

Pressure Safety & Relief Valve Specification and Calculation Sheet

Sheet No.	1 of 1	Rev. No	0
Project Name			
Project No.			
Date	2024-07-04	By	Leelihan
Checked	NONE	Approved	NONE

GENERAL	P&ID No.	1	SECL-A0-ME-PI-MBP-0002			
	Tag No.	2	A0EKG00AA915			
	Service Line	3	FUEL GAS SUPPLY SYSTEM			
	Model No.	4	JSV-FF100	<p style="text-align: center;">Calculation</p> <p style="text-align: center;">Calculation of Area</p> $A1 = W1 / (C * Kd * (P * 1.21 + 0.101) * \sqrt{M / (Z * T)})$ $= 1397 / (25.6 * 0.831 * (6.55 * 1.21 + 0.101) * \sqrt{21.06 / (1 * 489)})$ $= 39.423434 \text{ mm}^2$		
	Quantity	5	1			
TYPE	Nozzle	6	Full Nozzle			
	Design Type	7	Conventional			
	Bonnet Type	8	Close			
	Lever Type	9	Packed Lever			
	Cap Type	10	Screwed			
CONN	Size. Inlet / Outlet	11	3/4"X1"			
	Inlet. Rating / Facing	12	ASME CL600 RF			
	Outlet. Rating / Facing	13	ASME CL150 RF			
MATERIALS	Body (Base)	14	SA216 WCB			
	Bonnet	15	SA216 WCB			
	Seat	16	316 SS-st.			
	Disc	17	316 SS-st.			
	Guide	18	316 SS			
	Gasket (Bonnet)	19	Graphite			
	Spring	20	316 SS			
	Bellows	21	None			
BASIS	Approved by	22	UV STAMP			
	Comply with NACE	23	-			
	EN 10204	24	No			
	Code	25	ASME sec. VIII			
	Fire	26	Yes	W	Valve Capacity	4709 kg/h
	Sizing Basis	27	Fire Case	W1	Required Capacity	1397 kg/h
	Rupture Disk	28	No	A1	Calculated Area	39.423434 mm ²
	SERVICE CONDITION	Fluid / State	29	Fuel gas(G) / GAS	A	Selected Area
Mol. Weight / Specific Gravity		30	21.06	Kd	Coefficient of Discharge	0.831
Compressibility Factor		31	1	P	Set Pressure	6.55 MPag
Ratio of Specific Heat		32	1.2	C	Coefficient base on Ratio of Specific Heat	25.6
Viscosity		33	0.018 cP	M	Molecular Weight	21.06
Operating / Relieving Temp.		34	69.7 / 216 °C	Z	Compressibility Factor	1
Design Min. / Design Max. Temp.		35	- °C	T	Absolute Temp.	489 K
Operating / Set Pressure		36	55.29 / 65.5 barg	ATM	Standard Atmosphere	0.101 MPaa
Design Pressure / C.D.T.P		37	- / 65.5 barg			
Back Pressure		Superimposed - Constant	38	- barg		
		Superimposed - Variable	39	0.48 barg		
		Built-up	40	- barg		
		Total	41	0.48 barg		
Allowable Overpressure		42	21 %			
Closing Pressure / Blowdown		43	Min. 58.95 barg / 10%			
SIZING & SELECTION	Required Capacity	44	1397 kg/h			
	Valve Actual Capacity	45	4709 kg/h			
	Calculated Orifice Area	46	39.423434 mm ²			
	Selected Orifice Area	47	132.9 mm ²			
	Orifice Dia.(mm)	48	D1(13)			
			-			
ETC	Paint System & Color	49	Heat Resistant Silver QT603			
	Test Gag	50	Yes			
	Bug screen	51	No			
<p>Remarks</p> <p>*Remark *Set pressure : 950 psig *REQUIRED CAPACITY : 3079 lb/h *VALVE CAPACITY : 5544 lb/h</p>						