



Toase-e Park Sanati Gohar Ofoh  
Petrochemical Co.  
**CONCEPTUAL, BASIC and DETAIL DESIGN  
ENGINEERING OF STYRENE PARK OFFSITE**



Document Title: ON/OFF-Solenoid Valve Data Sheet

Document No.: EI027-HSE-VD – IN– DSH–006- R0

Rev. R0

Page 1 of 7

# STYRENE PARK OFFSITE

**Document Title:**  
**ON/OFF-Solenoid Valve Data Sheet**

R0	21-07-2024	IFA	F.sh	M.O	A.M
<b>Rev.</b>	<b>Issued Date</b>	<b>DESCRIPTION</b>	<b>PREPARED</b>	<b>CHECKED</b>	<b>APPROVED</b>



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Document No.: EI027-HSE-VD – IN– DSH–006- R0

Rev. R0

Page 2 of 7

**REVISION RECORD SHEET**

Page Page	Revisions							Page	Revisions						
	R0	R1	R2	R3	R4	R5	R6		R0	R1	R2	R3	R4	R5	R6
1	X							41							
2	X							42							
3	X							43							
4	X							44							
5	X							45							
6	X							46							
7	X							47							
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Document No.: EI027-HSE-VD – IN– DSH–006- R0

Rev. R0

Page 3 of 7

<b>GENERAL</b>	1	Tag Number	SOV-RU0001A-01A/C/D/E, SOV-RU0001B-01A/C/D/E	
	2	Service	Solenoid valve for Capacity Control	
	3	P&ID No.	EI027-HSE-VD-PR-PID-002 (2/7)	
	4	Line No.	1/2"-SS Tubing	
	5	Quantity	8	
<b>SOLENOID VALVE</b>	6	Type	2/2 Solenoid Valve	
	7	Body size	1/2" NPTF	
	8	Type Conn.	Thread	
	9	Material - Body	AISI 304 SS	
	10	Material - Seat	Stainless steel, AISI type 316	
	11	Material - Diaphragm	NA	
	12	Operation Direct/Pilot	Direct	
	13	Packless or Type Packed	Packed	
	14	Fail position	Close	
	15	Tight shut off		
	16	Position indicator	No	
	17	2-Way Valve Opens/Close	Yes	
	18	3-Way	-	
	19	Vent. Port Opens/Close (De-Energized State)	-	
	20	Press. Port Opens/Close (De-Energized State)	-	
	21	4-Way	-	
	22	Press. to Cyl.1/Cyl.2	-	
	23	Exh. From Cyl.1/Cyl.2	-	
	24	Enclosure	IP - 65	
	25	Electrical classification	Eexd (IEC)	
	26	Voltage / Hz	24 VDC	
	27	Style of Coil	Spring return/Insulation Class H	
	28	Single or Double Coil	Single	
	29	Rated current (A)	VTA	
	30	Cable gland size	M20x1.5	
	<b>AREA</b>	31	Location	Outdoor
		32	Area classification	Zone 2 IIB, T3
		33	Ambient temperature	5 / 48
		34	Humidity	Max 85%
	<b>SERVICE CONDITIONS</b>	35	Fluid	LUBE OIL
36		Operating Pressure	22.5 bara	
37		Differential Pressure	26 bar	
38		Design Pressure	26 barg	
39		Temp. Norm	60 °C	
40		Design Temperature	-29 / 100 °C	
41		Oper. Density	1005 kg/m3	
42		Oper. Viscosity cp	12	
43		Required Cv		
44		Valve Cv		
45				
<b>PURCHASE</b>	46	Manufacturer		
	47	Model Number		

Notes:

1. 3.1 Material Certification
2. Pressure test report (Hydro-test)



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Document Title: ON/OFF-Solenoid Valve Data Sheet

