage/Guid Material		SS316 (Note 6)			65	Power Supply		N/A	
	43	Stem Material		SS316 (Note 6)			66	Contacts / Rating		N/A	
	ACTUATOR	44	Trim Material		SS316 (Note 6)		67	Switching Position		N/A	
		45	MFR	Model	(NOTE 4)	(NOTE 4)	68	I.P.	Ex.Protect.	N/A	N/A
46		Size	Eff.Area	(NOTE 4)	(NOTE 4)	69	MFR	Model	N/A	N/A	
47		Air Failure	Handwheel	FAIL CLOSE	TOP MOUNTED	AIR SET	70	Set Pressure		Yes (NOTE 4)	
48		Air Action	Orientation	AIR TO OPEN	VERT. UP		71	Filter	Gauge	Yes	Yes
49		Actuator Type	Spring Return and Diaphragm Type				72	Pnumatic Conn.		1/4 " NPTF	
50		AIR Press. Min/ Max/ Des. (Barg)	3 (Note3)	7	8	TESTS	73	MFR	Model	(NOTE 4)	(NOTE 4)
51		MFR	Model	(NOTE 4)	(NOTE 4)		74	Hydro. Pressure		API 598	
PURCHASE	52	Leakage Class		Certificate Required		OPTIONS	75	Performance Test		Required	
	53	Internal Tubing		Required(with Double Ferrule Compression conn.)			76	Tube Material		316 S.S L	
	54	Cable Gland		M20, Nickel plated brass			77	Cable Entry		M20 x 1.5	
	55	Cable Entry		M20 x 1.5			78				

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 4.5 barg but 3 barg working pressure as minimum , shall be considered for actuator sizing .
- Shall be finalized by vendor and client agreement at quataion stage.
- 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 stelled facing shall be supplied for valve plugs and guides with solid stelled seat rings for Erosice or cavitation/flashing services as per Control valve specification BK- GENRL-PEDCO-000-IN-SP-0005