

 JOKWANG I.L.I <small>Since 1968</small>			Pressure Safety & Relief Valve Specification and Calculation Sheet							
			Sheet No.		3 of 11		Rev. No		1	
			Project Name		Yeosu No.2 Complex Project(R2) 2nd PO					
			Project No.							
			Date		2021-01-22		By		S.W.PARK	
Checked		M.J.LEE		Approved		J.H.LEEM				
GENERAL	P&ID No.	1	H530-R2-PID-3026							
	Tag No.	2	R2-PSV-3261A/B							
	Service Line	3	E-31 5 (Benzene Product Cooler) SS							
	Model No.	4	JSV-FF100		<div>Calculation</div>					
	Quantity	5	2							
TYPE	Nozzle Type	6	Full Nozzle		Calculation of Area					
	Design Type	7	Conventional		$A1 = 13160 \times W1 \times (\sqrt{ZT/M}) / (C \times Kd \times (P \times 1.21 + 101.325) \times Kb \times Kc)$ $= 13160 \times 2045 \times (\sqrt{0.785 \times 476.1 / 78.12}) / (333.86 \times 0.831 \times (1176 \times 1.21 + 101.325) \times 1 \times 1)$ $= \underline{139.193968} \text{ mm}^2$					
	Bonnet Type	8	Close							
	Lever Type	9	None							
	Cap Type	10	Screwed							
CONN.	Size. Inlet / Outlet	11	1"X2"							
	Inlet. Rating / Facing	12	ASME CL.150 RF							
	Outlet. Rating / Facing	13	ASME CL.150 RF							
MATERIALS	Body (Base)	14	SA216 WCB		Calculation of Capacity					
	Bonnet	15	SA216 WCB							
	Seat	16	316 SS-st.		$W = A \times C \times Kd \times (P \times 1.21 + 101.325) \times Kb \times Kc / (13160 \times \sqrt{(ZT/M)})$ $= 188.39 \times 333.86 \times 0.831 \times (1176 \times 1.21 + 101.325) \times 1 \times 1 / (13160 \times \sqrt{(0.785 \times 476.1 / 78.12)})$ $= \underline{2768} \text{ kg/h}$					
	Disc	17	316 SS-st.							
	Guide	18	316 SS							
	Gasket (Bonnet)	19	PTFE							
	Spring	20	316 SS							
	Bellows	21	None							
BASIS	Approved by	22	KGS UV STAMP							
	Comply with NACE	23	No							
	EN 10204	24	No							
	Code	25	API RP 520							
	Fire	26	Yes							
	Sizing Basis	27	Fire Case							
	Rupture Disk	28	No		W	Valve Capacity	2768 kg/h			
SERVICE CONDITION	Fluid / State	29	Hydrocarbon(HC) / GAS		W1	Required Capacity	2045 kg/h			
	Mol. Weight / Specific Gravity	30	78.12		P	Set Pressure	1176 KPag			
	Compressibility Factor	31	0.785		A1	Calculated Area	139.193968 mm ²			
	Ratio of Specific Heat	32	1.167		A	Selected Area	188.39 mm ²			
	Viscosity	33	0.018 cP		Kd	Coefficient of Discharge	0.831			
	Operating / Relieving Temp.	34	108 / 203.1 °C		C	Coefficient base on Ratio of Specific Heat	333.86			
	Design Min. / Design Max. Temp.	35	150 °C		T	Kelvin Temperature	476.1 K			
	Operating / Set Pressure	36	0.715 / 1.176 MPag		M	Molecular Weight	78.12			
	Design Pressure / C.D.T.P	37	1.176 / 1.15847 MPag		Z	Compressibility Factor	0.785			
	Back Pressure	Superimposed - Constant	38	0.029 MPag		Kb	Correction Factor Due to Back Pressure	1		
		Superimposed - Variable	39	- MPag		Kc	Correction Factor for a rupture disk	1		
		Built-up	40	0.029 MPag		<div>Remarks</div>				
		Total	41	0.058 MPag						
	Allowable Overpressure	42	21 %							
	Closing Pressure / Blowdown(%)	43	Min. 1.09368 MPag / 7%		<u>*Paint Color(*)</u> Painting : P-5 (RAL 9006 Silver)					
	SIZING & SELECTION	Required Capacity	44	2045 kg/h		<u>*Remark</u> - Operating Pressure : 7.3 kg/cm ² g - Setting Pressure : 12.0 kg/cm ² g - Design Pressure : 12.0 kg/cm ² g - Constant Back Pressure : 0.3 kg/cm ² g - Built-up Back Pressure : 0.3 kg/cm ² g				
		Valve Actual Capacity	45	2768 kg/h						
Calculated Orifice Area		46	139.193968 mm ²							
Selected Orifice Area		47	188.39 mm ²							
Orifice Dia.(mm)		48	E1(15.5)							
ETC	Paint System & Color	49	See Remark							
	Test Gag	50	Yes							
	Bug screen	51	No							