Document No.: EI027-HSE-VD – IN– DSH–006- R0

Rev. R0

Page 4 of 7

GENERAL	1	Tag Number	SOV-RU0001A-02 ,SOV-RU0001B-02
	2	Service	Oil Separator Recovery
	3	P&ID No.	EI027-HSE-VD-PR-PID-002 (3/7)
	4	Line No.	1/2"-SS Tubing
	5	Quantity	2
SOLENOID VALVE	6	Type	2/2 Solenoid Valve
	7	Body size	1/2" NPTF
	8	Type Conn.	Thread
	9	Material - Body	AISI 304 SS
	10	Material - Seat	Stainless steel, AISI type 304
	11	Material - Diaphragm	NA
	12	Operation Direct/Pilot	Direct
	13	Packless or Type Packed	Packed
	14	Fail position	Close
	15	Tight shut off	
	16	Position indicator	No
	17	2-Way Valve Opens/Close	Yes
	18	3-Way	-
	19	Vent Port Opens/Close (De-Energized State)	-
	20	Press. Port Opens/Close (De-Energized State)	-
	21	4-Way	-
	22	Press. to Cyl.1/Cyl.2	-
	23	Exh. From Cyl.1/Cyl.2	-
	24	Enclosure	IP - 65
	25	Electrical classification	Eexd (IEC)
	26	Voltage / Hz	24 VDC
	27	Style of Coil	Spring return/Insulation Class H
	28	Single or Double Coil	Single
	29	Rated current (A)	VTA
30	Cable gland size	M20x1.5	
AREA	31	Location	Outdoor
	32	Area classification	Zone 2 IIB, T3
	33	Ambient temperature	5 / 48
	34	Humidity	Max 85%
SERVICE CONDITIONS	35	Fluid	LUBE OIL
	36	Operating Pressure	20.2 bara
	37	Differential Pressure	22 bar
	38	Design Pressure	22 barg
	39	Temp. Norm	73.5 °C
	40	Design Temperature	-29 / 100 °C
	41	Oper. Density	1005 kg/m3
	42	Oper. Viscosity cp	12
	43	Required Cv	
	44	Valve Cv	
	45		
PURCHASE	46	Manufacturer	
	47	Model Number	

Notes:

1. 3.1 Material Certification
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Document No.: EI027-HSE-VD – IN– DSH–006- R0

Rev. R0

Page 5 of 7

<b>GENERAL</b>	1	Tag Number	SOV-RU0001A-05,SOV-RU0001B-05	
	2	Service	Hot Propane Gas to Compressor	
	3	P&ID No.	EI027-HSE-VD-PR-PID-002 (6/7)	
	4	Line No.	1/2"-SS Tubing	
	5	Quantity	2	
<b>SOLENOID VALVE</b>	6	Type	2/2 Solenoid Valve	
	7	Body size	1/2" NPTF	
	8	Type Conn.	Thread	
	9	Material - Body	AISI 304 SS	
	10	Material - Seat	AISI 304 SS	
	11	Material - Diaphragm	NA	
	12	Operation Direct/Pilot	Direct	
	13	Packless or Type Packed	Packed	
	14	Fail position	Close	
	15	Tight shut off		
	16	Position indicator	No	
	17	2-Way Valve Opens/Close	Yes	
	18	3-Way	-	
	19	Vent Port Opens/Close (De-Energized State)	-	
	20	Press. Port Opens/Close (De-Energized State)	-	
	21	4-Way	-	
	22	Press. to Cyl.1/Cyl.2	-	
	23	Exh. From Cyl.1/Cyl.2	-	
	24	Enclosure	IP - 65	
	25	Electrical classification	Eexd (IEC)	
	26	Voltage / Hz	24 VDC	
	27	Style of Coil	Spring return/Insulation Class H	
	28	Single or Double Coil	Single	
	29	Rated current (A)	VTA	
	30	Cable gland size	M20x1.5	
	<b>AREA</b>	31	Location	Outdoor
		32	Area classification	Zone 2 IIB, T3
		33	Ambient temperature	5 / 48
		34	Humidity	Max 85%
	<b>SERVICE CONDITIONS</b>	35	Fluid	PROPANE + LUBE OIL
36		Operating Pressure	4.7 bara	
37		Differential Pressure	22 bar	
38		Design Pressure	22 barg	
39		Temp. Norm	-0.07 °C	
40		Design Temperature	-45 / 120 °C	
41		Oper. Density	1005 kg/m3	
42		Oper. Viscosity cp	12	
43		Required Cv		
44		Valve Cv		
45				
<b>PURCHASE</b>	46	Manufacturer		
	47	Model Number		

Notes:

1. 3.1 Material Certification
2. Pressure test report (Hydro-test)
3. Special design for MAYEKAWA compressor



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Document Title: ON/OFF-Solenoid Valve Data Sheet

