



**JOKWANG I.L.I**

**Pressure Safety & Relief Valve Specification and Calculation Sheet**

Sheet No.	1 of 2	Rev. No	0
Project Name	West Qurna 2nd Phase PJT		
Project No.	SO2476		
Date	2018-03-30	By	JAEMOO.KIM
Checked	S.C.KIM	Approved	S.C.KIM

GENERAL	P&ID No.	1	-					
	Tag No.	2	22-332-00-PSV-822A					
	Service Line	3	Hcl Dosing Pump					
	Model No.	4	JSV-FF21	<b>Calculation</b>				
	Quantity	5	1					
TYPE	Nozzle Type	6	Full Nozzle			Calculation of Area		
	Design Type	7	Conventional			$A1 = 11.78 * W1 * \sqrt{(G / (1.25P - Pb)) / (Kd * Kb * Kc * Kv * Kp)}$ $= 11.78 * 1.333 * (\sqrt{1.2 / (1.25 * 750 - 0)}) / (0.62 * 1 * 1 * 1 * 0.6)$ $= \mathbf{1.51 \text{ mm}^2}$		
	Bonnet Type	8	Close					
	Lever Type	9	None					
	Cap Type	10	Screwed					
CONN.	Size. Inlet / Outlet	11	1/2"X1"					
	Inlet. Rating / Facing	12	ASME CL.150 RF					
	Outlet. Rating / Facing	13	ASME CL.150 RF					
MATERIALS	Body (Base)	14	A494 N12MV -HAST.B2	Calculation of Capacity				
	Bonnet	15	A494 N12MV -HAST.B2	$W = A * Kd * Kb * Kc * Kv * Kp / (11.78 * \sqrt{(G / (1.25P - Pb))})$ $= 103.869 * 0.62 * 1 * 1 * 1 * 0.6 / (11.78 * \sqrt{1.2 / (1.25 * 750 - 0)})$ $= 91.70 \text{ \textit{l}/min}$ $= \mathbf{5.5 \text{ m}^3/h}$				
	Seat	16	A494 N12MV-HAS.B2-st.					
	Disc	17	HASTELLOY B2-st.					
	Guide	18	A494 N12MV-HAS.B2					
	Gasket (Bonnet)	19	PTFE					
	Spring	20	INCONEL X750					
	Bellows	21	-					
BASIS	Approved by	22	-			W	Valve Capacity	91.70 \textit{l}/min
	Comply with NACE	23	No	W1	Required Capacity	1.33 \textit{l}/min		
	EN 10204	24	Type 3.1	P	Set Pressure	750 KPag		
	Code	25	API RP 520	A1	Calculated Area	1.51 \text{ mm}^2		
	Fire	26	No	A	Selected Area	103.869 \text{ mm}^2		
	Sizing Basis	27	Pump Flow Capacity	Kd	Coefficient of Discharge	0.62		
	Rupture Disk	28	No	G	Specific Gravity	1.2		
SERVICE CONDITION	Fluid / State	29	35%HCl(L) / LIQUID	Pb	Back Pressure	0 KPag		
	Mol. Weight / Specific Gravity	30	1.2	Kb	Correction Factor Due to Back Pressure	1		
	Compressibility Factor	31	1	Kc	Correction Factor for a rupture disk	1		
	Ratio of Specific Heat	32	1.4	Kv	Correction Factor due to Viscosity	1		
	Viscosity	33	-	Kp	Correction Factor due to Overpressure	0.6		
	Operating / Relieving Temp.	34	/ 20 °C	<b>Remarks</b>				
	Design Min. / Design Max. Temp.	35	- °C					
	Operating / Set Pressure	36	/ 7.5 barg					
	Design Pressure / C.D.T.P	37	- / 7.5 barg					
	Back Pressure	Superimposed - Constant	38				- barg	
		Superimposed - Variable	39				- barg	
		Built-up	40				- barg	
		Total	41				0 barg	
Allowable Overpressure	42	10 %	<u>* Remark</u> * Required Capacity : 1.3 L/min * Valve Capacity : 91 L/min					
Closing Pressure / Blowdown(%)	43	Min. 5.63 barg / 24.9333%						
Hydrostatic Test Pressure	44	11.25 barg						
SIZING & SELECTION	Required Capacity	45	0.08 m3/h					
	Valve Actual Capacity	46	5.5 m3/h					
	Calculated Orifice Area	47	1.51 \text{ mm}^2					
	Selected Orifice Area	48	103.869 \text{ mm}^2					
	Orifice Dia.(mm)	49	D(11.5)					
ETC	Paint System & Color	50	Heat Resistant Silver QT603					
	Test Gag	51	No					
	Bug screen	52	None					

