

 中海油石化工程有限公司 CNOOC Petrochemical Engineering Co., Ltd.	DATA SHEET FOR CONTROL VALVE (OIL AND GAS SYSTEM)	Owner Doc.No.	CMIT-240048-728-INS-15.17-1007				
		Job's Doc. No.	253001D0728IN01022				
		Phase	Detailed Design				
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Company:	 CMIT CNOOC IRAQ LIMITED						
Project:	FQN NEW DEGASSING STATION UPGRADING PROJECT						
Unit:	FQN DEGASSING STATION						
Contract No.:	CMIT-PRT-10.53-240048						
DisciplineNameDate Prepared by:InstrumentationWang Y. F.20251102 Checked by:InstrumentationQi CH. Y.20251102 Approved by:InstrumentationJi An X.20251102 Countersigned by:ProcessGao Tong Changjian Lu20251102							
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Rev.	Description	Prepared	Checked	Approved			Date



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CNOOC Petrochemical Engineering Co., Ltd.

DATA SHEET FOR CONTROL VALVE(OIL AND GAS SYSTEM)

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GENERAL	1	Tag Number	P&ID No.	PV-2817222A	PCS-15.11-0004	Rev.
	2	Service	SEP-2817222A Pressure Control			
	3	Line No.	Size and Sch.	12"-GG-28172116A-3D6-PP30	12", SCH80	
	4	Pipe I.D. mm	Pipe O.D. mm	288.84	323.8	
	5	Pipe Material	C.S. (NACE) PWHT			
	6	Area Classification	Enclosure Protection	II B T4	IP65	
PROCESS CONDITIONS	7	Process Fluid	Fluid State	NATURAL GAS	GAS	
	8	Design Pressure MPa(G)	Design Temperature °C	2.2	100	
	9	Max Shut-off DP MPa	2.2			
	10	Vapor Pressure kPa(A)				
	11	Molecular Weight	Critical Pressure kPa(A)	26		
	12	Compression Factor	Solid Content	0.96		
	13	Specific Heat Ratio (Cp/Cv)	1.23			
	14	Erosion	Corrosion	Oxidizing	Toxic	NO YES NO YES
	15		Units	Minimum	Normal	Maximum
	16	Flow Rate	Nm ³ /h	3356.4	8391	10000
	17	Inlet Pressure	MPa(G)		1.15	
	18	Outlet Pressure	MPa(G)	0.95	1.1	
	19	Operating Temperature	°C		67~73	
	20	Operating Density/Standard Density	kg/Nm ³		1.14	
	CALCULATED RESULTS	21	Viscosity	mPa.s		0.013
22		Flow Coefficient Cv		62.22	155.54	185.37
23		Selected Cv	Calculation Standard	410	ISA 75.01	
24		Valve Opening	%	44.6	71.5	76.7
25		Allow. SPL dBA	Predicted SPL dBA	<85dBA	By Vendor	By Vendor
BODY	26	Model	Valve type	By Vendor	Globe Valve	
	27	Body Size	Pressure Rating	8"	Class 300	
	28	Process Connections	ASME B16.5 300LB RF			
	29	Body/Bonnet Material	ASTM A216 WCB(SSC&HIC)			
	30	Bonnet Type	Flow Direction	Standard	Flow Open	
	31	Packing Material	Packing Type	PTFE	By Vendor	
	32	Finish	Isolation	Lubrication		
TRIM	33	Trim Size	Trim Form	By Vendor	By Vendor	
	34	Characteristic	Rated Travel	Equal Percent		
	35	Plug/Ball/Disk Material	Note7			
	36	Seat Material	Shaft Material	Note7	Note7	
	37	Cage/Guide Material	Note7			
	38	Seat Leakage Class	ANSI Class IV			
ACTUATOR	39	Actuator Model	Actuator Type	By Vendor	Pneumatic Diaphragm	
	40	Spring Action	Spring Range	Direct Action	By Vendor	
	41	Air Failure Position.	Max/Min.AS MPa(G)	FC	0.4~0.6	
	42	Mounting Position	Handwheel	Top	NO	
POSITIONER	43	Model	Type	By Vendor	Smart Positioner	
	44	Signal Input	Action	4~20mA+HART	Direct Action	
	45	Elec.Conn.Size	Enclosure Protection	1/2"NPT(F)×2	Ex db II B T4 Gb	
	46	Gauges(In/Out/Supp.)	Pneu. Connect	YES, 316 SS	1/4" NPT(F)-Φ8, 316L SS	
TRANSDUCE	47	Model	Signal Output			
	48	Elec.Conn.Size	Enclosure Protection			
SWITCH	49	Model	Type	Tag No.		
	50	Elec.Conn.Size	Enclosure Protection			
	51	Contact Form/Rating				
SOLENOID VALVE	52	Model	Type			
	53	S.V.Tag No.	Operating Voltage			
	54	Elec.Conn.Size	Enclosure Protection			
	55	Operation Type	Reset P.B.			
AIR SET	56	Regulator	Air Supply Press. MPa(G)	YES(with End Connector, Φ8, 316L SS)	0.4~0.8	
	57	Air Vol. Tank	Air Conn.			
ACCESS	58	Surge Protection Device	Lock Valve	YES		
	59	Travel Stopper				
	60	Travel Condition				
PURCHASE	61	Manufacturer	PO No.			
	62	Price	SN	Item No.		

Note: 1. Ambient Temperature: -5℃~+55℃. Metallic surface temperature under direct sunlight: 85℃. Humidity range: 25%~80%.



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GENERAL	1	Tag Number		P&ID No.		PV-2817222B		PCS-15.11-0006		Rev.
	2	Service				SEP-281722B Pressure Control				
	3	Line No.		Size and Sch.		12"-GG-28172116B-3D6-PP30		12", SCH80		
	4	Pipe I.D. mm		Pipe O.D. mm		288.84		323.8		
	5	Pipe Material				C.S. (NACE) PWHT				
	6	Area Classification		Enclosure Protection		II B T4		IP65		
PROCESS CONDITIONS	7	Process Fluid		Fluid State		NATURAL GAS		GAS		
	8	Design Pressure MPa(G)		Design Temperature °C		2.2		100		
	9	Max Shut-off DP MPa				2.2				
	10	Vapor Pressure kPa(A)								
	11	Molecular Weight		Critical Pressure kPa(A)		26				
	12	Compression Factor		Solid Content		0.96				
	13	Specific Heat Ratio (Cp/Cv)				1.23				
	14	Erosion	Corrosion	Oxidizing	Toxic	NO	YES	NO	YES	
	15					Units	Minimum	Normal	Maximum	
	16	Flow Rate				Nm3/h	3356.4	8391	10000	
	17	Inlet Pressure				MPa(G)		1.15		
	18	Outlet Pressure				MPa(G)	0.95	1.1		
	19	Operoperating Temperature				°C		67~73		
	20	Operating Density/Standard Density				kg/Nm3		1.14		
	21	Viscosity				mPa.s		0.013		
CALCULATED RESULTS	22	Flow Coefficient Cv					62.22	155.54	185.37	
	23	Selected Cv		Calculation Standard		410		ISA 75.01		
	24	Valve Opening				%	44.6	71.5	76.7	
	25	Allow. SPL dBA		Predicted SPL dBA		<85dBA	By Vendor	By Vendor	By Vendor	
BODY	26	Model		Valve type		By Vendor		Globe Valve		
	27	Body Size		Pressure Rating		8"		Class 300		
	28	Process Connections				ASME B16.5 300LB RF				
	29	Body/Bonnet Material				ASTM A216 WCB(SSC&HIC)				
	30	Bonnet Type		Flow Direction		Standard		Flow Open		
	31	Packing Material		Packing Type		PTFE		By Vendor		
	32	Finish	Isolation	Lubrication						
TRIM	33	Trim Size		Trim Form		By Vendor		By Vendor		
	34	Characteristic		Rated Travel		Equal Percent				
	35	Plug/Ball/Disk Material				Note7				
	36	Seat Material		Shaft Material		Note7		Note7		
	37	Cage/Guide Material				Note7				
	38	Seat Leakage Class				ANSI Class IV				
ACTUATOR	39	Actuator Model		Actuator Type		By Vendor		Pneumatic Diaphragm		
	40	Spring Action		Spring Range		Direct Action		By Vendor		
	41	Air Failure Position.		Max/Min.AS MPa(G)		FC		0.4~0.6		
	42	Mounting Position		Handwheel		Top		NO		
POSITIONER	43	Model		Type		By Vendor		Smart Positioner		
	44	Signal Input		Action		4~20mA+HART		Direct Action		
	45	Elec.Conn.Size		Enclosure Protection		1/2"NPT(F)×2		Ex db II B T4 Gb		
	46	Gauges(In/Out/Supp.)		Pneu. Connect		YES, 316 SS		1/4" NPT(F)-Φ8, 316L SS		
TRANSDUCE	47	Model		Signal Output						
	48	Elec.Conn.Size		Enclosure Protection						
SWITCH	49	Model	Type	Tag No.						
	50	Elec.Conn.Size		Enclosure Protection						
	51	Contact Form/Rating								
SOLENOID VALVE	52	Model		Type						
	53	S.V.Tag No.		Operating Voltage						
	54	Elec.Conn.Size		Enclosure Protection						
	55	Operation Type		Reset P.B.						
AIR SET	56	Regulator		Air Supply Press. MPa(G)		YES(with End Connector, Φ8, 316L SS)		0.4~0.8		
	57	Air Vol. Tank		Air Conn.						
ACCESS	58	Surge Protection Device		Lock Valve		YES				
	59	Travel Stopper								
	60	Travel Condition								
PURCHASE	61	Manufacturer		PO No.						
	62	Price	SN	Item No.						

Note: 1. Ambient Temperature: -5℃~+55℃. Metallic surface temperature under direct sunlight: 85℃. Humidity range: 25%~80%.



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GENERAL	1	Tag Number	P&ID No.	PV-2817223A	PCS-15.11-0004	Rev.
	2	Service	SEP-281722A Natural Gas to Flare Pressure Control			
	3	Line No.	Size and Sch.	12"-GE-28172122-3D6-PP30	12", SCH80	
	4	Pipe I.D. mm	Pipe O.D. mm	288.84	323.8	
	5	Pipe Material	C.S. (NACE) PWHT			
	6	Area Classification	Enclosure Protection	II B T4	IP65	
PROCESS CONDITIONS	7	Process Fluid	Fluid State	NATURAL GAS	GAS	
	8	Design Pressure MPa(G)	Design Temperature °C	2.2	100	
	9	Max Shut-off DP MPa	2.2			
	10	Vapor Pressure kPa(A)				
	11	Molecular Weight	Critical Pressure kPa(A)	26		
	12	Compression Factor	Solid Content	0.96		
	13	Specific Heat Ratio (Cp/Cv)	1.23			
	14	Erosion	Corrosion	Oxidizing	Toxic	
	15			NO	YES	NO
	16	Flow Rate		Units	Minimum	Normal
	17	Inlet Pressure		MPa(G)		1.5
	18	Outlet Pressure		MPa(G)		0.05
	19	Operating Temperature		°C		67~73
	20	Operating Density/Standard Density		kg/Nm3		1.14
CALCULATED RESULTS	21	Viscosity		mPa.s		0.013
	22	Flow Coefficient Cv			17.50	43.74
	23	Selected Cv	Calculation Standard		190	ISA 75.01
	24	Valve Opening		%	29.9	56.8
	25	Allow. SPL dBA	Predicted SPL dBA	<85dBA	By Vendor	By Vendor
BODY	26	Model	Valve type	By Vendor	Globe Valve	
	27	Body Size	Pressure Rating	6"	Class 300	
	28	Process Connections	ASME B16.5 300LB RF			
	29	Body/Bonnet Material	ASTM A216 WCB(SSC&HIC)			
	30	Bonnet Type	Flow Direction	Standard	Flow Open	
	31	Packing Material	Packing Type	PTFE	By Vendor	
	32	Finish	Isolation	Lubrication		
TRIM	33	Trim Size	Trim Form	By Vendor	By Vendor	
	34	Characteristic	Rated Travel	Equal Percent		
	35	Plug/Ball/Disk Material	Note7			
	36	Seat Material	Shaft Material	Note7	Note7	
	37	Cage/Guide Material	Note7			
	38	Seat Leakage Class	ANSI Class V			
ACTUATOR	39	Actuator Model	Actuator Type	By Vendor	Pneumatic Diaphragm	
	40	Spring Action	Spring Range	Direct Action	By Vendor	
	41	Air Failure Position.	Max/Min.AS MPa(G)	FO	0.4~0.6	
	42	Mounting Position	Handwheel	Top	NO	
POSITIONER	43	Model	Type	By Vendor	Smart Positioner	
	44	Signal Input	Action	4~20mA+HART	Direct Action	
	45	Elec.Conn.Size	Enclosure Protection	1/2"NPT(F)×2	Ex db II B T4 Gb	
	46	Gauges(In/Out/Supp.)	Pneu. Connect	YES, 316 SS	1/4" NPT(F)-Φ8, 316L SS	
TRANSDUCE	47	Model	Signal Output			
	48	Elec.Conn.Size	Enclosure Protection			
SWITCH	49	Model	Type	Tag No.	Mechanical contact	ZSC/ZSO-2817223A
	50	Elec.Conn.Size	Enclosure Protection	3/4"NPT(F)	Ex db II B T4 Gb	
	51	Contact Form/Rating	5A@230V AC, DPDT			
SOLENOID VALVE	52	Model	Type		3way-2position, <4w	
	53	S.V.Tag No.	Operating Voltage	BDY-2817223A	24V DC	
	54	Elec.Conn.Size	Enclosure Protection	1/2"NPT(F)	Ex db II B T4 Gb	
	55	Operation Type	Reset P.B.			
AIR SET	56	Regulator	Air Supply Press. MPa(G)	YES(with End Connector, Φ8, 316L SS)	0.4~0.8	
	57	Air Vol. Tank	Air Conn.			
ACCESS	58	Surge Protection Device	Lock Valve	YES		
	59	Travel Stopper				
	60	Travel Condition				
PURCHASE	61	Manufacturer	PO No.			
	62	Price	SN	Item No.		

Note: 1. Ambient Temperature: -5℃~+55℃. Metallic surface temperature under direct sunlight: 85℃. Humidity range: 25%~80%.2. BDY-2817223A SIL Class: SIL2.



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	2	Service				SEP-281722B Natural Gas to Flare Pressure Control				
	3	Line No.		Size and Sch.		12"-GE-28172122B-3D6-PP30		12", SCH80		
	4	Pipe I.D. mm		Pipe O.D. mm		288.84		323.8		
	5	Pipe Material				C.S. (NACE) PWHT				
	6	Area Classification		Enclosure Protection		II B T4		IP65		
PROCESS CONDITIONS	7	Process Fluid		Fluid State		NATURAL GAS		GAS		
	8	Design Pressure MPa(G)		Design Temperature °C		2.2		100		
	9	Max Shut-off DP MPa				2.2				
	10	Vapor Pressure kPa(A)								
	11	Molecular Weight		Critical Pressure kPa(A)		26				
	12	Compression Factor		Solid Content		0.96				
	13	Specific Heat Ratio (Cp/Cv)				1.23				
	14	Erosion	Corrosion	Oxidizing	Toxic	NO	YES	NO	YES	
	15					Units	Minimum	Normal	Maximum	
	16	Flow Rate				Nm3/h	3356.4	8391	10000	
	17	Inlet Pressure				MPa(G)		1.5		
	18	Outlet Pressure				MPa(G)		0.05	0.15	
	19	Operoperating Temperature				°C		67~73		
	20	Operating Density/Standard Density				kg/Nm3		1.14		
	21	Viscosity				mPa.s		0.013		
CALCULATED RESULTS	22	Flow Coefficient Cv					17.50	43.74	52.13	
	23	Selected Cv		Calculation Standard		190		ISA 75.01		
	24	Valve Opening				%	29.9	56.8	62.0	
	25	Allow. SPL dBA		Predicted SPL dBA		<85dBA	By Vendor	By Vendor	By Vendor	
BODY	26	Model		Valve type		By Vendor		Globe Valve		
	27	Body Size		Pressure Rating		6"		Class 300		
	28	Process Connections				ASME B16.5 300LB RF				
	29	Body/Bonnet Material				ASTM A216 WCB(SSC&HIC)				
	30	Bonnet Type		Flow Direction		Standard		Flow Open		
	31	Packing Material		Packing Type		PTFE		By Vendor		
	32	Finish	Isolation		Lubrication					
TRIM	33	Trim Size		Trim Form		By Vendor		By Vendor		
	34	Characteristic		Rated Travel		Equal Percent				
	35	Plug/Ball/Disk Material				Note7				
	36	Seat Material		Shaft Material		Note7		Note7		
	37	Cage/Guide Material				Note7				
	38	Seat Leakage Class				ANSI Class V				
ACTUATOR	39	Actuator Model		Actuator Type		By Vendor		Pneumatic Diaphragm		
	40	Spring Action		Spring Range		Direct Action		By Vendor		
	41	Air Failure Position.		Max/Min.AS MPa(G)		FO		0.4~0.6		
	42	Mounting Position		Handwheel		Top		NO		
POSITIONER	43	Model		Type		By Vendor		Smart Positioner		
	44	Signal Input		Action		4~20mA+HART		Direct Action		
	45	Elec.Conn.Size		Enclosure Protection		1/2"NPT(F)×2		Ex db II B T4 Gb		
	46	Gauges(In/Out/Supp.)		Pneu. Connect		YES, 316 SS		1/4" NPT(F)-Φ8, 316L SS		
TRANSDUCE	47	Model		Signal Output						
	48	Elec.Conn.Size		Enclosure Protection						
SWITCH	49	Model	Type	Tag No.		Mechanical contact		ZSC/ZSO-2817223B		
	50	Elec.Conn.Size		Enclosure Protection		3/4"NPT(F)		Ex db II B T4 Gb		
	51	Contact Form/Rating				5A@230V AC, DPDT				
SOLENOID VALVE	52	Model		Type				3way-2position, <4w		
	53	S.V.Tag No.		Operating Voltage		BDY-2817223B		24V DC		
	54	Elec.Conn.Size		Enclosure Protection		1/2"NPT(F)		Ex db II B T4 Gb		
	55	Operation Type		Reset P.B.						
AIR SET	56	Regulator		Air Supply Press. MPa(G)		YES(with End Connector, Φ8, 316L SS)		0.4~0.8		
	57	Air Vol. Tank		Air Conn.						
ACCESS	58	Surge Protection Device		Lock Valve		YES				
	59	Travel Stopper								
	60	Travel Condition								
PURCHASE	61	Manufacturer		PO No.						
	62	Price	SN	Item No.						