Document No.: EI027-HSE-VD – IN– DSH–006- R0

Rev. R0

Page 6 of 7

<b>GENERAL</b>	1	Tag Number	SOV-RU0001A-05.SOV-RU0001B-05	
	2	Service	Hot Propane Gas to Compressor	
	3	P&ID No.	EI027-HSE-VD-PR-PID-002 (6/7)	
	4	Line No.	1/2"-SS Tubing	
	5	Quantity	2	
<b>SOLENOID VALVE</b>	6	Type	2/2 Solenoid Valve	
	7	Body size	1/2" NPTF	
	8	Type Conn.	Thread	
	9	Material - Body	AISI 304 SS	
	10	Material - Seat	AISI 304 SS	
	11	Material - Diaphragm	NA	
	12	Operation Direct/Pilot	Direct	
	13	Packless or Type Packed	Packed	
	14	Fail position	Close	
	15	Tight shut off		
	16	Position indicator	No	
	17	2-Way Valve Opens/Close	Yes	
	18	3-Way	-	
	19	Vent Port Opens/Close (De-Energized State)	-	
	20	Press. Port Opens/Close (De-Energized State)	-	
	21	4-Way	-	
	22	Press. to Cyl.1/Cyl.2	-	
	23	Exh. From Cyl.1/Cyl.2	-	
	24	Enclosure	IP - 65	
	25	Electrical classification	Eexd (IEC)	
	26	Voltage / Hz	24 VDC	
	27	Style of Coil	Spring return/Insulation Class H	
	28	Single or Double Coil	Single	
	29	Rated current (A)	VTA	
	30	Cable gland size	M20x1.5	
	<b>AREA</b>	31	Location	Outdoor
		32	Area classification	Zone 2 IIB, T3
		33	Ambient temperature	5 / 48
		34	Humidity	Max 85%
	<b>SERVICE CONDITIONS</b>	35	Fluid	PROPANE + LUBE OIL
36		Operating Pressure	4.7 bara	
37		Differential Pressure	22 bar	
38		Design Pressure	22 barg	
39		Temp. Norm	-0.07 °C	
40		Design Temperature	-45 / 120 °C	
41		Oper. Density	1005 kg/m3	
42		Oper. Viscosity cp	12	
43		Required Cv		
44		Valve Cv		
45				
<b>PURCHASE</b>	46	Manufacturer		
	47	Model Number		

Notes:

1. 3.1 Material Certification
2. Pressure test report (Hydro-test)
3. Special design for MAYEKAWA compressor



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Document No.: EI027-HSE-VD – IN– DSH–006- R0

Rev. R0

Page 7 of 7

GENERAL	1	Tag Number	SOV-RU0001A-03, SOV-RU0001B-03	
	2	Service	Vapor Propane to Condenser	
	3	P&ID No.	EI027-HSE-VD-PR-PID-002 (6/7)	
	4	Line No.	2"-PR-RU0001A12-ML3R1-N	
	5	Quantity	2	
BODY & TRIM	6	Type	2/2 Ball Valve Pilot Operated	
	7	Size	2"	
	8	Rating & Type Conn.	300#	
	9	Material - Body	ASTM A350 LF2	
	10	Plug/Ball and stem	ASTM A182 F316	
	11	Material - Seat	RPTFE	
	12	Stem packing & body seal	PEEK /GRAPHITE / FELEXIBLE GRAPHITE	
ACTUATOR	13	Model	*	
	14	Type	Air Actuated Rack & Pinion	
	15	Fail position	Close	
AREA	16	Location	Outdoor	
	17	Area classification	Zone IIB, T3	
	18	Ambient temperature	5 / 48	
	19	Humidity	Avg 98%	
SOLENOID VAVE	20	Operation Direct/Pilot	Direct	
	21	2-Way Valve Opens/Close	-	
	22	Body material	316SS	
	23	Seat material	304SS	
	24	3-Way	Yes	
	25	Vent Port Opens/Close	Open	
	26	Press. Port Opens/Close	Close	
	WHEN DE-ENERGIZED	27	4-Way	-
		28	Press. to Cyl.1/Cyl.2	-
		29	Exh. From Cyl.1/Cyl.2	-
30		Enclosure	IP - 65	
31		Electrical classification	Exmd (IEC)	
32		Voltage / Hz	24 VDC	
33		Style of Coil	Spring return/Insulation Class F	
34		Single or Double Coil	Single	
35		Rated current (A)	VTA	
36		Cable gland connection	M20x1.5	
37		Instrument air connection	NPT 1/2"	
38		Manual Operation	Yes	
39		Model	VTA	
40		<b>REFER TO CATALOGUE FOR MORE DETAILS</b>		
SERVICE CONDITIONS	41	Fluid	PROPANE	
	42	Operating Pressure	19.77 bara	
	43	Differential Pressure	22 bar	
	44	Design Pressure	22 bara	
	45	Temp. Norm	73.39 °C	
	46	Design Temperature	-45 / 120 °C	
	47	Oper. Density	40.5 kg/m <sup>3</sup>	
	48	Oper. Viscosity cp	0.01066	
	49	Required Cv		
	50	Valve Cv	VTA	
	51	Pressure Drop	0	
PURCHASE	52	Manufacturer	VTA	
	53	Model Number	VTA	

**Notes:**

1. 3.1 Material Certification
2. Pressure test report (Hydro-test)
3. Special design for MAYEKAWA compressor
4. Air set (Filter & regulator, gauge) will be provided
5. Ball Valve Prepared with bonnet for Cold insulation > 50mm
6. Leakage: Class VI
7. Leakage rate: 0.01%

In general each actuator/valve assembly shall be submitted to the mandatory tests as listed below;

1. Functional Test
2. Performance and Mechanical Operation Test
3. Full Load Torque Test
4. Stroking Time Test.
5. Visual Inspection
6. Dimensional Check
7. Hydrostatic Test.