



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



Document Title: Solenoid Valve Data Sheet

Document No.: EI027-HSE-VD – IN– DSH–006- R1

Rev. R1

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STYRENE PARK OFFSITE

Document Title:
Solenoid Valve Data Sheet

Rev.	Issued Date	DESCRIPTION	PREPARED	CHECKED	APPROVED
R1	18-07-2025	FI	F.sh	M.O	A.M
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REVISION RECORD SHEET

Page Page	Revisions							Page	Revisions						
	R0	R1	R2	R3	R4	R5	R6		R0	R1	R2	R3	R4	R5	R6
1	X	X						41							
2	X	X						42							
3	X	X						43							
4	X	X						44							
5	X	X						45							
6	X	X						46							
7	X	X						47							
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GENERAL	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	
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 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	
	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	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				
PURCHASE	46	Manufacturer		
	47	Model Number		

Notes:

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



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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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GENERAL	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	
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	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	
	AREA	31	Location	Outdoor
		32	Area classification	Zone 2 IIB, T3
		33	Ambient temperature	5 / 48
		34	Humidity	Max 85%
	SERVICE CONDITIONS	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				
PURCHASE	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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GENERAL	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	
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	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	
	AREA	31	Location	Outdoor
		32	Area classification	Zone 2 IIB, T3
		33	Ambient temperature	5 / 48
		34	Humidity	Max 85%
	SERVICE CONDITIONS	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				
PURCHASE	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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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		REFER TO CATALOGUE FOR MORE DETAILS		
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 ³	
	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 | 4. Air set (Filter & regulator, gauge) will be provided |
| 2. Pressure test report (Hydro-test) | 5. Ball Valve Prepared with bonnet for Cold insulation > 50mm |
| 3. Special design for MAYEKAWA compressor | 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.