Note: 1. Ambient Temperature: -5℃~+55℃. Metallic surface temperature under direct sunlight: 85℃. Humidity range: 25%~80%. 2. BDY-2817223B SIL Class: SIL2.



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GENERAL	1	Tag Number		P&ID No.		PV-2817232A		PCS-15.11-0005		Rev.
	2	Service				SEP-281723A Pressure Control				
	3	Line No.		Size and Sch.		4"-GG-28172145A-3D6-PP30		4", SCH120		
	4	Pipe I.D. mm		Pipe O.D. mm		92.04		114.3		
	5	Pipe Material				C.S. (NACE) PWHT				
	6	Area Classification		Enclosure Protection		II B T4		IP65		
PROCESS CONDITIONS	7	Process Fluid		Fluid State		NATURAL GAS		GAS		
	8	Design Pressure MPa(G)		Design Temperature °C		2.2		100		
	9	Max Shut-off DP MPa				2.2				
	10	Vapor Pressure kPa(A)								
	11	Molecular Weight		Critical Pressure kPa(A)		27				
	12	Compression Factor		Solid Content		0.96				
	13	Specific Heat Ratio (Cp/Cv)				1.22				
	14	Erosion	Corrosion	Oxidizing	Toxic	NO	YES	NO	YES	
	15					Units	Minimum	Normal	Maximum	
	16	Flow Rate				Nm3/h	20	62	900	
	17	Inlet Pressure				MPa(G)		1		
	18	Outlet Pressure				MPa(G)		0.95		
	19	Operoperating Temperature				°C		67~73		
	20	Operating Density/Standard Density				kg/Nm3		1.2		
	21	Viscosity				mPa.s		0.013		
CALCULATED RESULTS	22	Flow Coefficient Cv					0.4064	1.26	18.29	
	23	Selected Cv		Calculation Standard		45		ISA 75.01		
	24	Valve Opening				%			73.5	
	25	Allow. SPL dBA		Predicted SPL dBA		<85dBA	By Vendor	By Vendor	By Vendor	
BODY	26	Model		Valve type		By Vendor		Globe Valve		
	27	Body Size		Pressure Rating		2"		Class 300		
	28	Process Connections				ASME B16.5 300LB RF				
	29	Body/Bonnet Material				ASTM A216 WCB(SSC&HIC)				
	30	Bonnet Type		Flow Direction		Standard		Flow Open		
	31	Packing Material		Packing Type		PTFE		By Vendor		
	32	Finish	Isolation	Lubrication						
TRIM	33	Trim Size		Trim Form		By Vendor		By Vendor		
	34	Characteristic		Rated Travel		Equal Percent				
	35	Plug/Ball/Disk Material				Note7				
	36	Seat Material		Shaft Material		Note7		Note7		
	37	Cage/Guide Material				Note7				
	38	Seat Leakage Class				ANSI Class IV				
ACTUATOR	39	Actuator Model		Actuator Type		By Vendor		Pneumatic Diaphragm		
	40	Spring Action		Spring Range		Direct Action		By Vendor		
	41	Air Failure Position.		Max/Min.AS MPa(G)		FC		0.4~0.6		
	42	Mounting Position		Handwheel		Top		NO		
POSITIONER	43	Model		Type		By Vendor		Smart Positioner		
	44	Signal Input		Action		4~20mA+HART		Direct Action		
	45	Elec.Conn.Size		Enclosure Protection		1/2"NPT(F)×2		Ex db II B T4 Gb		
	46	Gauges(In/Out/Supp.)		Pneu. Connect		YES, 316 SS		1/4" NPT(F)-Φ8, 316L SS		
TRANSDUCE	47	Model		Signal Output						
	48	Elec.Conn.Size		Enclosure Protection						
SWITCH	49	Model	Type	Tag No.						
	50	Elec.Conn.Size		Enclosure Protection						
	51	Contact Form/Rating								
SOLENOID VALVE	52	Model		Type						
	53	S.V.Tag No.		Operating Voltage						
	54	Elec.Conn.Size		Enclosure Protection						
	55	Operation Type		Reset P.B.						
AIR SET	56	Regulator		Air Supply Press. MPa(G)		YES(with End Connector, Φ8, 316L SS)		0.4~0.8		
	57	Air Vol. Tank		Air Conn.						
ACCESS	58	Surge Protection Device		Lock Valve		YES				
	59	Travel Stopper								
	60	Travel Condition								
PURCHASE	61	Manufacturer		PO No.						
	62	Price	SN	Item No.						

Note: 1. Ambient Temperature: -5℃~+55℃. Metallic surface temperature under direct sunlight: 85℃. Humidity range: 25%~80%.



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GENERAL	1	Tag Number		P&ID No.		PV-2817232B		PCS-15.11-0007		Rev.
	2	Service				SEP-281723B Pressure Control				
	3	Line No.		Size and Sch.		4"-GG-28172145B-3D6-PP30		4", SCH120		
	4	Pipe I.D. mm		Pipe O.D. mm		92.04		114.3		
	5	Pipe Material				C.S. (NACE) PWHT				
	6	Area Classification		Enclosure Protection		II B T4		IP65		
PROCESS CONDITIONS	7	Process Fluid		Fluid State		NATURAL GAS		GAS		
	8	Design Pressure MPa(G)		Design Temperature °C		2.2		100		
	9	Max Shut-off DP MPa				2.2				
	10	Vapor Pressure kPa(A)								
	11	Molecular Weight		Critical Pressure kPa(A)		27				
	12	Compression Factor		Solid Content		0.96				
	13	Specific Heat Ratio (Cp/Cv)				1.22				
	14	Erosion	Corrosion	Oxidizing	Toxic	NO	YES	NO	YES	
	15					Units	Minimum	Normal	Maximum	
	16	Flow Rate				Nm3/h	20	62	900	
	17	Inlet Pressure				MPa(G)		1		
	18	Outlet Pressure				MPa(G)		0.95		
	19	Operoperating Temperature				°C		67~73		
	20	Operating Density/Standard Density				kg/Nm3		1.2		
	21	Viscosity				mPa.s		0.013		
CALCULATED RESULTS	22	Flow Coefficient Cv					0.4064	1.26	18.29	
	23	Selected Cv		Calculation Standard		45		ISA 75.01		
	24	Valve Opening				%			73.5	
	25	Allow. SPL dBA		Predicted SPL dBA		<85dBA	By Vendor	By Vendor	By Vendor	
BODY	26	Model		Valve type		By Vendor		Globe Valve		
	27	Body Size		Pressure Rating		2"		Class 300		
	28	Process Connections				ASME B16.5 300LB RF				
	29	Body/Bonnet Material				ASTM A216 WCB(SSC&HIC)				
	30	Bonnet Type		Flow Direction		Standard		Flow Open		
	31	Packing Material		Packing Type		PTFE		By Vendor		
	32	Finish	Isolation	Lubrication						
TRIM	33	Trim Size		Trim Form		By Vendor		By Vendor		
	34	Characteristic		Rated Travel		Equal Percent				
	35	Plug/Ball/Disk Material				Note7				
	36	Seat Material		Shaft Material		Note7		Note7		
	37	Cage/Guide Material				Note7				
	38	Seat Leakage Class				ANSI Class IV				
ACTUATOR	39	Actuator Model		Actuator Type		By Vendor		Pneumatic Diaphragm		
	40	Spring Action		Spring Range		Direct Action		By Vendor		
	41	Air Failure Position.		Max/Min.AS MPa(G)		FC		0.4~0.6		
	42	Mounting Position		Handwheel		Top		NO		
POSITIONER	43	Model		Type		By Vendor		Smart Positioner		
	44	Signal Input		Action		4~20mA+HART		Direct Action		
	45	Elec.Conn.Size		Enclosure Protection		1/2"NPT(F)×2		Ex db II B T4 Gb		
	46	Gauges(In/Out/Supp.)		Pneu. Connect		YES, 316 SS		1/4" NPT(F)-Φ8, 316L SS		
TRANSDUCE	47	Model		Signal Output						
	48	Elec.Conn.Size		Enclosure Protection						
SWITCH	49	Model	Type	Tag No.						
	50	Elec.Conn.Size		Enclosure Protection						
	51	Contact Form/Rating								
SOLENOID VALVE	52	Model		Type						
	53	S.V.Tag No.		Operating Voltage						
	54	Elec.Conn.Size		Enclosure Protection						
	55	Operation Type		Reset P.B.						
AIR SET	56	Regulator		Air Supply Press. MPa(G)		YES(with End Connector, Φ8, 316L SS)		0.4~0.8		
	57	Air Vol. Tank		Air Conn.						
ACCESS	58	Surge Protection Device		Lock Valve		YES				
	59	Travel Stopper								
	60	Travel Condition								
PURCHASE	61	Manufacturer		PO No.						
	62	Price	SN	Item No.						

Note: 1. Ambient Temperature: -5℃~+55℃. Metallic surface temperature under direct sunlight: 85℃. Humidity range: 25%~80%.



中海石油石化工程有限公司
CNOOC Petrochemical Engineering Co., Ltd.

DATA SHEET FOR CONTROL VALVE(OIL AND GAS SYSTEM)

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GENERAL	1	Tag Number	P&ID No.	PV-2817233A	PCS-15.11-0005	Rev.
	2	Service	SEP-281723A Natural Gas to Flare Pressure Control			
	3	Line No.	Size and Sch.	12"-GE-28172151-3D6-PP30	12", SCH80	
	4	Pipe I.D. mm	Pipe O.D. mm	288.84	323.8	
	5	Pipe Material	C.S. (NACE) PWHT			
	6	Area Classification	Enclosure Protection	II B T4	IP65	
PROCESS CONDITIONS	7	Process Fluid	Fluid State	NATURAL GAS	GAS	
	8	Design Pressure MPa(G)	Design Temperature °C	2.2	100	
	9	Max Shut-off DP MPa	2.2			
	10	Vapor Pressure kPa(A)				
	11	Molecular Weight	Critical Pressure kPa(A)	27		
	12	Compression Factor	Solid Content	0.96		
	13	Specific Heat Ratio (Cp/Cv)	1.22			
	14	Erosion	Corrosion	Oxidizing	Toxic	
	15			NO	YES	NO
	16	Flow Rate		Units	Minimum	Normal
	17	Inlet Pressure		MPa(G)		1.3
	18	Outlet Pressure		MPa(G)		0.05
	19	Operating Temperature		°C		67~73
	20	Operating Density/Standard Density		kg/Nm3		1.2
	21	Viscosity		mPa.s		0.013
CALCULATED RESULTS	22	Flow Coefficient Cv			20.51	51.27
	23	Selected Cv	Calculation Standard	190		ISA 75.01
	24	Valve Opening		%	34.5	61.5
	25	Allow. SPL dBA	Predicted SPL dBA	<85dBA	By Vendor	By Vendor
BODY	26	Model	Valve type	By Vendor		Globe Valve
	27	Body Size	Pressure Rating	6"		Class 300
	28	Process Connections	ASME B16.5 300LB RF			
	29	Body/Bonnet Material	ASTM A216 WCB(SSC&HIC)			
	30	Bonnet Type	Flow Direction	Standard		Flow Open
	31	Packing Material	Packing Type	PTFE		By Vendor
	32	Finish	Isolation	Lubrication		
TRIM	33	Trim Size	Trim Form	By Vendor		By Vendor
	34	Characteristic	Rated Travel	Equal Percent		
	35	Plug/Ball/Disk Material	Note7			
	36	Seat Material	Shaft Material	Note7		Note7
	37	Cage/Guide Material	Note7			
	38	Seat Leakage Class	ANSI Class V			
ACTUATOR	39	Actuator Model	Actuator Type	By Vendor		Pneumatic Diaphragm
	40	Spring Action	Spring Range	Direct Action		By Vendor
	41	Air Failure Position.	Max/Min.AS MPa(G)	FO		0.4~0.6
	42	Mounting Position	Handwheel	Top		NO
POSITIONER	43	Model	Type	By Vendor		Smart Positioner
	44	Signal Input	Action	4~20mA+HART		Direct Action
	45	Elec.Conn.Size	Enclosure Protection	1/2"NPT(F)×2		Ex db II B T4 Gb
	46	Gauges(In/Out/Supp.)	Pneu. Connect	YES, 316 SS		1/4" NPT(F)-Φ8, 316L SS
TRANSDUCE	47	Model	Signal Output			
	48	Elec.Conn.Size	Enclosure Protection			
SWITCH	49	Model	Type	Tag No.	Mechanical contact	ZSC/ZSO-2817233A
	50	Elec.Conn.Size	Enclosure Protection	3/4"NPT(F)		Ex db II B T4 Gb
	51	Contact Form/Rating	5A@230V AC, DPDT			
SOLENOID VALVE	52	Model	Type			3way-2position, <4w
	53	S.V.Tag No.	Operating Voltage	BDY-2817233A		24V DC
	54	Elec.Conn.Size	Enclosure Protection	1/2"NPT(F)		Ex db II B T4 Gb
	55	Operation Type	Reset P.B.			
AIR SET	56	Regulator	Air Supply Press. MPa(G)	YES(with End Connector, Φ8, 316L SS)		0.4~0.8
	57	Air Vol. Tank	Air Conn.			
ACCESS	58	Surge Protection Device	Lock Valve	YES		
	59	Travel Stopper				
	60	Travel Condition				
PURCHASE	61	Manufacturer	PO No.			
	62	Price	SN	Item No.		

Note: 1. Ambient Temperature: -5℃~+55℃. Metallic surface temperature under direct sunlight: 85℃. Humidity range: 25%~80%.2. BDY-2817233A SIL Class: SIL2.



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DATA SHEET FOR CONTROL VALVE(OIL AND GAS SYSTEM)

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	2	Service	SEP-2817233B Natural Gas to Flare Pressure Control			
	3	Line No.	Size and Sch.	12"-GE-28172151B-3D6-PP30	12", SCH80	
	4	Pipe I.D. mm	Pipe O.D. mm	288.84	323.8	
	5	Pipe Material	C.S. (NACE) PWHT			
	6	Area Classification	Enclosure Protection	II B T4	IP65	
PROCESS CONDITIONS	7	Process Fluid	Fluid State	NATURAL GAS	GAS	
	8	Design Pressure MPa(G)	Design Temperature °C	2.2	100	
	9	Max Shut-off DP MPa	2.2			
	10	Vapor Pressure kPa(A)				
	11	Molecular Weight	Critical Pressure kPa(A)	27		
	12	Compression Factor	Solid Content	0.96		
	13	Specific Heat Ratio (Cp/Cv)	1.22			
	14	Erosion	Corrosion	Oxidizing	Toxic	
	15			NO	YES	NO
	16	Flow Rate		Units	Minimum	Normal
	17	Inlet Pressure		MPa(G)		1.3
	18	Outlet Pressure		MPa(G)		0.05
	19	Operating Temperature		°C		67~73
	20	Operating Density/Standard Density		kg/Nm3		1.2
	21	Viscosity		mPa.s		0.013
CALCULATED RESULTS	22	Flow Coefficient Cv			20.51	51.27
	23	Selected Cv	Calculation Standard	190		ISA 75.01
	24	Valve Opening		%	34.5	61.5
	25	Allow. SPL dBA	Predicted SPL dBA	<85dBA	By Vendor	By Vendor
BODY	26	Model	Valve type	By Vendor		Globe Valve
	27	Body Size	Pressure Rating	6"		Class 300
	28	Process Connections	ASME B16.5 300LB RF			
	29	Body/Bonnet Material	ASTM A216 WCB(SSC&HIC)			
	30	Bonnet Type	Flow Direction	Standard		Flow Open
	31	Packing Material	Packing Type	PTFE		By Vendor
	32	Finish	Isolation	Lubrication		
TRIM	33	Trim Size	Trim Form	By Vendor		By Vendor
	34	Characteristic	Rated Travel	Equal Percent		
	35	Plug/Ball/Disk Material	Note7			
	36	Seat Material	Shaft Material	Note7		Note7
	37	Cage/Guide Material	Note7			
	38	Seat Leakage Class	ANSI Class V			
ACTUATOR	39	Actuator Model	Actuator Type	By Vendor		Pneumatic Diaphragm
	40	Spring Action	Spring Range	Direct Action		By Vendor
	41	Air Failure Position.	Max/Min.AS MPa(G)	FO		0.4~0.6
	42	Mounting Position	Handwheel	Top		NO
POSITIONER	43	Model	Type	By Vendor		Smart Positioner
	44	Signal Input	Action	4~20mA+HART		Direct Action
	45	Elec.Conn.Size	Enclosure Protection	1/2"NPT(F)×2		Ex db II B T4 Gb
	46	Gauges(In/Out/Supp.)	Pneu. Connect	YES, 316 SS		1/4" NPT(F)-Φ8, 316L SS
TRANSDUCE	47	Model	Signal Output			
	48	Elec.Conn.Size	Enclosure Protection			
SWITCH	49	Model	Type	Tag No.	Mechanical contact	ZSC/ZSO-2817233B
	50	Elec.Conn.Size	Enclosure Protection	3/4"NPT(F)		Ex db II B T4 Gb
	51	Contact Form/Rating	5A@230V AC, DPDT			
SOLENOID VALVE	52	Model	Type			3way-2position, <4w
	53	S.V.Tag No.	Operating Voltage	BDY-2817233B		24V DC
	54	Elec.Conn.Size	Enclosure Protection	1/2"NPT(F)		Ex db II B T4 Gb
	55	Operation Type	Reset P.B.			
AIR SET	56	Regulator	Air Supply Press. MPa(G)	YES(with End Connector, Φ8, 316L SS)		0.4~0.8
	57	Air Vol. Tank	Air Conn.			
ACCESS	58	Surge Protection Device	Lock Valve	YES		
	59	Travel Stopper				
	60	Travel Condition				
PURCHASE	61	Manufacturer	PO No.			
	62	Price	SN	Item No.		

Note: 1. Ambient Temperature: -5℃~+55℃. Metallic surface temperature under direct sunlight: 85℃. Humidity range: 25%~80%. 2. BDY-2817233B SIL Class: SIL2.



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	2	Service	SEP-281821A Pressure Control			
	3	Line No.	Size and Sch.	8"-GG-28182116-3D6-PP30	8", SCH80	
	4	Pipe I.D. mm	Pipe O.D. mm	193.7	219.1	
	5	Pipe Material	C.S. (NACE) PWHT			
	6	Area Classification	Enclosure Protection	II B T4	IP65	
PROCESS CONDITIONS	7	Process Fluid	Fluid State	NATURAL GAS	GAS	
	8	Design Pressure MPa(G)	Design Temperature °C	2.2	100	
	9	Max Shut-off DP MPa	2.2			
	10	Vapor Pressure kPa(A)				
	11	Molecular Weight	Critical Pressure kPa(A)	26		
	12	Compression Factor	Solid Content	0.96		
	13	Specific Heat Ratio (Cp/Cv)	1.23			
	14	Erosion	Corrosion	Oxidizing	Toxic	
	15			NO	YES	
	16	Flow Rate		Units	Minimum	
	17	Inlet Pressure		Nm ³ /h	2700	3000
	18	Outlet Pressure		MPa(G)	1.2	
	19	Operating Temperature		MPa(G)	1.15	0.15
	20	Operating Density/Standard Density		°C	67~73	
	21	Viscosity		kg/Nm ³	1.14	
CALCULATED RESULTS	22	Flow Coefficient Cv		mPa.s	0.013	
	23	Selected Cv	Calculation Standard		49.05	54.5
	24	Valve Opening			135	ISA 75.01
	25	Allow. SPL dBA	Predicted SPL dBA	%	70.2	73.3
BODY	26	Model	Valve type	<85dBA	By Vendor	By Vendor
	27	Body Size	Pressure Rating	By Vendor	Globe Valve	
	28	Process Connections		4"	Class 300	
	29	Body/Bonnet Material		ASME B16.5 300LB RF		
	30	Bonnet Type	Flow Direction	ASTM A216 WCB(SSC&HIC)		
	31	Packing Material	Packing Type	Standard	Flow Open	
	32	Finish	Isolation	PTFE	By Vendor	
TRIM	33	Trim Size	Trim Form			
	34	Characteristic	Rated Travel	By Vendor	By Vendor	
	35	Plug/Ball/Disk Material		Equal Percent		
	36	Seat Material	Shaft Material	Note7		
	37	Cage/Guide Material		Note7	Note7	
	38	Seat Leakage Class		ANSI Class IV		
ACTUATOR	39	Actuator Model	Actuator Type	By Vendor	Pneumatic Diaphragm	
	40	Spring Action	Spring Range	Direct Action	By Vendor	
	41	Air Failure Position.	Max/Min.AS MPa(G)	FC	0.4~0.6	
	42	Mounting Position	Handwheel	Top	NO	
POSITIONER	43	Model	Type	By Vendor	Smart Positioner	
	44	Signal Input	Action	4~20mA+HART	Direct Action	
	45	Elec.Conn.Size	Enclosure Protection	1/2"NPT(F)×2	Ex db II B T4 Gb	
	46	Gauges(In/Out/Supp.)	Pneu. Connect	YES, 316 SS	1/4" NPT(F)-Φ8, 316L SS	
TRANSDUCE	47	Model	Signal Output			
	48	Elec.Conn.Size	Enclosure Protection			
SWITCH	49	Model	Type	Tag No.		
	50	Elec.Conn.Size	Enclosure Protection			
	51	Contact Form/Rating				
SOLENOID VALVE	52	Model	Type			
	53	S.V.Tag No.	Operating Voltage			
	54	Elec.Conn.Size	Enclosure Protection			
	55	Operation Type	Reset P.B.			
AIR SET	56	Regulator	Air Supply Press. MPa(G)	YES(with End Connector, Φ8, 316L SS)	0.4~0.8	
	57	Air Vol. Tank	Air Conn.			
ACCESS	58	Surge Protection Device	Lock Valve	YES		
	59	Travel Stopper				
	60	Travel Condition				
PURCHASE	61	Manufacturer	PO No.			
	62	Price	SN	Item No.		

Note: 1. Ambient Temperature: -5℃~+55℃. Metallic surface temperature under direct sunlight: 85℃. Humidity range: 25%~80%.



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CNOOC Petrochemical Engineering Co., Ltd.

DATA SHEET FOR CONTROL VALVE(OIL AND GAS SYSTEM)

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	2	Service				SEP-281821A Natural Gas to Flare Pressure Control				
	3	Line No.		Size and Sch.		8"-GE-28182122-3D6-PP30		8", SCH80		
	4	Pipe I.D. mm		Pipe O.D. mm		193.7		219.1		
	5	Pipe Material				C.S. (NACE) PWHT				
	6	Area Classification		Enclosure Protection		II B T4		IP65		
PROCESS CONDITIONS	7	Process Fluid		Fluid State		NATURAL GAS		GAS		
	8	Design Pressure MPa(G)		Design Temperature °C		2.2		100		
	9	Max Shut-off DP MPa				2.2				
	10	Vapor Pressure kPa(A)								
	11	Molecular Weight		Critical Pressure kPa(A)		26				
	12	Compression Factor		Solid Content		0.96				
	13	Specific Heat Ratio (Cp/Cv)				1.23				
	14	Erosion	Corrosion	Oxidizing	Toxic	NO	YES	NO	YES	
	15					Units	Minimum	Normal	Maximum	
	16	Flow Rate				Nm3/h		2700 3000		
	17	Inlet Pressure				MPa(G)		1.5		
	18	Outlet Pressure				MPa(G)		0.05 0.15		
	19	Operoperating Temperature				°C		67~73		
	20	Operating Density/Standard Density				kg/Nm3		1.14		
	21	Viscosity				mPa.s		0.013		
CALCULATED RESULTS	22	Flow Coefficient Cv						14.08 15.64		
	23	Selected Cv		Calculation Standard		60		ISA 75.01		
	24	Valve Opening				%		57.4 60.5		
	25	Allow. SPL dBA		Predicted SPL dBA		<85dBA By Vendor		By Vendor By Vendor		
BODY	26	Model		Valve type		By Vendor		Globe Valve		
	27	Body Size		Pressure Rating		3"		Class 300		
	28	Process Connections				ASME B16.5 300LB RF				
	29	Body/Bonnet Material				ASTM A216 WCB(SSC&HIC)				
	30	Bonnet Type		Flow Direction		Standard		Flow Open		
	31	Packing Material		Packing Type		PTFE		By Vendor		
	32	Finish	Isolation	Lubrication						
TRIM	33	Trim Size		Trim Form		By Vendor		By Vendor		
	34	Characteristic		Rated Travel		Equal Percent				
	35	Plug/Ball/Disk Material				Note7				
	36	Seat Material		Shaft Material		Note7		Note7		
	37	Cage/Guide Material				Note7				
	38	Seat Leakage Class				ANSI Class V				
ACTUATOR	39	Actuator Model		Actuator Type		By Vendor		Pneumatic Diaphragm		
	40	Spring Action		Spring Range		Direct Action		By Vendor		
	41	Air Failure Position.		Max/Min.AS MPa(G)		FO		0.4~0.6		
	42	Mounting Position		Handwheel		Top		NO		
POSITIONER	43	Model		Type		By Vendor		Smart Positioner		
	44	Signal Input		Action		4~20mA+HART		Direct Action		
	45	Elec.Conn.Size		Enclosure Protection		1/2"NPT(F)×2		Ex db II B T4 Gb		
	46	Gauges(In/Out/Supp.)		Pneu. Connect		YES, 316 SS		1/4" NPT(F)-Φ8, 316L SS		
TRANSDUCE	47	Model		Signal Output						
	48	Elec.Conn.Size		Enclosure Protection						
SWITCH	49	Model	Type	Tag No.				Mechanical contact	ZSC/ZSO-2818223A	
	50	Elec.Conn.Size		Enclosure Protection		3/4"NPT(F)		Ex db II B T4 Gb		
	51	Contact Form/Rating				5A@230V AC, DPDT				
SOLENOID VALVE	52	Model		Type				3way-2position, <4w		
	53	S.V.Tag No.		Operating Voltage		BDY-2818223A		24V DC		
	54	Elec.Conn.Size		Enclosure Protection		1/2"NPT(F)		Ex db II B T4 Gb		
	55	Operation Type		Reset P.B.						
AIR SET	56	Regulator		Air Supply Press. MPa(G)		YES(with End Connector, Φ8, 316L SS)		0.4~0.8		
	57	Air Vol. Tank		Air Conn.						
ACCESS	58	Surge Protection Device		Lock Valve		YES				
	59	Travel Stopper								
	60	Travel Condition								
PURCHASE	61	Manufacturer		PO No.						
	62	Price	SN	Item No.						

Note: 1. Ambient Temperature: -5℃~+55℃. Metallic surface temperature under direct sunlight: 85℃. Humidity range: 25%~80%. 2. BDY-2818223A SIL Class: SIL2.



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GENERAL	1	Tag Number	P&ID No.	PV-2848212A	PCS-15.11-0023	Rev.
	2	Service	V-284821 Natural Gas Inlet Pressure Control			
	3	Line No.	Size and Sch.	2"-GG-28682101-3D6-PP30	2", XXS	
	4	Pipe I.D. mm	Pipe O.D. mm	38.16	60.3	
	5	Pipe Material	ASTM A106 Gr.B (SSC&HIC)			
	6	Area Classification	Enclosure Protection	II B T4	IP65	
PROCESS CONDITIONS	7	Process Fluid	Fluid State	NATURAL GAS	GAS	
	8	Design Pressure MPa(G)	Design Temperature °C	2.2	100	
	9	Max Shut-off DP MPa	2.2			
	10	Vapor Pressure kPa(A)				
	11	Molecular Weight	Critical Pressure kPa(A)	25		
	12	Compression Factor	Solid Content	0.96		
	13	Specific Heat Ratio (Cp/Cv)	1.23			
	14	Erosion	Corrosion	Oxidizing	Toxic	
	15			NO	YES	
	16	Flow Rate		Units	Minimum	
	17	Inlet Pressure		Nm3/h	200	
	18	Outlet Pressure		MPa(G)	1	
	19	Operating Temperature		MPa(G)	0.2	
	20	Operating Density/Standard Density		°C	67~73	
CALCULATED RESULTS	21	Viscosity		kg/Nm3	1.04	
	22	Flow Coefficient Cv		mPa.s	0.013	
	23	Selected Cv	Calculation Standard		1.47	4.40
	24	Valve Opening		8	ISA 75.01	
BODY	25	Allow. SPL dBA	Predicted SPL dBA	%	50.2	82.4
	26	Model	Valve type	<85dBA	By Vendor	By Vendor
	27	Body Size	Pressure Rating	By Vendor	Globe Valve	
	28	Process Connections		1"	Class 300	
	29	Body/Bonnet Material	ASME B16.5 300LB RF			
	30	Bonnet Type	Flow Direction	ASTM A216 WCB(SSC&HIC)		
	31	Packing Material	Packing Type	Standard	Flow Open	
TRIM	32	Finish	Isolation	Lubrication	PTFE	By Vendor
	33	Trim Size	Trim Form			
	34	Characteristic	Rated Travel	By Vendor	By Vendor	
	35	Plug/Ball/Disk Material		Equal Percent		
	36	Seat Material	Shaft Material	Note7		
	37	Cage/Guide Material		Note7	Note7	
	38	Seat Leakage Class	ANSI Class IV			
ACTUATOR	39	Actuator Model	Actuator Type	By Vendor	Pneumatic Diaphragm	
	40	Spring Action	Spring Range	Direct Action	By Vendor	
	41	Air Failure Position.	Max/Min.AS MPa(G)	FO	0.4~0.6	
	42	Mounting Position	Handwheel	Top	NO	
POSITIONER	43	Model	Type	By Vendor	Smart Positioner	
	44	Signal Input	Action	4~20mA+HART	Direct Action	
	45	Elec.Conn.Size	Enclosure Protection	1/2"NPT(F)×2	Ex db II B T4 Gb	
	46	Gauges(In/Out/Supp.)	Pneu. Connect	YES, 316 SS	1/4" NPT(F)-Φ8, 316L SS	
TRANSDUCE	47	Model	Signal Output			
	48	Elec.Conn.Size	Enclosure Protection			
SWITCH	49	Model	Type	Tag No.		
	50	Elec.Conn.Size	Enclosure Protection			
	51	Contact Form/Rating				
SOLENOID VALVE	52	Model	Type			
	53	S.V.Tag No.	Operating Voltage			
	54	Elec.Conn.Size	Enclosure Protection			
	55	Operation Type	Reset P.B.			
AIR SET	56	Regulator	Air Supply Press. MPa(G)	YES(with End Connector, Φ8, 316L SS)	0.4~0.8	
	57	Air Vol. Tank	Air Conn.			
ACCESS	58	Surge Protection Device	Lock Valve	YES		
	59	Travel Stopper				
	60	Travel Condition				
PURCHASE	61	Manufacturer	PO No.			
	62	Price	SN	Item No.		

Note: 1. Ambient Temperature: -5℃~+55℃. Metallic surface temperature under direct sunlight: 85℃. Humidity range: 25%~80%.



中海石油石化工程有限公司
CNOOC Petrochemical Engineering Co., Ltd.

DATA SHEET FOR CONTROL VALVE(OIL AND GAS SYSTEM)

Owner Doc.No. CMIT-240048-728-INS-15.17-1007

Job's Doc. No. 253001D0728IN01022

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GENERAL	1	Tag Number	P&ID No.	PV-2848212B	PCS-15.11-0023	Rev.
	2	Service	V-284821 Natural Gas Outlet Pressure Control			
	3	Line No.	Size and Sch.	2"-GE-28682102-1D3-PP30	2", SCH80	
	4	Pipe I.D. mm	Pipe O.D. mm	49.22	60.3	
	5	Pipe Material	ASTM A106 Gr.B (SSC&HIC)			
	6	Area Classification	Enclosure Protection	II B T4	IP65	
PROCESS CONDITIONS	7	Process Fluid	Fluid State	NATURAL GAS	GAS	
	8	Design Pressure MPa(G)	Design Temperature °C	0.5	100	
	9	Max Shut-off DP MPa	0.5			
	10	Vapor Pressure kPa(A)				
	11	Molecular Weight	Critical Pressure kPa(A)	24		
	12	Compression Factor	Solid Content	0.99		
	13	Specific Heat Ratio (Cp/Cv)	1.21			
	14	Erosion	Corrosion	Oxidizing	Toxic	
	15			NO	YES	
	16	Flow Rate		Units	Minimum	
	17	Inlet Pressure		Nm3/h	200	
	18	Outlet Pressure		MPa(G)	0.2	
	19	Operating Temperature		MPa(G)	0.03	
	20	Operating Density/Standard Density		°C	67~73	
CALCULATED RESULTS	21	Viscosity		kg/Nm3	1.07	
	22	Flow Coefficient Cv		mPa.s	0.013	
	23	Selected Cv	Calculation Standard		5.31	15.93
	24	Valve Opening		25	ISA 75.01	
	25	Allow. SPL dBA	Predicted SPL dBA	%	54.4	86.7
BODY	26	Model	Valve type	<85dBA	By Vendor	By Vendor
	27	Body Size	Pressure Rating	By Vendor	Globe Valve	
	28	Process Connections		2"	Class 150	
	29	Body/Bonnet Material	ASME B16.5 150LB RF			
	30	Bonnet Type	Flow Direction	ASTM A216 WCB(SSC&HIC)		
	31	Packing Material	Packing Type	Standard	Flow Open	
	32	Finish	Isolation	PTFE	By Vendor	
	33	Trim Size	Trim Form			
TRIM	34	Characteristic	Rated Travel	By Vendor	By Vendor	
	35	Plug/Ball/Disk Material		Equal Percent		
	36	Seat Material	Shaft Material	Note7		
	37	Cage/Guide Material		Note7	Note7	
	38	Seat Leakage Class	Note7			
	39	Actuator Model	Actuator Type	ANSI Class IV		
ACTUATOR	40	Spring Action	Spring Range	By Vendor	Pneumatic Diaphragm	
	41	Air Failure Position.	Max/Min.AS MPa(G)	Direct Action	By Vendor	
	42	Mounting Position	Handwheel	FC	0.4~0.6	
	43	Model	Type	Top	NO	
POSITIONER	44	Signal Input	Action	By Vendor	Smart Positioner	
	45	Elec.Conn.Size	Enclosure Protection	4~20mA+HART	Direct Action	
	46	Gauges(In/Out/Supp.)	Pneu. Connect	1/2"NPT(F)×2	Ex db II B T4 Gb	
TRANSDUCE	47	Model	Signal Output	YES, 316 SS	1/4" NPT(F)-Φ8, 316L SS	
	48	Elec.Conn.Size	Enclosure Protection			
SWITCH	49	Model	Type			
	50	Elec.Conn.Size	Enclosure Protection			
	51	Contact Form/Rating	Tag No.			
SOLENOID VALVE	52	Model	Type			
	53	S.V.Tag No.	Operating Voltage			
	54	Elec.Conn.Size	Enclosure Protection			
	55	Operation Type	Reset P.B.			
AIR SET	56	Regulator	Air Supply Press. MPa(G)	YES(with End Connector, Φ8, 316L SS)	0.4~0.8	
	57	Air Vol. Tank	Air Conn.			
ACCESS	58	Surge Protection Device	Lock Valve	YES		
	59	Travel Stopper				
	60	Travel Condition				
PURCHASE	61	Manufacturer	PO No.			
	62	Price	SN	Item No.		

Note: 1. Ambient Temperature: -5℃~+55℃. Metallic surface temperature under direct sunlight: 85℃. Humidity range: 25%~80%.



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CNOOC Petrochemical Engineering Co., Ltd.

DATA SHEET FOR CONTROL VALVE(OIL AND GAS SYSTEM)

Owner Doc.No. CMIT-240048-728-INS-15.17-1007
Job's Doc. No. 253001D0728IN01022
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GENERAL	1	Tag Number	P&ID No.	FV-2822211A	PCS-15.11-0016	Rev.
	2	Service	P-282221A Outlet Min Flow-Rate Backflow Control			
	3	Line No.	Size and Sch.	6"-CO-28222108-3D6-PP30	6", SCH120	
	4	Pipe I.D. mm	Pipe O.D. mm	139.74	168.28	
	5	Pipe Material	C.S. (NACE) PWHT			
	6	Area Classification	Enclosure Protection	II B T4	IP65	
PROCESS CONDITIONS	7	Process Fluid	Fluid State	OIL & WATER	LIQUID	
	8	Design Pressure MPa(G)	Design Temperature °C	4	100	
	9	Max Shut-off DP MPa	4			
	10	Vapor Pressure kPa(A)				
	11	Molecular Weight	Critical Pressure kPa(A)			
	12	Compression Factor	Solid Content			
	13	Specific Heat Ratio (Cp/Cv)				
	14	Erosion	Corrosion	Oxidizing	Toxic	
	15			NO	YES	NO
	16	Flow Rate		Units	Minimum	Normal
	17	Inlet Pressure		kg/h	20000	60000
	18	Outlet Pressure		MPa(G)		2.57
	19	Operating Temperature		MPa(G)		1.20
	20	Operating Density/Standard Density		°C		67~73
CALCULATED RESULTS	21	Viscosity		kg/m3		900~990
	22	Flow Coefficient Cv		mPa.s		14~45
	23	Selected Cv	Calculation Standard		6.72	20.15
	24	Valve Opening			100	ISA 75.01
BODY	25	Allow. SPL dBA	Predicted SPL dBA	<85dBA	By Vendor	By Vendor
	26	Model	Valve type	By Vendor		Globe Valve
	27	Body Size	Pressure Rating	3"		Class 300
	28	Process Connections	ASME B16.5 300LB RF			
	29	Body/Bonnet Material	ASTM A216 WCB(SSC&HIC)			
	30	Bonnet Type	Flow Direction	Standard		Flow Open
	31	Packing Material	Packing Type	PTFE		By Vendor
TRIM	32	Finish	Isolation	Lubrication		
	33	Trim Size	Trim Form	By Vendor		By Vendor
	34	Characteristic	Rated Travel	Equal Percent		
	35	Plug/Ball/Disk Material	Note7			
	36	Seat Material	Shaft Material	Note7		Note7
	37	Cage/Guide Material	Note7			
	38	Seat Leakage Class	ANSI Class IV			
ACTUATOR	39	Actuator Model	Actuator Type	By Vendor		Pneumatic Diaphragm
	40	Spring Action	Spring Range	Direct Action		By Vendor
	41	Air Failure Position.	Max/Min.AS MPa(G)	FO		0.4~0.6
	42	Mounting Position	Handwheel	Top		NO
POSITIONER	43	Model	Type	By Vendor		Smart Positioner
	44	Signal Input	Action	4~20mA+HART		Direct Action
	45	Elec.Conn.Size	Enclosure Protection	1/2"NPT(F)×2		Ex db II B T4 Gb
	46	Gauges(In/Out/Supp.)	Pneu. Connect	YES, 316 SS		1/4" NPT(F)-Φ8, 316L SS
TRANSDUCE	47	Model	Signal Output			
	48	Elec.Conn.Size	Enclosure Protection			
SWITCH	49	Model	Type	Tag No.		
	50	Elec.Conn.Size	Enclosure Protection			
	51	Contact Form/Rating				
SOLENOID VALVE	52	Model	Type			
	53	S.V.Tag No.	Operating Voltage			
	54	Elec.Conn.Size	Enclosure Protection			
	55	Operation Type	Reset P.B.			
AIR SET	56	Regulator	Air Supply Press. MPa(G)	YES(with End Connector, Φ8, 316L SS)		0.4~0.8
	57	Air Vol. Tank	Air Conn.			
ACCESS	58	Surge Protection Device	Lock Valve	YES		
	59	Travel Stopper				
	60	Travel Condition				
PURCHASE	61	Manufacturer	PO No.			
	62	Price	SN	Item No.		

Note: 1. Ambient Temperature: -5℃~+55℃. Metallic surface temperature under direct sunlight: 85℃. Humidity range: 25%~80%. 2. The Vendor should consider the content of H2S and corrosion media(chloridion).



中海石油石化工程有限公司
CNOOC Petrochemical Engineering Co., Ltd.

DATA SHEET FOR CONTROL VALVE(OIL AND GAS SYSTEM)

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GENERAL	1	Tag Number	P&ID No.	FV-2822211B	PCS-15.11-0016	Rev.
	2	Service	P-282221B Outlet Min Flow-Rate Backflow Control			
	3	Line No.	Size and Sch.	6"-CO-28222109-3D6-PP30	6", SCH120	
	4	Pipe I.D. mm	Pipe O.D. mm	139.74	168.28	
	5	Pipe Material	C.S. (NACE) PWHT			
	6	Area Classification	Enclosure Protection	II B T4	IP65	
PROCESS CONDITIONS	7	Process Fluid	Fluid State	OIL & WATER	LIQUID	
	8	Design Pressure MPa(G)	Design Temperature °C	4	100	
	9	Max Shut-off DP MPa	4			
	10	Vapor Pressure kPa(A)				
	11	Molecular Weight	Critical Pressure kPa(A)			
	12	Compression Factor	Solid Content			
	13	Specific Heat Ratio (Cp/Cv)				
	14	Erosion	Corrosion	Oxidizing	Toxic	NO YES NO YES
	15		Units	Minimum	Normal	Maximum
	16	Flow Rate	kg/h	20000	60000	80000
	17	Inlet Pressure	MPa(G)		2.57	
	18	Outlet Pressure	MPa(G)		1.20	
	19	Operating Temperature	°C		67~73	
	20	Operating Density/Standard Density	kg/m3		900~990	
21	Viscosity	mPa.s		14~45		
CALCULATED RESULTS	22	Flow Coefficient Cv		6.72	20.15	26.87
	23	Selected Cv	Calculation Standard	100	ISA 75.01	
	24	Valve Opening		%	20.6	52.9 61.4
	25	Allow. SPL dBA	Predicted SPL dBA	<85dBA	By Vendor	By Vendor By Vendor
BODY	26	Model	Valve type	By Vendor	Globe Valve	
	27	Body Size	Pressure Rating	3"	Class 300	
	28	Process Connections	ASME B16.5 300LB RF			
	29	Body/Bonnet Material	ASTM A216 WCB(SSC&HIC)			
	30	Bonnet Type	Flow Direction	Standard	Flow Open	
	31	Packing Material	Packing Type	PTFE	By Vendor	
	32	Finish	Isolation	Lubrication		
TRIM	33	Trim Size	Trim Form	By Vendor	By Vendor	
	34	Characteristic	Rated Travel	Equal Percent		
	35	Plug/Ball/Disk Material	Note7			
	36	Seat Material	Shaft Material	Note7	Note7	
	37	Cage/Guide Material	Note7			
	38	Seat Leakage Class	ANSI Class IV			
ACTUATOR	39	Actuator Model	Actuator Type	By Vendor	Pneumatic Diaphragm	
	40	Spring Action	Spring Range	Direct Action	By Vendor	
	41	Air Failure Position.	Max/Min.AS MPa(G)	FO	0.4~0.6	
	42	Mounting Position	Handwheel	Top	NO	
POSITIONER	43	Model	Type	By Vendor	Smart Positioner	
	44	Signal Input	Action	4~20mA+HART	Direct Action	
	45	Elec.Conn.Size	Enclosure Protection	1/2"NPT(F)×2	Ex db II B T4 Gb	
	46	Gauges(In/Out/Supp.)	Pneu. Connect	YES, 316 SS	1/4" NPT(F)-Φ8, 316L SS	
TRANSDUCE	47	Model	Signal Output			
	48	Elec.Conn.Size	Enclosure Protection			
SWITCH	49	Model	Type	Tag No.		
	50	Elec.Conn.Size	Enclosure Protection			
	51	Contact Form/Rating				
SOLENOID VALVE	52	Model	Type			
	53	S.V.Tag No.	Operating Voltage			
	54	Elec.Conn.Size	Enclosure Protection			
	55	Operation Type	Reset P.B.			
AIR SET	56	Regulator	Air Supply Press. MPa(G)	YES(with End Connector, Φ8, 316L SS)	0.4~0.8	
	57	Air Vol. Tank	Air Conn.			
ACCESS	58	Surge Protection Device	Lock Valve	YES		
	59	Travel Stopper				
	60	Travel Condition				
PURCHASE	61	Manufacturer	PO No.			
	62	Price	SN	Item No.		

Note: 1. Ambient Temperature: -5℃~+55℃. Metallic surface temperature under direct sunlight: 85℃. Humidity range: 25%~80%. 2. The Vendor should consider the content of H2S and corrosion media(chloridion).



中海石油石化工程有限公司
CNOOC Petrochemical Engineering Co., Ltd.

DATA SHEET FOR CONTROL VALVE(OIL AND GAS SYSTEM)

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GENERAL	1	Tag Number	P&ID No.	FV-2822211C	PCS-15.11-0016	Rev.
	2	Service	P-282221C Outlet Min Flow-Rate Backflow Control			
	3	Line No.	Size and Sch.	6"-CO-28222110-3D6-PP30	6", SCH120	
	4	Pipe I.D. mm	Pipe O.D. mm	139.74	168.28	
	5	Pipe Material	C.S. (NACE) PWHT			
	6	Area Classification	Enclosure Protection	II B T4	IP65	
PROCESS CONDITIONS	7	Process Fluid	Fluid State	OIL & WATER	LIQUID	
	8	Design Pressure MPa(G)	Design Temperature °C	4	100	
	9	Max Shut-off DP MPa	4			
	10	Vapor Pressure kPa(A)				
	11	Molecular Weight	Critical Pressure kPa(A)			
	12	Compression Factor	Solid Content			
	13	Specific Heat Ratio (Cp/Cv)				
	14	Erosion	Corrosion	Oxidizing	Toxic	NO YES NO YES
	15		Units	Minimum	Normal	Maximum
	16	Flow Rate	kg/h	20000	60000	80000
	17	Inlet Pressure	MPa(G)		2.57	
	18	Outlet Pressure	MPa(G)		1.20	
	19	Operating Temperature	°C		67~73	
	20	Operating Density/Standard Density	kg/m3		900~990	
21	Viscosity	mPa.s		14~45		
CALCULATED RESULTS	22	Flow Coefficient Cv		6.72	20.15	26.87
	23	Selected Cv	Calculation Standard	100	ISA 75.01	
	24	Valve Opening		%	20.6	52.9 61.4
	25	Allow. SPL dBA	Predicted SPL dBA	<85dBA	By Vendor	By Vendor
BODY	26	Model	Valve type	By Vendor	Globe Valve	
	27	Body Size	Pressure Rating	3"	Class 300	
	28	Process Connections	ASME B16.5 300LB RF			
	29	Body/Bonnet Material	ASTM A216 WCB(SSC&HIC)			
	30	Bonnet Type	Flow Direction	Standard	Flow Open	
	31	Packing Material	Packing Type	PTFE	By Vendor	
	32	Finish	Isolation	Lubrication		
TRIM	33	Trim Size	Trim Form	By Vendor	By Vendor	
	34	Characteristic	Rated Travel	Equal Percent		
	35	Plug/Ball/Disk Material	Note7			
	36	Seat Material	Shaft Material	Note7	Note7	
	37	Cage/Guide Material	Note7			
	38	Seat Leakage Class	ANSI Class IV			
ACTUATOR	39	Actuator Model	Actuator Type	By Vendor	Pneumatic Diaphragm	
	40	Spring Action	Spring Range	Direct Action	By Vendor	
	41	Air Failure Position.	Max/Min.AS MPa(G)	FO	0.4~0.6	
	42	Mounting Position	Handwheel	Top	NO	
POSITIONER	43	Model	Type	By Vendor	Smart Positioner	
	44	Signal Input	Action	4~20mA+HART	Direct Action	
	45	Elec.Conn.Size	Enclosure Protection	1/2"NPT(F)×2	Ex db II B T4 Gb	
	46	Gauges(In/Out/Supp.)	Pneu. Connect	YES, 316 SS	1/4" NPT(F)-Φ8, 316L SS	
TRANSDUCE	47	Model	Signal Output			
	48	Elec.Conn.Size	Enclosure Protection			
SWITCH	49	Model	Type	Tag No.		
	50	Elec.Conn.Size	Enclosure Protection			
	51	Contact Form/Rating				
SOLENOID VALVE	52	Model	Type			
	53	S.V.Tag No.	Operating Voltage			
	54	Elec.Conn.Size	Enclosure Protection			
	55	Operation Type	Reset P.B.			
AIR SET	56	Regulator	Air Supply Press. MPa(G)	YES(with End Connector, Φ8, 316L SS)	0.4~0.8	
	57	Air Vol. Tank	Air Conn.			
ACCESS	58	Surge Protection Device	Lock Valve	YES		
	59	Travel Stopper				
	60	Travel Condition				
PURCHASE	61	Manufacturer	PO No.			
	62	Price	SN	Item No.		

Note: 1. Ambient Temperature: -5℃~+55℃. Metallic surface temperature under direct sunlight: 85℃. Humidity range: 25%~80%. 2. The Vendor should consider the content of H2S and corrosion media(chloridion).



中海石油石化工程有限公司
CNOOC Petrochemical Engineering Co., Ltd.

DATA SHEET FOR CONTROL VALVE(OIL AND GAS SYSTEM)

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GENERAL	1	Tag Number	P&ID No.	FV-2822221A	PCS-15.11-0017	Rev.
	2	Service	P-282222A Outlet Min Flow-Rate Backflow Control			
	3	Line No.	Size and Sch.	6"-CO-28222208-3D6-PP30	6", SCH120	
	4	Pipe I.D. mm	Pipe O.D. mm	139.74	168.28	
	5	Pipe Material	C.S. (NACE) PWHT			
	6	Area Classification	Enclosure Protection	II B T4	IP65	
PROCESS CONDITIONS	7	Process Fluid	Fluid State	OIL & WATER	LIQUID	
	8	Design Pressure MPa(G)	Design Temperature °C	4	100	
	9	Max Shut-off DP MPa	4			
	10	Vapor Pressure kPa(A)				
	11	Molecular Weight	Critical Pressure kPa(A)			
	12	Compression Factor	Solid Content			
	13	Specific Heat Ratio (Cp/Cv)				
	14	Erosion	Corrosion	Oxidizing	Toxic	
	15			NO	YES	NO
	16	Flow Rate		Units	Minimum	Normal
	17	Inlet Pressure		kg/h	20000	60000
	18	Outlet Pressure		MPa(G)		2.57
	19	Operating Temperature		MPa(G)		1.20
	20	Operating Density/Standard Density		°C		67~73
CALCULATED RESULTS	21	Viscosity		kg/m3		900~990
	22	Flow Coefficient Cv		mPa.s		14~45
	23	Selected Cv	Calculation Standard		6.72	20.15
	24	Valve Opening			100	ISA 75.01
	25	Allow. SPL dBA	Predicted SPL dBA		20.6	52.9
BODY	26	Model	Valve type		20.6	61.4
	27	Body Size	Pressure Rating	<85dBA	By Vendor	By Vendor
	28	Process Connections		By Vendor	Globe Valve	Class 300
	29	Body/Bonnet Material		ASME B16.5 300LB RF		
	30	Bonnet Type	Flow Direction	Standard	Flow Open	
	31	Packing Material	Packing Type	PTFE	By Vendor	
	32	Finish	Isolation	Lubrication		
TRIM	33	Trim Size	Trim Form	By Vendor	By Vendor	
	34	Characteristic	Rated Travel	Equal Percent		
	35	Plug/Ball/Disk Material		Note7	Note7	
	36	Seat Material	Shaft Material	Note7	Note7	
	37	Cage/Guide Material		Note7		
	38	Seat Leakage Class		ANSI Class IV		
ACTUATOR	39	Actuator Model	Actuator Type	By Vendor	Pneumatic Diaphragm	
	40	Spring Action	Spring Range	Direct Action	By Vendor	
	41	Air Failure Position.	Max/Min.AS MPa(G)	FO	0.4~0.6	
	42	Mounting Position	Handwheel	Top	NO	
POSITIONER	43	Model	Type	By Vendor	Smart Positioner	
	44	Signal Input	Action	4~20mA+HART	Direct Action	
	45	Elec.Conn.Size	Enclosure Protection	1/2"NPT(F)×2	Ex db II B T4 Gb	
	46	Gauges(In/Out/Supp.)	Pneu. Connect	YES, 316 SS	1/4" NPT(F)-Φ8, 316L SS	
TRANSDUCE	47	Model	Signal Output			
	48	Elec.Conn.Size	Enclosure Protection			
SWITCH	49	Model	Type	Tag No.		
	50	Elec.Conn.Size	Enclosure Protection			
	51	Contact Form/Rating				
SOLENOID VALVE	52	Model	Type			
	53	S.V.Tag No.	Operating Voltage			
	54	Elec.Conn.Size	Enclosure Protection			
	55	Operation Type	Reset P.B.			
AIR SET	56	Regulator	Air Supply Press. MPa(G)	YES(with End Connector, Φ8, 316L SS)	0.4~0.8	
	57	Air Vol. Tank	Air Conn.			
ACCESS	58	Surge Protection Device	Lock Valve	YES		
	59	Travel Stopper				
	60	Travel Condition				
PURCHASE	61	Manufacturer	PO No.			
	62	Price	SN	Item No.		

Note: 1. Ambient Temperature: -5℃~+55℃. Metallic surface temperature under direct sunlight: 85℃. Humidity range: 25%~80%. 2. The Vendor should consider the content of H2S and corrosion media(chloridion).



中海石油石化工程有限公司
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DATA SHEET FOR CONTROL VALVE(OIL AND GAS SYSTEM)

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GENERAL	1	Tag Number	P&ID No.	FV-2822221B	PCS-15.11-0017	Rev.
	2	Service	P-282222B Outlet Min Flow-Rate Backflow Control			
	3	Line No.	Size and Sch.	6"-CO-28222209-3D6-PP30	6", SCH120	
	4	Pipe I.D. mm	Pipe O.D. mm	139.74	168.28	
	5	Pipe Material	C.S. (NACE) PWHT			
	6	Area Classification	Enclosure Protection	II B T4	IP65	
PROCESS CONDITIONS	7	Process Fluid	Fluid State	OIL & WATER	LIQUID	
	8	Design Pressure MPa(G)	Design Temperature °C	4	100	
	9	Max Shut-off DP MPa	4			
	10	Vapor Pressure kPa(A)				
	11	Molecular Weight	Critical Pressure kPa(A)			
	12	Compression Factor	Solid Content			
	13	Specific Heat Ratio (Cp/Cv)				
	14	Erosion	Corrosion	Oxidizing	Toxic	
	15			NO	YES	NO
	16	Flow Rate		Units	Minimum	Normal
	17	Inlet Pressure		kg/h	20000	60000
	18	Outlet Pressure		MPa(G)		2.57
	19	Operating Temperature		MPa(G)		1.20
	20	Operating Density/Standard Density		°C		67~73
CALCULATED RESULTS	21	Viscosity		kg/m3		900~990
	22	Flow Coefficient Cv		mPa.s		14~45
	23	Selected Cv	Calculation Standard		6.72	20.15
	24	Valve Opening			100	26.87
BODY	25	Allow. SPL dBA	Predicted SPL dBA		20.6	52.9
	26	Model	Valve type		20.6	61.4
	27	Body Size	Pressure Rating	<85dBA	By Vendor	By Vendor
	28	Process Connections		By Vendor	By Vendor	By Vendor
	29	Body/Bonnet Material		ASME B16.5 300LB RF		
	30	Bonnet Type	Flow Direction	ASTM A216 WCB(SSC&HIC)		
	31	Packing Material	Packing Type	Standard	Flow Open	
	32	Finish	Isolation	PTFE	By Vendor	
TRIM	33	Trim Size	Trim Form			
	34	Characteristic	Rated Travel	By Vendor	By Vendor	
	35	Plug/Ball/Disk Material		Equal Percent		
	36	Seat Material	Shaft Material	Note7	Note7	
	37	Cage/Guide Material		Note7	Note7	
	38	Seat Leakage Class		ANSI Class IV		
ACTUATOR	39	Actuator Model	Actuator Type	By Vendor	Pneumatic Diaphragm	
	40	Spring Action	Spring Range	Direct Action	By Vendor	
	41	Air Failure Position.	Max/Min.AS MPa(G)	FO	0.4~0.6	
	42	Mounting Position	Handwheel	Top	NO	
POSITIONER	43	Model	Type	By Vendor	Smart Positioner	
	44	Signal Input	Action	4~20mA+HART	Direct Action	
	45	Elec.Conn.Size	Enclosure Protection	1/2"NPT(F)×2	Ex db II B T4 Gb	
	46	Gauges(In/Out/Supp.)	Pneu. Connect	YES, 316 SS	1/4" NPT(F)-Φ8, 316L SS	
TRANSDUCE	47	Model	Signal Output			
	48	Elec.Conn.Size	Enclosure Protection			
SWITCH	49	Model	Type			
	50	Elec.Conn.Size	Enclosure Protection			
	51	Contact Form/Rating				
SOLENOID VALVE	52	Model	Type			
	53	S.V.Tag No.	Operating Voltage			
	54	Elec.Conn.Size	Enclosure Protection			
	55	Operation Type	Reset P.B.			
AIR SET	56	Regulator	Air Supply Press. MPa(G)	YES(with End Connector, Φ8, 316L SS)	0.4~0.8	
	57	Air Vol. Tank	Air Conn.			
ACCESS	58	Surge Protection Device	Lock Valve	YES		
	59	Travel Stopper				
	60	Travel Condition				
PURCHASE	61	Manufacturer	PO No.			
	62	Price	SN	Item No.		

Note: 1. Ambient Temperature: -5℃~+55℃. Metallic surface temperature under direct sunlight: 85℃. Humidity range: 25%~80%. 2. The Vendor should consider the content of H2S and corrosion media(chloridion).



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CNOOC Petrochemical Engineering Co., Ltd.

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GENERAL	1	Tag Number	P&ID No.	FV-2822221C	PCS-15.11-0017	Rev.
	2	Service	P-282222C Outlet Min Flow-Rate Backflow Control			
	3	Line No.	Size and Sch.	6"-CO-28222210-3D6-PP30	6", SCH120	
	4	Pipe I.D. mm	Pipe O.D. mm	139.74	168.28	
	5	Pipe Material	C.S. (NACE) PWHT			
	6	Area Classification	Enclosure Protection	II B T4	IP65	
PROCESS CONDITIONS	7	Process Fluid	Fluid State	OIL & WATER	LIQUID	
	8	Design Pressure MPa(G)	Design Temperature °C	4	100	
	9	Max Shut-off DP MPa	4			
	10	Vapor Pressure kPa(A)				
	11	Molecular Weight	Critical Pressure kPa(A)			
	12	Compression Factor	Solid Content			
	13	Specific Heat Ratio (Cp/Cv)				
	14	Erosion	Corrosion	Oxidizing	Toxic	
	15			NO	YES	NO
	16	Flow Rate		Units	Minimum	Normal
	17	Inlet Pressure		kg/h	20000	60000
	18	Outlet Pressure		MPa(G)		2.57
	19	Operating Temperature		MPa(G)		1.20
	20	Operating Density/Standard Density		°C		67~73
CALCULATED RESULTS	21	Viscosity		kg/m3		900~990
	22	Flow Coefficient Cv		mPa.s		14~45
	23	Selected Cv	Calculation Standard		6.72	20.15
	24	Valve Opening			100	26.87
BODY	25	Allow. SPL dBA	Predicted SPL dBA		20.6	52.9
	26	Model	Valve type		20.6	61.4
	27	Body Size	Pressure Rating	<85dBA	By Vendor	By Vendor
	28	Process Connections		By Vendor	By Vendor	By Vendor
	29	Body/Bonnet Material		ASME B16.5 300LB RF		
	30	Bonnet Type	Flow Direction	ASTM A216 WCB(SSC&HIC)		
	31	Packing Material	Packing Type	Standard	Flow Open	
	32	Finish	Isolation	PTFE	By Vendor	
TRIM	33	Trim Size	Trim Form			
	34	Characteristic	Rated Travel	By Vendor	By Vendor	
	35	Plug/Ball/Disk Material		Equal Percent		
	36	Seat Material	Shaft Material	Note7	Note7	
	37	Cage/Guide Material		Note7	Note7	
	38	Seat Leakage Class		ANSI Class IV		
ACTUATOR	39	Actuator Model	Actuator Type	By Vendor	Pneumatic Diaphragm	
	40	Spring Action	Spring Range	Direct Action	By Vendor	
	41	Air Failure Position.	Max/Min.AS MPa(G)	FO	0.4~0.6	
	42	Mounting Position	Handwheel	Top	NO	
POSITIONER	43	Model	Type	By Vendor	Smart Positioner	
	44	Signal Input	Action	4~20mA+HART	Direct Action	
	45	Elec.Conn.Size	Enclosure Protection	1/2"NPT(F)×2	Ex db II B T4 Gb	
	46	Gauges(In/Out/Supp.)	Pneu. Connect	YES, 316 SS	1/4" NPT(F)-Φ8, 316L SS	
TRANSDUCE	47	Model	Signal Output			
	48	Elec.Conn.Size	Enclosure Protection			
SWITCH	49	Model	Type			
	50	Elec.Conn.Size	Enclosure Protection			
	51	Contact Form/Rating				
SOLENOID VALVE	52	Model	Type			
	53	S.V.Tag No.	Operating Voltage			
	54	Elec.Conn.Size	Enclosure Protection			
	55	Operation Type	Reset P.B.			
AIR SET	56	Regulator	Air Supply Press. MPa(G)	YES(with End Connector, Φ8, 316L SS)	0.4~0.8	
	57	Air Vol. Tank	Air Conn.			
ACCESS	58	Surge Protection Device	Lock Valve	YES		
	59	Travel Stopper				
	60	Travel Condition				
PURCHASE	61	Manufacturer	PO No.			
	62	Price	SN	Item No.		

Note: 1. Ambient Temperature: -5℃~+55℃. Metallic surface temperature under direct sunlight: 85℃. Humidity range: 25%~80%. 2. The Vendor should consider the content of H2S and corrosion media(chloridion).



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CNOOC Petrochemical Engineering Co., Ltd.

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GENERAL	1	Tag Number	P&ID No.	FV-2848211A	PCS-15.11-0024	Rev.
	2	Service	P-284821A Outlet Min Flow-Rate Backflow Control			
	3	Line No.	Size and Sch.	6"-OW-28622209-3L0-PP30	6", SCH40S	
	4	Pipe I.D. mm	Pipe O.D. mm	154.06	168.28	
	5	Pipe Material	ASTM A790-S32760			
	6	Area Classification	Enclosure Protection	II B T4	IP65	
PROCESS CONDITIONS	7	Process Fluid	Fluid State	OILY WATER	LIQUID	
	8	Design Pressure MPa(G)	Design Temperature °C	1.8	100	
	9	Max Shut-off DP MPa	1.8			
	10	Vapor Pressure kPa(A)				
	11	Molecular Weight	Critical Pressure kPa(A)			
	12	Compression Factor	Solid Content			
	13	Specific Heat Ratio (Cp/Cv)				
	14	Erosion	Corrosion	Oxidizing	Toxic	
	15			NO	YES	NO
	16	Flow Rate		Units	Minimum	Normal
	17	Inlet Pressure		kg/h	23280	46560
	18	Outlet Pressure		MPa(G)		1.2
	19	Operating Temperature		MPa(G)		0.3
	20	Operating Density/Standard Density		°C		67~73
	21	Viscosity		kg/m3		970~1000
CALCULATED RESULTS	22	Flow Coefficient Cv		mPa.s		0.385
	23	Selected Cv	Calculation Standard		9.29	18.58
	24	Valve Opening		%	45.2	65.5
	25	Allow. SPL dBA	Predicted SPL dBA	<85dBA	By Vendor	By Vendor
BODY	26	Model	Valve type	By Vendor	Globe Valve	
	27	Body Size	Pressure Rating	3"	Class 300	
	28	Process Connections	ASME B16.5 300LB RF			
	29	Body/Bonnet Material	ASTM A995 Gr.6A			
	30	Bonnet Type	Flow Direction	Standard	Flow Open	
	31	Packing Material	Packing Type	PTFE	By Vendor	
	32	Finish	Isolation	Lubrication		
TRIM	33	Trim Size	Trim Form	By Vendor	By Vendor	
	34	Characteristic	Rated Travel	Equal Percent		
	35	Plug/Ball/Disk Material	Note7			
	36	Seat Material	Shaft Material	Note7	Note7	
	37	Cage/Guide Material	Note7			
	38	Seat Leakage Class	ANSI Class IV			
ACTUATOR	39	Actuator Model	Actuator Type	By Vendor	Pneumatic Diaphragm	
	40	Spring Action	Spring Range	Direct Action	By Vendor	
	41	Air Failure Position.	Max/Min.AS MPa(G)	FO	0.4~0.6	
	42	Mounting Position	Handwheel	Top	NO	
POSITIONER	43	Model	Type	By Vendor	Smart Positioner	
	44	Signal Input	Action	4~20mA+HART	Direct Action	
	45	Elec.Conn.Size	Enclosure Protection	1/2"NPT(F)×2	Ex db II B T4 Gb	
	46	Gauges(In/Out/Supp.)	Pneu. Connect	YES, 316 SS	1/4" NPT(F)-Φ8, 316L SS	
TRANSDUCE	47	Model	Signal Output			
	48	Elec.Conn.Size	Enclosure Protection			
SWITCH	49	Model	Type	Tag No.		
	50	Elec.Conn.Size	Enclosure Protection			
	51	Contact Form/Rating				
SOLENOID VALVE	52	Model	Type			
	53	S.V.Tag No.	Operating Voltage			
	54	Elec.Conn.Size	Enclosure Protection			
	55	Operation Type	Reset P.B.			
AIR SET	56	Regulator	Air Supply Press. MPa(G)	YES(with End Connector, Φ8, 316L SS)	0.4~0.8	
	57	Air Vol. Tank	Air Conn.			
ACCESS	58	Surge Protection Device	Lock Valve	YES		
	59	Travel Stopper				
	60	Travel Condition				
PURCHASE	61	Manufacturer	PO No.			
	62	Price	SN	Item No.		

Note: 1. Ambient Temperature: -5℃~+55℃. Metallic surface temperature under direct sunlight: 85℃. Humidity range: 25%~80%. 2. The Vendor should consider the content of H2S and corrosion media(chloridion).



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GENERAL	1	Tag Number	P&ID No.	FV-2848211B	PCS-15.11-0024	Rev.
	2	Service	P-284821B Outlet Min Flow-Rate Backflow Control			
	3	Line No.	Size and Sch.	6"-OW-28622210-3L0-PP30	6", SCH40S	
	4	Pipe I.D. mm	Pipe O.D. mm	154.06	168.28	
	5	Pipe Material	ASTM A790-S32760			
	6	Area Classification	Enclosure Protection	II B T4	IP65	
PROCESS CONDITIONS	7	Process Fluid	Fluid State	OILY WATER	LIQUID	
	8	Design Pressure MPa(G)	Design Temperature °C	1.8	100	
	9	Max Shut-off DP MPa	1.8			
	10	Vapor Pressure kPa(A)				
	11	Molecular Weight	Critical Pressure kPa(A)			
	12	Compression Factor	Solid Content			
	13	Specific Heat Ratio (Cp/Cv)				
	14	Erosion	Corrosion	Oxidizing	Toxic	
	15			NO	YES	NO
	16	Flow Rate		Units	Minimum	Normal
	17	Inlet Pressure		MPa(G)		1.2
	18	Outlet Pressure		MPa(G)		0.3
	19	Operating Temperature		°C		67~73
	20	Operating Density/Standard Density		kg/m3		970~1000
CALCULATED RESULTS	21	Viscosity		mPa.s		0.385
	22	Flow Coefficient Cv			9.29	18.58
	23	Selected Cv	Calculation Standard	60		ISA 75.01
	24	Valve Opening		%	45.2	65.5
BODY	25	Allow. SPL dBA	Predicted SPL dBA	<85dBA	By Vendor	By Vendor
	26	Model	Valve type	By Vendor		Globe Valve
	27	Body Size	Pressure Rating	3"		Class 300
	28	Process Connections	ASME B16.5 300LB RF			
	29	Body/Bonnet Material	ASTM A995 Gr.6A			
	30	Bonnet Type	Flow Direction	Standard		Flow Open
	31	Packing Material	Packing Type	PTFE		By Vendor
	32	Finish	Isolation	Lubrication		
TRIM	33	Trim Size	Trim Form	By Vendor		By Vendor
	34	Characteristic	Rated Travel	Equal Percent		
	35	Plug/Ball/Disk Material	Note7			
	36	Seat Material	Shaft Material	Note7		Note7
	37	Cage/Guide Material	Note7			
	38	Seat Leakage Class	ANSI Class IV			
ACTUATOR	39	Actuator Model	Actuator Type	By Vendor		Pneumatic Diaphragm
	40	Spring Action	Spring Range	Direct Action		By Vendor
	41	Air Failure Position.	Max/Min.AS MPa(G)	FO		0.4~0.6
	42	Mounting Position	Handwheel	Top		NO
POSITIONER	43	Model	Type	By Vendor		Smart Positioner
	44	Signal Input	Action	4~20mA+HART		Direct Action
	45	Elec.Conn.Size	Enclosure Protection	1/2"NPT(F)×2		Ex db II B T4 Gb
	46	Gauges(In/Out/Supp.)	Pneu. Connect	YES, 316 SS		1/4" NPT(F)-Φ8, 316L SS
TRANSDUCE	47	Model	Signal Output			
	48	Elec.Conn.Size	Enclosure Protection			
SWITCH	49	Model	Type	Tag No.		
	50	Elec.Conn.Size	Enclosure Protection			
	51	Contact Form/Rating				
SOLENOID VALVE	52	Model	Type			
	53	S.V.Tag No.	Operating Voltage			
	54	Elec.Conn.Size	Enclosure Protection			
	55	Operation Type	Reset P.B.			
AIR SET	56	Regulator	Air Supply Press. MPa(G)	YES(with End Connector, Φ8, 316L SS)		0.4~0.8
	57	Air Vol. Tank	Air Conn.			
ACCESS	58	Surge Protection Device	Lock Valve	YES		
	59	Travel Stopper				
	60	Travel Condition				
PURCHASE	61	Manufacturer	PO No.			
	62	Price	SN	Item No.		

Note: 1. Ambient Temperature: -5℃~+55℃. Metallic surface temperature under direct sunlight: 85℃. Humidity range: 25%~80%. 2. The Vendor should consider the content of H2S and corrosion media(chloridion).



中海石油石化工程有限公司
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GENERAL	1	Tag Number	P&ID No.	FV-2848211C	PCS-15.11-0024	Rev.
	2	Service	P-284821C Outlet Min Flow-Rate Backflow Control			
	3	Line No.	Size and Sch.	6"-OW-28622211-3L0-PP30	6", SCH40S	
	4	Pipe I.D. mm	Pipe O.D. mm	154.06	168.28	
	5	Pipe Material	ASTM A790-S32760			
	6	Area Classification	Enclosure Protection	II B T4	IP65	
PROCESS CONDITIONS	7	Process Fluid	Fluid State	OILY WATER	LIQUID	
	8	Design Pressure MPa(G)	Design Temperature °C	1.8	100	
	9	Max Shut-off DP MPa	1.8			
	10	Vapor Pressure kPa(A)				
	11	Molecular Weight	Critical Pressure kPa(A)			
	12	Compression Factor	Solid Content			
	13	Specific Heat Ratio (Cp/Cv)				
	14	Erosion	Corrosion	Oxidizing	Toxic	
	15			NO	YES	NO
	16	Flow Rate		Units	Minimum	Normal
	17	Inlet Pressure		kg/h	23280	46560
	18	Outlet Pressure		MPa(G)		1.2
	19	Operating Temperature		MPa(G)		0.3
	20	Operating Density/Standard Density		°C		67~73
	21	Viscosity		kg/m3		970~1000
CALCULATED RESULTS	22	Flow Coefficient Cv		mPa.s		0.385
	23	Selected Cv	Calculation Standard		9.29	18.58
	24	Valve Opening		%	45.2	65.5
	25	Allow. SPL dBA	Predicted SPL dBA	<85dBA	By Vendor	By Vendor
BODY	26	Model	Valve type	By Vendor	Globe Valve	
	27	Body Size	Pressure Rating	3"	Class 300	
	28	Process Connections	ASME B16.5 300LB RF			
	29	Body/Bonnet Material	ASTM A995 Gr.6A			
	30	Bonnet Type	Flow Direction	Standard	Flow Open	
	31	Packing Material	Packing Type	PTFE	By Vendor	
	32	Finish	Isolation	Lubrication		
TRIM	33	Trim Size	Trim Form	By Vendor	By Vendor	
	34	Characteristic	Rated Travel	Equal Percent		
	35	Plug/Ball/Disk Material	Note7			
	36	Seat Material	Shaft Material	Note7	Note7	
	37	Cage/Guide Material	Note7			
	38	Seat Leakage Class	ANSI Class IV			
ACTUATOR	39	Actuator Model	Actuator Type	By Vendor	Pneumatic Diaphragm	
	40	Spring Action	Spring Range	Direct Action	By Vendor	
	41	Air Failure Position.	Max/Min.AS MPa(G)	FO	0.4~0.6	
	42	Mounting Position	Handwheel	Top	NO	
POSITIONER	43	Model	Type	By Vendor	Smart Positioner	
	44	Signal Input	Action	4~20mA+HART	Direct Action	
	45	Elec.Conn.Size	Enclosure Protection	1/2"NPT(F)×2	Ex db II B T4 Gb	
	46	Gauges(In/Out/Supp.)	Pneu. Connect	YES, 316 SS	1/4" NPT(F)-Φ8, 316L SS	
TRANSDUCE	47	Model	Signal Output			
	48	Elec.Conn.Size	Enclosure Protection			
SWITCH	49	Model	Type	Tag No.		
	50	Elec.Conn.Size	Enclosure Protection			
	51	Contact Form/Rating				
SOLENOID VALVE	52	Model	Type			
	53	S.V.Tag No.	Operating Voltage			
	54	Elec.Conn.Size	Enclosure Protection			
	55	Operation Type	Reset P.B.			
AIR SET	56	Regulator	Air Supply Press. MPa(G)	YES(with End Connector, Φ8, 316L SS)	0.4~0.8	
	57	Air Vol. Tank	Air Conn.			
ACCESS	58	Surge Protection Device	Lock Valve	YES		
	59	Travel Stopper				
	60	Travel Condition				
PURCHASE	61	Manufacturer	PO No.			
	62	Price	SN	Item No.		

Note: 1. Ambient Temperature: -5℃~+55℃. Metallic surface temperature under direct sunlight: 85℃. Humidity range: 25%~80%. 2. The Vendor should consider the content of H2S and corrosion media(chloridion).



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GENERAL	1	Tag Number	P&ID No.	LDV-2817221A	PCS-15.11-0004	Rev.
	2	Service	SEP-281722A Interface Control			
	3	Line No.	Size and Sch.	10"-OW-28172121-3L0-PP30	10", SCH40S	
	4	Pipe I.D. mm	Pipe O.D. mm	254.56	273.1	
	5	Pipe Material	ASTM A790-S32760			
	6	Area Classification	Enclosure Protection	II B T4	IP65	
PROCESS CONDITIONS	7	Process Fluid	Fluid State	OILY WATER	LIQUID	
	8	Design Pressure MPa(G)	Design Temperature °C	2.2	100	
	9	Max Shut-off DP MPa	2.2			
	10	Vapor Pressure kPa(A)				
	11	Molecular Weight	Critical Pressure kPa(A)			
	12	Compression Factor	Solid Content			
	13	Specific Heat Ratio (Cp/Cv)				
	14	Erosion	Corrosion	Oxidizing	Toxic	
	15			NO	YES	NO
	16	Flow Rate		Units	Minimum	Normal
	17	Inlet Pressure		kg/h	66588.8	166472
	18	Outlet Pressure		MPa(G)		1.15
	19	Operating Temperature		MPa(G)		0.3
	20	Operating Density/Standard Density		°C		67~73
CALCULATED RESULTS	21	Viscosity		kg/m3		975~1161
	22	Flow Coefficient Cv		mPa.s		0.4
	23	Selected Cv	Calculation Standard		27.28	68.20
	24	Valve Opening				75.01
BODY	25	Allow. SPL dBA	Predicted SPL dBA		280	ISA 75.01
	26	Model	Valve type	%	31.5	58.5
	27	Body Size	Pressure Rating	<85dBA	By Vendor	By Vendor
	28	Process Connections		By Vendor	By Vendor	By Vendor
	29	Body/Bonnet Material		6"	Class 300	
	30	Bonnet Type	Flow Direction	ASME B16.5 300LB RF		
	31	Packing Material	Packing Type	ASTM A995 Gr.6A		
TRIM	32	Finish	Isolation	Lubrication		
	33	Trim Size	Trim Form	Standard		Flow Open
	34	Characteristic	Rated Travel	PTFE		By Vendor
	35	Plug/Ball/Disk Material				
	36	Seat Material	Shaft Material			
	37	Cage/Guide Material				
	38	Seat Leakage Class				
ACTUATOR	39	Actuator Model	Actuator Type	By Vendor		Pneumatic Diaphragm
	40	Spring Action	Spring Range	Equal Percent		By Vendor
	41	Air Failure Position.	Max/Min.AS MPa(G)	FC		0.4~0.6
	42	Mounting Position	Handwheel	Top		NO
POSITIONER	43	Model	Type	By Vendor		Smart Positioner
	44	Signal Input	Action	4~20mA+HART		Direct Action
	45	Elec.Conn.Size	Enclosure Protection	1/2"NPT(F)×2		Ex db II B T4 Gb
	46	Gauges(In/Out/Supp.)	Pneu. Connect	YES, 316 SS		1/4" NPT(F)-Φ8, 316L SS
TRANSDUCE	47	Model	Signal Output			
	48	Elec.Conn.Size	Enclosure Protection			
SWITCH	49	Model	Type	Tag No.	Mechanical contact	ZSC/ZSO-2817221A
	50	Elec.Conn.Size	Enclosure Protection	3/4"NPT(F)		Ex db II B T4 Gb
	51	Contact Form/Rating			5A@230V AC, DPDT	
SOLENOID VALVE	52	Model	Type			3way-2position, <4w
	53	S.V.Tag No.	Operating Voltage	BDY-2817221A		24V DC
	54	Elec.Conn.Size	Enclosure Protection	1/2"NPT(F)		Ex db II B T4 Gb
	55	Operation Type	Reset P.B.			
AIR SET	56	Regulator	Air Supply Press. MPa(G)	YES(with End Connector, Φ8, 316L SS)		0.4~0.8
	57	Air Vol. Tank	Air Conn.			
ACCESS	58	Surge Protection Device	Lock Valve	YES		
	59	Travel Stopper				
	60	Travel Condition				
PURCHASE	61	Manufacturer	PO No.			
	62	Price	SN	Item No.		

Note: 1. Ambient Temperature: -5℃~+55℃. Metallic surface temperature under direct sunlight: 85℃. Humidity range: 25%~80%. 2. The Vendor should consider the content of H2S and corrosion media(chloridion). 3. BDY-2817221A SIL Class: SIL2.



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CNOOC Petrochemical Engineering Co., Ltd.

DATA SHEET FOR CONTROL VALVE(OIL AND GAS SYSTEM)

Owner Doc.No. CMIT-240048-728-INS-15.17-1007

Job's Doc. No. 253001D0728IN01022

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GENERAL	1	Tag Number	P&ID No.	LDV-2817221B	PCS-15.11-0006	Rev.
	2	Service	SEP-281722B Interface Control			
	3	Line No.	Size and Sch.	10"-OW-28172121B-3L0-PP30	10", SCH40S	
	4	Pipe I.D. mm	Pipe O.D. mm	254.46	273	
	5	Pipe Material	ASTM A790-S32760			
	6	Area Classification	Enclosure Protection	II B T4	IP65	
PROCESS CONDITIONS	7	Process Fluid	Fluid State	OILY WATER	LIQUID	
	8	Design Pressure MPa(G)	Design Temperature °C	2.2	100	
	9	Max Shut-off DP MPa	2.2			
	10	Vapor Pressure kPa(A)				
	11	Molecular Weight	Critical Pressure kPa(A)			
	12	Compression Factor	Solid Content			
	13	Specific Heat Ratio (Cp/Cv)				
	14	Erosion	Corrosion	Oxidizing	Toxic	
	15			NO	YES	NO
	16	Flow Rate		Units	Minimum	Normal
	17	Inlet Pressure		kg/h	66588.8	166472
	18	Outlet Pressure		MPa(G)		1.15
	19	Operating Temperature		MPa(G)		0.3
	20	Operating Density/Standard Density		°C		67~73
CALCULATED RESULTS	21	Viscosity		kg/m3		975~1161
	22	Flow Coefficient Cv		mPa.s		0.4
	23	Selected Cv	Calculation Standard		27.28	68.20
	24	Valve Opening			280	75.01
	25	Allow. SPL dBA	Predicted SPL dBA	%	31.5	58.5
BODY	26	Model	Valve type		61.3	
	27	Body Size	Pressure Rating	<85dBA	By Vendor	By Vendor
	28	Process Connections		By Vendor	Globe Valve	
	29	Body/Bonnet Material		6"	Class 300	
	30	Bonnet Type	Flow Direction	ASME B16.5 300LB RF		
	31	Packing Material	Packing Type	ASTM A995 Gr.6A		
	32	Finish	Isolation	Standard	Flow Open	
TRIM	33	Trim Size	Trim Form	PTFE	By Vendor	
	34	Characteristic	Rated Travel			
	35	Plug/Ball/Disk Material				
	36	Seat Material	Shaft Material		Note7	Note7
	37	Cage/Guide Material			Note7	
	38	Seat Leakage Class			ANSI Class V	
ACTUATOR	39	Actuator Model	Actuator Type	By Vendor	Pneumatic Diaphragm	
	40	Spring Action	Spring Range	Equal Percent	By Vendor	
	41	Air Failure Position.	Max/Min.AS MPa(G)	FC	0.4~0.6	
	42	Mounting Position	Handwheel	Top	NO	
POSITIONER	43	Model	Type	By Vendor	Smart Positioner	
	44	Signal Input	Action	4~20mA+HART	Direct Action	
	45	Elec.Conn.Size	Enclosure Protection	1/2"NPT(F)×2	Ex db II B T4 Gb	
	46	Gauges(In/Out/Supp.)	Pneu. Connect	YES, 316 SS	1/4" NPT(F)-Φ8, 316L SS	
TRANSDUCE	47	Model	Signal Output			
	48	Elec.Conn.Size	Enclosure Protection			
SWITCH	49	Model	Type	Tag No.	Mechanical contact	ZSC/ZSO-2817221B
	50	Elec.Conn.Size	Enclosure Protection	3/4"NPT(F)	Ex db II B T4 Gb	
	51	Contact Form/Rating			5A@230V AC, DPDT	
SOLENOID VALVE	52	Model	Type		3way-2position, <4w	
	53	S.V.Tag No.	Operating Voltage	BDY-2817221B	24V DC	
	54	Elec.Conn.Size	Enclosure Protection	1/2"NPT(F)	Ex db II B T4 Gb	
	55	Operation Type	Reset P.B.			
AIR SET	56	Regulator	Air Supply Press. MPa(G)	YES(with End Connector, Φ8, 316L SS)	0.4~0.8	
	57	Air Vol. Tank	Air Conn.			
ACCESS	58	Surge Protection Device	Lock Valve	YES		
	59	Travel Stopper				
	60	Travel Condition				
PURCHASE	61	Manufacturer	PO No.			
	62	Price	SN	Item No.		

Note: 1. Ambient Temperature: -5℃~+55℃. Metallic surface temperature under direct sunlight: 85℃. Humidity range: 25%~80%. 2. The Vendor should consider the content of H2S and corrosion media(chloridion). 3. BDY-2817221B SIL Class: SIL2.



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GENERAL	1	Tag Number	P&ID No.	LV-2817224A	PCS-15.11-0004	Rev.
	2	Service	SEP-281722A Level Control			
	3	Line No.	Size and Sch.	16"-CO-28172118-3D6-PP30	16", SCH60	
	4	Pipe I.D. mm	Pipe O.D. mm	373.08	406.4	
	5	Pipe Material	C.S. (NACE) PWHT			
	6	Area Classification	Enclosure Protection	II B T4	IP65	
PROCESS CONDITIONS	7	Process Fluid	Fluid State	OIL & WATER	LIQUID	
	8	Design Pressure MPa(G)	Design Temperature °C	2.2	100	
	9	Max Shut-off DP MPa	2.2			
	10	Vapor Pressure kPa(A)				
	11	Molecular Weight	Critical Pressure kPa(A)			
	12	Compression Factor	Solid Content			
	13	Specific Heat Ratio (Cp/Cv)				
	14	Erosion	Corrosion	Oxidizing	Toxic	
	15			NO	YES	NO
	16	Flow Rate		Units	Minimum	Normal
	17	Inlet Pressure		kg/h	102174.8	255437
	18	Outlet Pressure		MPa(G)	1.15	280980.7
	19	Operating Temperature		MPa(G)	1.1	
	20	Operating Density/Standard Density		°C	67~73	
	21	Viscosity		kg/m3	925~990	
CALCULATED RESULTS	22	Flow Coefficient Cv		mPa.s	14~45	
	23	Selected Cv	Calculation Standard		177.18	442.95
	24	Valve Opening			1300	487.24
	25	Allow. SPL dBA	Predicted SPL dBA		ISA 75.01	
BODY	26	Model	Valve type	%	41.4	68.3
	27	Body Size	Pressure Rating	<85dBA	By Vendor	By Vendor
	28	Process Connections		By Vendor	By Vendor	By Vendor
	29	Body/Bonnet Material		14"	Class 300	
	30	Bonnet Type	Flow Direction	ASME B16.5 300LB RF		
	31	Packing Material	Packing Type	ASTM A216 WCB(SSC&HIC)		
	32	Finish	Isolation	Standard	Flow Open	
TRIM	33	Trim Size	Trim Form	PTFE	By Vendor	
	34	Characteristic	Rated Travel			
	35	Plug/Ball/Disk Material				
	36	Seat Material	Shaft Material		Note7	Note7
	37	Cage/Guide Material			Note7	
	38	Seat Leakage Class			ANSI Class IV	
ACTUATOR	39	Actuator Model	Actuator Type	By Vendor	Pneumatic Diaphragm	
	40	Spring Action	Spring Range	Equal Percent	By Vendor	
	41	Air Failure Position.	Max/Min.AS MPa(G)	FC	0.4~0.6	
	42	Mounting Position	Handwheel	Top	NO	
POSITIONER	43	Model	Type	By Vendor	Smart Positioner	
	44	Signal Input	Action	4~20mA+HART	Direct Action	
	45	Elec.Conn.Size	Enclosure Protection	1/2"NPT(F)×2	Ex db II B T4 Gb	
	46	Gauges(In/Out/Supp.)	Pneu. Connect	YES, 316 SS	1/4" NPT(F)-Φ8, 316L SS	
TRANSDUCE	47	Model	Signal Output			
	48	Elec.Conn.Size	Enclosure Protection			
SWITCH	49	Model	Type	Tag No.		
	50	Elec.Conn.Size	Enclosure Protection			
	51	Contact Form/Rating				
SOLENOID VALVE	52	Model	Type			
	53	S.V.Tag No.	Operating Voltage			
	54	Elec.Conn.Size	Enclosure Protection			
	55	Operation Type	Reset P.B.			
AIR SET	56	Regulator	Air Supply Press. MPa(G)	YES(with End Connector, Φ8, 316L SS)	0.4~0.8	
	57	Air Vol. Tank	Air Conn.			
ACCESS	58	Surge Protection Device	Lock Valve	YES		
	59	Travel Stopper				
	60	Travel Condition				
PURCHASE	61	Manufacturer	PO No.			
	62	Price	SN	Item No.		

Note: 1. Ambient Temperature: -5℃~+55℃. Metallic surface temperature under direct sunlight: 85℃. Humidity range: 25%~80%. 2. The Vendor should consider the content of H2S and corrosion media(chloridion).



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GENERAL	1	Tag Number	P&ID No.	LV-2817224B	PCS-15.11-0006	Rev.
	2	Service	SEP-281722B Level Control			
	3	Line No.	Size and Sch.	16"-CO-28172128-3D6-PP30	16", SCH60	
	4	Pipe I.D. mm	Pipe O.D. mm	373.08	406.4	
	5	Pipe Material	C.S. (NACE) PWHT			
	6	Area Classification	Enclosure Protection	II B T4	IP65	
PROCESS CONDITIONS	7	Process Fluid	Fluid State	OIL & WATER	LIQUID	
	8	Design Pressure MPa(G)	Design Temperature °C	2.2	100	
	9	Max Shut-off DP MPa	2.2			
	10	Vapor Pressure kPa(A)				
	11	Molecular Weight	Critical Pressure kPa(A)			
	12	Compression Factor	Solid Content			
	13	Specific Heat Ratio (Cp/Cv)				
	14	Erosion	Corrosion	Oxidizing	Toxic	
	15			NO	YES	NO
	16	Flow Rate		Units	Minimum	Normal
	17	Inlet Pressure		kg/h	102174.8	255437
	18	Outlet Pressure		MPa(G)	1.15	280980.7
	19	Operating Temperature		MPa(G)	1.1	
	20	Operating Density/Standard Density		°C	67~73	
	21	Viscosity		kg/m3	925~990	
CALCULATED RESULTS	22	Flow Coefficient Cv		mPa.s	14~45	
	23	Selected Cv	Calculation Standard		177.18	442.95
	24	Valve Opening			1300	487.24
	25	Allow. SPL dBA	Predicted SPL dBA		ISA 75.01	
BODY	26	Model	Valve type	%	41.4	68.3
	27	Body Size	Pressure Rating	<85dBA	By Vendor	By Vendor
	28	Process Connections		By Vendor	By Vendor	By Vendor
	29	Body/Bonnet Material		14"	Class 300	
	30	Bonnet Type	Flow Direction	ASME B16.5 300LB RF		
	31	Packing Material	Packing Type	ASTM A216 WCB(SSC&HIC)		
	32	Finish	Isolation	Standard	Flow Open	
TRIM	33	Trim Size	Trim Form	PTFE	By Vendor	
	34	Characteristic	Rated Travel			
	35	Plug/Ball/Disk Material				
	36	Seat Material	Shaft Material		Note7	Note7
	37	Cage/Guide Material			Note7	
	38	Seat Leakage Class			ANSI Class IV	
ACTUATOR	39	Actuator Model	Actuator Type	By Vendor	Pneumatic Diaphragm	
	40	Spring Action	Spring Range	Equal Percent	By Vendor	
	41	Air Failure Position.	Max/Min.AS MPa(G)	FC	0.4~0.6	
	42	Mounting Position	Handwheel	Top	NO	
POSITIONER	43	Model	Type	By Vendor	Smart Positioner	
	44	Signal Input	Action	4~20mA+HART	Direct Action	
	45	Elec.Conn.Size	Enclosure Protection	1/2"NPT(F)×2	Ex db II B T4 Gb	
	46	Gauges(In/Out/Supp.)	Pneu. Connect	YES, 316 SS	1/4" NPT(F)-Φ8, 316L SS	
TRANSDUCE	47	Model	Signal Output			
	48	Elec.Conn.Size	Enclosure Protection			
SWITCH	49	Model	Type	Tag No.		
	50	Elec.Conn.Size	Enclosure Protection			
	51	Contact Form/Rating				
SOLENOID VALVE	52	Model	Type			
	53	S.V.Tag No.	Operating Voltage			
	54	Elec.Conn.Size	Enclosure Protection			
	55	Operation Type	Reset P.B.			
AIR SET	56	Regulator	Air Supply Press. MPa(G)	YES(with End Connector, Φ8, 316L SS)	0.4~0.8	
	57	Air Vol. Tank	Air Conn.			
ACCESS	58	Surge Protection Device	Lock Valve	YES		
	59	Travel Stopper				
	60	Travel Condition				
PURCHASE	61	Manufacturer	PO No.			
	62	Price	SN	Item No.		

Note: 1. Ambient Temperature: -5℃~+55℃. Metallic surface temperature under direct sunlight: 85℃. Humidity range: 25%~80%. 2. The Vendor should consider the content of H2S and corrosion media(chloridion).



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GENERAL	1	Tag Number	P&ID No.	LDV-2817231A	PCS-15.11-0005	Rev.
	2	Service	SEP-281723A Interface Control			
	3	Line No.	Size and Sch.	10"-OW-28172148-3L0-PP30	10", SCH40S	
	4	Pipe I.D. mm	Pipe O.D. mm	254.46	273	
	5	Pipe Material	ASTM A790-S32760			
	6	Area Classification	Enclosure Protection	II B T4	IP65	
PROCESS CONDITIONS	7	Process Fluid	Fluid State	OILY WATER	LIQUID	
	8	Design Pressure MPa(G)	Design Temperature °C	2.2	100	
	9	Max Shut-off DP MPa	2.2			
	10	Vapor Pressure kPa(A)				
	11	Molecular Weight	Critical Pressure kPa(A)			
	12	Compression Factor	Solid Content			
	13	Specific Heat Ratio (Cp/Cv)				
	14	Erosion	Corrosion	Oxidizing	Toxic	
	15			NO	YES	NO
	16	Flow Rate		Units	Minimum	Normal
	17	Inlet Pressure		kg/h	43680	109200
	18	Outlet Pressure		MPa(G)	1	120120
	19	Operating Temperature		MPa(G)	0.3	
	20	Operating Density/Standard Density		°C	67~73	
CALCULATED RESULTS	21	Viscosity		kg/m3	975~1161	
	22	Flow Coefficient Cv		mPa.s	0.4	
	23	Selected Cv	Calculation Standard		19.72	49.29
	24	Valve Opening			60.3	54.22
BODY	25	Allow. SPL dBA	Predicted SPL dBA	<85dBA	By Vendor	By Vendor
	26	Model	Valve type	By Vendor	Globe Valve	
	27	Body Size	Pressure Rating	6"	Class 300	
	28	Process Connections	ASME B16.5 300LB RF			
	29	Body/Bonnet Material	ASTM A995 Gr.6A			
	30	Bonnet Type	Flow Direction	Standard	Flow Open	
	31	Packing Material	Packing Type	PTFE	By Vendor	
TRIM	32	Finish	Isolation	Lubrication		
	33	Trim Size	Trim Form	By Vendor	By Vendor	
	34	Characteristic	Rated Travel	Equal Percent		
	35	Plug/Ball/Disk Material	Note7			
	36	Seat Material	Shaft Material	Note7	Note7	
	37	Cage/Guide Material	Note7			
	38	Seat Leakage Class	ANSI Class V			
ACTUATOR	39	Actuator Model	Actuator Type	By Vendor	Pneumatic Diaphragm	
	40	Spring Action	Spring Range	Direct Action	By Vendor	
	41	Air Failure Position.	Max/Min.AS MPa(G)	FC	0.4~0.6	
	42	Mounting Position	Handwheel	Top	NO	
POSITIONER	43	Model	Type	By Vendor	Smart Positioner	
	44	Signal Input	Action	4~20mA+HART	Direct Action	
	45	Elec.Conn.Size	Enclosure Protection	1/2"NPT(F)×2	Ex db II B T4 Gb	
	46	Gauges(In/Out/Supp.)	Pneu. Connect	YES, 316 SS	1/4" NPT(F)-Φ8, 316L SS	
TRANSDUCE	47	Model	Signal Output			
	48	Elec.Conn.Size	Enclosure Protection			
SWITCH	49	Model	Type	Tag No.	Mechanical contact	ZSC/ZSO-2817231A
	50	Elec.Conn.Size	Enclosure Protection	3/4"NPT(F)	Ex db II B T4 Gb	
	51	Contact Form/Rating	5A@230V AC, DPDT			
SOLENOID VALVE	52	Model	Type		3way-2position, <4w	
	53	S.V.Tag No.	Operating Voltage	BDY-2817231A	24V DC	
	54	Elec.Conn.Size	Enclosure Protection	1/2"NPT(F)	Ex db II B T4 Gb	
	55	Operation Type	Reset P.B.			
AIR SET	56	Regulator	Air Supply Press. MPa(G)	YES(with End Connector, Φ8, 316L SS)	0.4~0.8	
	57	Air Vol. Tank	Air Conn.			
ACCESS	58	Surge Protection Device	Lock Valve	YES		
	59	Travel Stopper				
	60	Travel Condition				
PURCHASE	61	Manufacturer	PO No.			
	62	Price	SN	Item No.		

Note: 1. Ambient Temperature: -5℃~+55℃. Metallic surface temperature under direct sunlight: 85℃. Humidity range: 25%~80%. 2. The Vendor should consider the content of H2S and corrosion media(chloridion). 3. BDY-2817231A SIL Class: SIL2.



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GENERAL	1	Tag Number	P&ID No.	LDV-2817231B	PCS-15.11-0007	Rev.
	2	Service	SEP-281723B Interface Control			
	3	Line No.	Size and Sch.	10"-OW-28172152-3L0-PP30	10", SCH40S	
	4	Pipe I.D. mm	Pipe O.D. mm	254.46	273	
	5	Pipe Material	ASTM A790-S32760			
	6	Area Classification	Enclosure Protection	II B T4	IP65	
PROCESS CONDITIONS	7	Process Fluid	Fluid State	OILY WATER	LIQUID	
	8	Design Pressure MPa(G)	Design Temperature °C	2.2	100	
	9	Max Shut-off DP MPa	2.2			
	10	Vapor Pressure kPa(A)				
	11	Molecular Weight	Critical Pressure kPa(A)			
	12	Compression Factor	Solid Content			
	13	Specific Heat Ratio (Cp/Cv)				
	14	Erosion	Corrosion	Oxidizing	Toxic	
	15			NO	YES	NO
	16	Flow Rate		Units	Minimum	Normal
	17	Inlet Pressure		kg/h	43680	109200
	18	Outlet Pressure		MPa(G)	1	120120
	19	Operating Temperature		MPa(G)	0.3	
	20	Operating Density/Standard Density		°C	67~73	
CALCULATED RESULTS	21	Viscosity		kg/m3	975~1161	
	22	Flow Coefficient Cv		mPa.s	0.4	
	23	Selected Cv	Calculation Standard		19.72	49.29
	24	Valve Opening			60.3	54.22
BODY	25	Allow. SPL dBA	Predicted SPL dBA	<85dBA	By Vendor	By Vendor
	26	Model	Valve type	By Vendor	Globe Valve	
	27	Body Size	Pressure Rating	6"	Class 300	
	28	Process Connections	ASME B16.5 300LB RF			
	29	Body/Bonnet Material	ASTM A995 Gr.6A			
	30	Bonnet Type	Flow Direction	Standard	Flow Open	
	31	Packing Material	Packing Type	PTFE	By Vendor	
TRIM	32	Finish	Isolation	Lubrication		
	33	Trim Size	Trim Form	By Vendor	By Vendor	
	34	Characteristic	Rated Travel	Equal Percent		
	35	Plug/Ball/Disk Material	Note7			
	36	Seat Material	Shaft Material	Note7	Note7	
	37	Cage/Guide Material	Note7			
	38	Seat Leakage Class	ANSI Class V			
ACTUATOR	39	Actuator Model	Actuator Type	By Vendor	Pneumatic Diaphragm	
	40	Spring Action	Spring Range	Direct Action	By Vendor	
	41	Air Failure Position.	Max/Min.AS MPa(G)	FC	0.4~0.6	
	42	Mounting Position	Handwheel	Top	NO	
POSITIONER	43	Model	Type	By Vendor	Smart Positioner	
	44	Signal Input	Action	4~20mA+HART	Direct Action	
	45	Elec.Conn.Size	Enclosure Protection	1/2"NPT(F)×2	Ex db II B T4 Gb	
	46	Gauges(In/Out/Supp.)	Pneu. Connect	YES, 316 SS	1/4" NPT(F)-Φ8, 316L SS	
TRANSDUCE	47	Model	Signal Output			
	48	Elec.Conn.Size	Enclosure Protection			
SWITCH	49	Model	Type	Tag No.	Mechanical contact	ZSC/ZSO-2817231B
	50	Elec.Conn.Size	Enclosure Protection	3/4"NPT(F)	Ex db II B T4 Gb	
	51	Contact Form/Rating	5A@230V AC, DPDT			
SOLENOID VALVE	52	Model	Type		3way-2position, <4w	
	53	S.V.Tag No.	Operating Voltage	BDY-2817231B	24V DC	
	54	Elec.Conn.Size	Enclosure Protection	1/2"NPT(F)	Ex db II B T4 Gb	
	55	Operation Type	Reset P.B.			
AIR SET	56	Regulator	Air Supply Press. MPa(G)	YES(with End Connector, Φ8, 316L SS)	0.4~0.8	
	57	Air Vol. Tank	Air Conn.			
ACCESS	58	Surge Protection Device	Lock Valve	YES		
	59	Travel Stopper				
	60	Travel Condition				
PURCHASE	61	Manufacturer	PO No.			
	62	Price	SN	Item No.		

Note: 1. Ambient Temperature: -5℃~+55℃. Metallic surface temperature under direct sunlight: 85℃. Humidity range: 25%~80%. 2. The Vendor should consider the content of H2S and corrosion media(chloridion). 3. BDY-2817231B SIL Class: SIL2.



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	2	Service	SEP-281723A Level Control			
	3	Line No.	Size and Sch.	14"-CO-28222141-3D6-PP30	14", SCH80	
	4	Pipe I.D. mm	Pipe O.D. mm	317.5	355.6	
	5	Pipe Material	C.S. (NACE) PWHT			
	6	Area Classification	Enclosure Protection	II B T4	IP65	
PROCESS CONDITIONS	7	Process Fluid	Fluid State	OIL & WATER	LIQUID	
	8	Design Pressure MPa(G)	Design Temperature °C	4	100	
	9	Max Shut-off DP MPa	4			
	10	Vapor Pressure kPa(A)				
	11	Molecular Weight	Critical Pressure kPa(A)			
	12	Compression Factor	Solid Content			
	13	Specific Heat Ratio (Cp/Cv)				
	14	Erosion	Corrosion	Oxidizing	Toxic	
	15			NO	YES	NO
	16	Flow Rate		Units	Minimum	Normal
	17	Inlet Pressure		kg/h	71454.8	178637
	18	Outlet Pressure		MPa(G)	2.57	2.5
	19	Operating Temperature		MPa(G)	67~73	
	20	Operating Density/Standard Density		°C	900~990	
	21	Viscosity		kg/m3	14~45	
CALCULATED RESULTS	22	Flow Coefficient Cv		mPa.s	106.17	265.41
	23	Selected Cv	Calculation Standard		950	ISA 75.01
	24	Valve Opening		%	35.6	62.5
	25	Allow. SPL dBA	Predicted SPL dBA	<85dBA	By Vendor	By Vendor
BODY	26	Model	Valve type	By Vendor	Globe Valve	
	27	Body Size	Pressure Rating	12"	Class 300	
	28	Process Connections	ASME B16.5 300LB RF			
	29	Body/Bonnet Material	ASTM A216 WCB(SSC&HIC)			
	30	Bonnet Type	Flow Direction	Standard	Flow Open	
	31	Packing Material	Packing Type	PTFE	By Vendor	
	32	Finish	Isolation	Lubrication		
TRIM	33	Trim Size	Trim Form	By Vendor	By Vendor	
	34	Characteristic	Rated Travel	Equal Percent		
	35	Plug/Ball/Disk Material	Note7			
	36	Seat Material	Shaft Material	Note7	Note7	
	37	Cage/Guide Material	Note7			
	38	Seat Leakage Class	ANSI Class IV			
ACTUATOR	39	Actuator Model	Actuator Type	By Vendor	Pneumatic Diaphragm	
	40	Spring Action	Spring Range	Direct Action	By Vendor	
	41	Air Failure Position.	Max/Min.AS MPa(G)	FC	0.4~0.6	
	42	Mounting Position	Handwheel	Top	NO	
POSITIONER	43	Model	Type	By Vendor	Smart Positioner	
	44	Signal Input	Action	4~20mA+HART	Direct Action	
	45	Elec.Conn.Size	Enclosure Protection	1/2"NPT(F)×2	Ex db II B T4 Gb	
	46	Gauges(In/Out/Supp.)	Pneu. Connect	YES, 316 SS	1/4" NPT(F)-Φ8, 316L SS	
TRANSDUCE	47	Model	Signal Output			
	48	Elec.Conn.Size	Enclosure Protection			
SWITCH	49	Model	Type	Tag No.		
	50	Elec.Conn.Size	Enclosure Protection			
	51	Contact Form/Rating				
SOLENOID VALVE	52	Model	Type			
	53	S.V.Tag No.	Operating Voltage			
	54	Elec.Conn.Size	Enclosure Protection			
	55	Operation Type	Reset P.B.			
AIR SET	56	Regulator	Air Supply Press. MPa(G)	YES(with End Connector, Φ8, 316L SS)	0.4~0.8	
	57	Air Vol. Tank	Air Conn.			
ACCESS	58	Surge Protection Device	Lock Valve	YES		
	59	Travel Stopper				
	60	Travel Condition				
PURCHASE	61	Manufacturer	PO No.			
	62	Price	SN	Item No.		

Note: 1. Ambient Temperature: -5℃~+55℃. Metallic surface temperature under direct sunlight: 85℃. Humidity range: 25%~80%. 2. The Vendor should consider the content of H2S and corrosion media(chloridion).



中海石油石化工程有限公司
CNOOC Petrochemical Engineering Co., Ltd.

DATA SHEET FOR CONTROL VALVE(OIL AND GAS SYSTEM)

Owner Doc.No. CMIT-240048-728-INS-15.17-1007
Job's Doc. No. 253001D0728IN01022
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GENERAL	1	Tag Number	P&ID No.	LV-2817234B	PCS-15.11-0017	Rev.
	2	Service	SEP-281723B Level Control			
	3	Line No.	Size and Sch.	14"-CO-28222141B-3D6-PP30	14", SCH80	
	4	Pipe I.D. mm	Pipe O.D. mm	317.5	355.6	
	5	Pipe Material	C.S. (NACE) PWHT			
	6	Area Classification	Enclosure Protection	II B T4	IP65	
PROCESS CONDITIONS	7	Process Fluid	Fluid State	OIL & WATER	LIQUID	
	8	Design Pressure MPa(G)	Design Temperature °C	4	100	
	9	Max Shut-off DP MPa	4			
	10	Vapor Pressure kPa(A)				
	11	Molecular Weight	Critical Pressure kPa(A)			
	12	Compression Factor	Solid Content			
	13	Specific Heat Ratio (Cp/Cv)				
	14	Erosion	Corrosion	Oxidizing	Toxic	
	15			NO	YES	NO
	16	Flow Rate		Units	Minimum	Normal
	17	Inlet Pressure		kg/h	71454.8	178637
	18	Outlet Pressure		MPa(G)	2.57	2.5
	19	Operating Temperature		MPa(G)	67~73	
	20	Operating Density/Standard Density		°C	900~990	
	21	Viscosity		kg/m3	14~45	
CALCULATED RESULTS	22	Flow Coefficient Cv		mPa.s	106.17	265.41
	23	Selected Cv	Calculation Standard		950	ISA 75.01
	24	Valve Opening		%	35.6	62.5
	25	Allow. SPL dBA	Predicted SPL dBA	<85dBA	By Vendor	By Vendor
BODY	26	Model	Valve type	By Vendor	Globe Valve	
	27	Body Size	Pressure Rating	12"	Class 300	
	28	Process Connections	ASME B16.5 300LB RF			
	29	Body/Bonnet Material	ASTM A216 WCB(SSC&HIC)			
	30	Bonnet Type	Flow Direction	Standard	Flow Open	
	31	Packing Material	Packing Type	PTFE	By Vendor	
	32	Finish	Isolation	Lubrication		
TRIM	33	Trim Size	Trim Form	By Vendor	By Vendor	
	34	Characteristic	Rated Travel	Equal Percent		
	35	Plug/Ball/Disk Material	Note7			
	36	Seat Material	Shaft Material	Note7	Note7	
	37	Cage/Guide Material	Note7			
	38	Seat Leakage Class	ANSI Class IV			
ACTUATOR	39	Actuator Model	Actuator Type	By Vendor	Pneumatic Diaphragm	
	40	Spring Action	Spring Range	Direct Action	By Vendor	
	41	Air Failure Position.	Max/Min.AS MPa(G)	FC	0.4~0.6	
	42	Mounting Position	Handwheel	Top	NO	
POSITIONER	43	Model	Type	By Vendor	Smart Positioner	
	44	Signal Input	Action	4~20mA+HART	Direct Action	
	45	Elec.Conn.Size	Enclosure Protection	1/2"NPT(F)×2	Ex db II B T4 Gb	
	46	Gauges(In/Out/Supp.)	Pneu. Connect	YES, 316 SS	1/4" NPT(F)-Φ8, 316L SS	
TRANSDUCE	47	Model	Signal Output			
	48	Elec.Conn.Size	Enclosure Protection			
SWITCH	49	Model	Type	Tag No.		
	50	Elec.Conn.Size	Enclosure Protection			
	51	Contact Form/Rating				
SOLENOID VALVE	52	Model	Type			
	53	S.V.Tag No.	Operating Voltage			
	54	Elec.Conn.Size	Enclosure Protection			
	55	Operation Type	Reset P.B.			
AIR SET	56	Regulator	Air Supply Press. MPa(G)	YES(with End Connector, Φ8, 316L SS)	0.4~0.8	
	57	Air Vol. Tank	Air Conn.			
ACCESS	58	Surge Protection Device	Lock Valve	YES		
	59	Travel Stopper				
	60	Travel Condition				
PURCHASE	61	Manufacturer	PO No.			
	62	Price	SN	Item No.		

Note: 1. Ambient Temperature: -5℃~+55℃. Metallic surface temperature under direct sunlight: 85℃. Humidity range: 25%~80%. 2. The Vendor should consider the content of H2S and corrosion media(chloridion).



中海石油石化工程有限公司
CNOOC Petrochemical Engineering Co., Ltd.

DATA SHEET FOR CONTROL VALVE(OIL AND GAS SYSTEM)

Owner Doc.No. CMIT-240048-728-INS-15.17-1007

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GENERAL	1	Tag Number	P&ID No.	LV-2818224A	PCS-15.11-0003	Rev.
	2	Service	SEP-281821A Level Control			
	3	Line No.	Size and Sch.	8"-CO-28182118-3D6-PP30	8", SCH80	
	4	Pipe I.D. mm	Pipe O.D. mm	193.7	219.1	
	5	Pipe Material	C.S. (NACE) PWHT			
	6	Area Classification	Enclosure Protection	II B T4	IP65	
PROCESS CONDITIONS	7	Process Fluid	Fluid State	OIL & WATER	LIQUID	
	8	Design Pressure MPa(G)	Design Temperature °C	2.2	100	
	9	Max Shut-off DP MPa	2.2			
	10	Vapor Pressure kPa(A)				
	11	Molecular Weight	Critical Pressure kPa(A)			
	12	Compression Factor	Solid Content			
	13	Specific Heat Ratio (Cp/Cv)				
	14	Erosion	Corrosion	Oxidizing	Toxic	
	15			NO	YES	NO
	16	Flow Rate		Units	Minimum	Normal
	17	Inlet Pressure		kg/h		16500
	18	Outlet Pressure		MPa(G)		1.2
	19	Operating Temperature		MPa(G)		1.15
	20	Operating Density/Standard Density		°C		67~73
	21	Viscosity		kg/m3		925~1161
CALCULATED RESULTS	22	Flow Coefficient Cv		mPa.s		14~45
	23	Selected Cv	Calculation Standard			28.61
	24	Valve Opening				95.37
	25	Allow. SPL dBA	Predicted SPL dBA			
BODY	26	Model	Valve type	<85dBA	By Vendor	By Vendor
	27	Body Size	Pressure Rating	By Vendor		Globe Valve
	28	Process Connections		6"		Class 300
	29	Body/Bonnet Material		ASME B16.5 300LB RF		
	30	Bonnet Type	Flow Direction	ASTM A216 WCB(SSC&HIC)		
	31	Packing Material	Packing Type	Standard		Flow Open
	32	Finish	Isolation	PTFE		By Vendor
TRIM	33	Trim Size	Trim Form			
	34	Characteristic	Rated Travel			
	35	Plug/Ball/Disk Material		By Vendor		By Vendor
	36	Seat Material	Shaft Material	Equal Percent		
	37	Cage/Guide Material		Note7		
	38	Seat Leakage Class		Note7		Note7
ACTUATOR	39	Actuator Model	Actuator Type	ANSI Class V		
	40	Spring Action	Spring Range	By Vendor		Pneumatic Diaphragm
	41	Air Failure Position.	Max/Min.AS MPa(G)	Direct Action		By Vendor
	42	Mounting Position	Handwheel	FC		0.4~0.6
POSITIONER	43	Model	Type	Top		NO
	44	Signal Input	Action	By Vendor		Smart Positioner
	45	Elec.Conn.Size	Enclosure Protection	4~20mA+HART		Direct Action
TRANSDUCE	46	Gauges(In/Out/Supp.)	Pneu. Connect	1/2"NPT(F)×2		Ex db II B T4 Gb
	47	Model	Signal Output	YES, 316 SS		1/4" NPT(F)-Φ8, 316L SS
	48	Elec.Conn.Size	Enclosure Protection			
SWITCH	49	Model	Type	Tag No.	Mechanical contact	ZSC/ZSO-2818224A
	50	Elec.Conn.Size	Enclosure Protection	3/4"NPT(F)		Ex db II B T4 Gb
	51	Contact Form/Rating		5A@230V AC, DPDT		
SOLENOID VALVE	52	Model	Type			3way-2position, <4w
	53	S.V.Tag No.	Operating Voltage	BDY-2818224A		24V DC
	54	Elec.Conn.Size	Enclosure Protection	1/2"NPT(F)		Ex db II B T4 Gb
AIR SET	55	Operation Type	Reset P.B.			
	56	Regulator	Air Supply Press. MPa(G)	YES(with End Connector, Φ8, 316L SS)		0.4~0.8
	57	Air Vol. Tank	Air Conn.			
ACCESS	58	Surge Protection Device	Lock Valve	YES		
	59	Travel Stopper				
	60	Travel Condition				
PURCHASE	61	Manufacturer	PO No.			
	62	Price	SN	Item No.		

Note: 1. Ambient Temperature: -5℃~+55℃. Metallic surface temperature under direct sunlight: 85℃. Humidity range: 25%~80%. 2. The Vendor should consider the content of H2S and corrosion media(chloridion). 3. BDY-2818224A SIL Class: SIL2.



中海石油石化工程有限公司
CNOOC Petrochemical Engineering Co., Ltd.

DATA SHEET FOR CONTROL VALVE(OIL AND GAS SYSTEM)

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GENERAL	1	Tag Number	P&ID No.	LV-2848212	PCS-15.11-0024	Rev.
	2	Service	V-284821 Level Control			
	3	Line No.	Size and Sch.	12"-OW-28682208-3L0-PP30	12", SCH40S	
	4	Pipe I.D. mm	Pipe O.D. mm	304.76	323.8	
	5	Pipe Material	ASTM A790-S32760			
	6	Area Classification	Enclosure Protection	II B T4	IP65	
PROCESS CONDITIONS	7	Process Fluid	Fluid State	OILY WATER	LIQUID	
	8	Design Pressure MPa(G)	Design Temperature °C	1.8	100	
	9	Max Shut-off DP MPa	1.8			
	10	Vapor Pressure kPa(A)				
	11	Molecular Weight	Critical Pressure kPa(A)			
	12	Compression Factor	Solid Content			
	13	Specific Heat Ratio (Cp/Cv)				
	14	Erosion	Corrosion	Oxidizing	Toxic	
	15			NO	YES	NO
	16	Flow Rate		Units	Minimum	Normal
	17	Inlet Pressure		kg/h		310400
	18	Outlet Pressure		MPa(G)		1.2
	19	Operating Temperature		MPa(G)		1.15
	20	Operating Density/Standard Density		°C		67~73
CALCULATED RESULTS	21	Viscosity		kg/m3		970~1000
	22	Flow Coefficient Cv		mPa.s		0.385
	23	Selected Cv	Calculation Standard			525.62
	24	Valve Opening				788.43
	25	Allow. SPL dBA	Predicted SPL dBA	1300	ISA 75.01	
BODY	26	Model	Valve type	%		73.4
	27	Body Size	Pressure Rating			85.3
	28	Process Connections		<85dBA	By Vendor	By Vendor
	29	Body/Bonnet Material		By Vendor		Globe Valve
	30	Bonnet Type	Flow Direction	12"		Class 300
	31	Packing Material	Packing Type	ASME B16.5 300LB RF		
	32	Finish	Isolation	ASTM A995 Gr.6A		
TRIM	33	Trim Size	Trim Form	Standard		Flow Open
	34	Characteristic	Rated Travel	PTFE		By Vendor
	35	Plug/Ball/Disk Material				
	36	Seat Material	Shaft Material			
	37	Cage/Guide Material				
	38	Seat Leakage Class				
ACTUATOR	39	Actuator Model	Actuator Type	By Vendor		Pneumatic Diaphragm
	40	Spring Action	Spring Range	Equal Percent		By Vendor
	41	Air Failure Position.	Max/Min.AS MPa(G)	FC		0.4~0.6
	42	Mounting Position	Handwheel	Top		NO
POSITIONER	43	Model	Type	By Vendor		Smart Positioner
	44	Signal Input	Action	4~20mA+HART		Direct Action
	45	Elec.Conn.Size	Enclosure Protection	1/2"NPT(F)×2		Ex db II B T4 Gb
	46	Gauges(In/Out/Supp.)	Pneu. Connect	YES, 316 SS		1/4" NPT(F)-Φ8, 316L SS
TRANSDUCE	47	Model	Signal Output			
	48	Elec.Conn.Size	Enclosure Protection			
SWITCH	49	Model	Type	Tag No.	Mechanical contact	ZSC/ZSO-2848212
	50	Elec.Conn.Size	Enclosure Protection	3/4"NPT(F)		Ex db II B T4 Gb
	51	Contact Form/Rating			5A@230V AC, DPDT	
SOLENOID VALVE	52	Model	Type			3way-2position, <4w
	53	S.V.Tag No.	Operating Voltage	BDY-2848212		24V DC
	54	Elec.Conn.Size	Enclosure Protection	1/2"NPT(F)		Ex db II B T4 Gb
	55	Operation Type	Reset P.B.			
AIR SET	56	Regulator	Air Supply Press. MPa(G)	YES(with End Connector, Φ8, 316L SS)		0.4~0.8
	57	Air Vol. Tank	Air Conn.			
ACCESS	58	Surge Protection Device	Lock Valve	YES		
	59	Travel Stopper				
	60	Travel Condition				
PURCHASE	61	Manufacturer	PO No.			
	62	Price	SN	Item No.		

Note: 1. Ambient Temperature: -5℃~+55℃. Metallic surface temperature under direct sunlight: 85℃. Humidity range: 25%~80%. 2. The Vendor should consider the content of H2S and corrosion media(chloridion). 3. BDY-2848212 SIL Class: SIL2.



中海油石化工程有限公司
CNOOC Petrochemical Engineering Co., Ltd.

DATA SHEET FOR CONTROL VALVE(OIL AND GAS SYSTEM)

Owner Doc.No.	CMIT-240048-728-INS-15.17-1007	
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- Note:
1. All material used in sour service shall meet the requirements of NACE MR0175/ISO 15156.
Vendor shall have clear information on the tag that the valves they supplied are sulphur resisting.
 2. Pneumatic tubing shall be 316LSS with 316LSS double compression fitting. Tube fittings shall be of "Swagelok" required or equal.
 3. Tubing shall be $\Phi 8$ MIN. $\times 1$ mm W.T., seamless, annealed, 316L.
 4. The SS tag plate of the valve shall indicate the manufacturer's name, model number, serial number, size, rating, certification data and customer's tag number.
 5. **Flow Units of liquid and steam is kg/h. Flow Units of gas is Nm³/h.**
 6. The detailed components see "CMIT-240048-728-PCS-15.69-0001_design basis".
 7. Instrument selection shall comply with the requirements of some relevant specifications, such as SPECIFICATION FOR PROCESS PIPING MATERIALS (Doc.CMIT-240048-728-PIP-15.03-3001) & SPECIFICATION FOR MANUAL VALVES (Doc.CMIT-240048-728-PIP-15.03-3002), SPECIFICATION FOR PROCESS CONTROL VALVES(GENERAL) (Doc.CMIT-240048-728-INS-15.03-0004), etc.
 8. The regulator valve performance test report of basic error, hysteresis, deadzone, rated travel deviation, packing box seal and tightness of actuator air chamber, etc. should be provided.
 9. For solenoid valve and limit switch, Vendor shall package the anti-explosion instrument junction box, instrument cable, anti-explosion glands of junction box, protective casing.