

Specification & Calculation Sheet



DOCUMENT NO.	180760-E2-P-054-2-S-0002
PROJECT NAME	Yeosu No. 2 Complex Project
ITEM NO.	Pressure Safety Valve
COMPANY NAME	LG Chem, Ltd.
SITE LOCATION	Yeosu, Korea
CONTRACTOR NAME	GS E&C
PROJECT NO.	180760
PURCHASE ORDER NO.	180760-E2-GS-PO-P-054-2
VENDOR NAME	Jokwang I.L.I

Action Code	Description
□ 1	Approved without comment, Vendor to submit "FINAL"
□ 2	Approved with comment, Vendor to amend and submit "FOR FINAL"
□ 3	Vendor to amend and re-submit "FOR APPROVAL"
□ 4	Not Reviewed/Considered unacceptable Quality, Vendor to re-submit "FOR APPROVAL"

2	24.MAR.21	FINAL	S.W.PARK	M.J.LEE	J.H.LEEM
1	27.JAN.21	FINAL	S.W.PARK	M.J.LEE	J.H.LEEM
0	30.JUL.20	FOR FINAL	S.W.PARK	J.G.YOON	J.H.LEEM
В	14.JUL.20	FOR APPROVAL	S.W.PARK	J.G.YOON	J.H.LEEM
Α	20 APR. 20	FOR APPROVAL	S.W.PARK	J.G.YOON	S.C.KIM
REV.	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D



				Pressure Sa	fety & Relief Val	lve	Specification and Calculation She	et		
1	®			Sheet No.	1 of 20	20 Rev . No 1				
	TEK J	OKWANG I.L.I		Project Name		Yeosu No.2 Complex Project(E2) 2nd PO				
	Since 1968			Project No.	2021 21 27			CIMBARK		
			<u> </u>	Date Checked	2021-01-27 S.C.KIM		By Approved	S.W.PARK S.C.KIM		
	P&ID No.		1	Спескей		116		S.C.KIIVI		
			<u> </u>				5-E2-PID-201 2			
₹	Tag No.		2				PSV-2104A/B			
GENERAL	Service Line		3	ICV FE4		on s	Steam Blowdown Cooler) SS			
	Model No.		4	JSV-FF100			Calculation			
	Quantity		5	2						
	Nozzle Type		6	Full Noz			Calculation of Area			
ж	Design Type		7	Convention						
TYPE	Bonnet Type	!	8	Close						
	Lever Type		9	None			= 13160*W1*(√ZT/M)/(C*Kd*(P*1.21+ fKc)	-101.325)		
	Сар Туре		10	Screwe	u	KD.	NC)			
ż	Size. Inlet /		11	1"X2"			= 13160*526*(√1*455.5/18.02)/(348.4	7*0 831*		
CONN.	Inlet. Rating		12	ASME CL.1	(,		*1.21+101.325)*1*1)	. 0.031		
	Outlet. Ratin	g / Facing	13	ASME CL.1						
	Body (Base)		14	SA216 W	/CB		= <u>113.159473</u> mm²			
	Bonnet		15	SA216 W	/CB					
S	Seat		16	316 SS-	st.					
RIAI	Disc		17	316 SS-	st.		Calculation of Capacity			
MATERIALS	Guide		18	316 SS	S					
Σ	Gasket (Bon	net)	19	PTFE						
	Spring	Spring		Chrome Alloy(SWOSC-B)			$W = A*C*Kd*(P*1.21+101.325)*Kb*Kc/(13160*\sqrt{(ZT/M)})$			
	Bellows		21	None						
	Approved by	/	22	KGS UV ST	AMP		= 188.39*348.47*0.831*(794*1.21+10*	1.325)*1*1/		
	Comply with	NACE	23	No	(*	131	60*√(1*455.5/18.02))			
LO.	EN 10204		24	No						
BASIS	Code		25	API RP 5	20	= <u>876</u> kg/h				
	Fire		26	Yes						
	Sizing Basis		27	External	Fire					
	Rupture Disl	<	28	No	V	N	Valve Capacity	876 kg/h		
	Fluid / State		29	Blowdown ,	GAS W	۷1	Required Capacity	526 kg/h		
	Mol. Weight	/ Specific Gravity	30	18.02	1	Р	Set Pressure	794 KPag		
	Compressibi	lity Factor	31	1	А	۱1	Calculated Area	113.159473 mm²		
	Ratio of Spe	cific Heat	32	1.316	I	Α	Selected Area	188.39 mm²		
z	Viscosity		33	-	K	ίd	Coefficient of Discharge	0.831		
읃	Operating /	Relieving Temp.	34	133.2 / 18	32.5 ℃ (С	Coefficient base on Ratio of Specific Heat	348.47		
Ω	Design Min.	/ Design Max. Temp.	35	-18/	150 °C	T	Kelvin Temperature	455.5 K		
8	Operating /	Set Pressure	36	0.196 / 0.79	4 MPag	И	Molecular Weight	18.02		
SERVICE CONDITION	Design Press	sure / C.D.T.P	37	0.794/FV / 0.8019	4 MPag	Z	Compressibility Factor	1		
ER.		Superimposed - Constant	38		- MPag K	(b	Correction Factor Due to Back Pressure	1		
S	Back	Superimposed - Variable	39		- MPag K	(c	Correction Factor for a rupture disk	1		
	Pressure	Built-up	40	0.01	4 MPag		Damaaulaa			
		Total	41	0.01	4 MPag		Remarks			
	Allowable O	verpressure	42		21 %	+5	:+ C-1(+)			
	Closing Pres	sure / Blowdown(%)	43	Min. 0.73842 MF			<u>nint Color(*)</u> nting : P-5 (RAL 9006 Silver)			
z	Required Ca	pacity	44	5	26 kg/h	r dl	ining . F-3 (IML 3000 SIIVEI)			
TIO	Valve Actual	Capacity	45	8			<u>emark</u>			
LEC	Calculated C		46		9473 mm²		perating Pressure : 2 kgf/m²g			
λ SE	Selected Ori	fice Area	47	18			etting Pressure : 8.1 kgf/m²g			
16.8	Orifice Dia.(r	mm)	48	E1(15.5	`\		esign Pressure : 8.1 /FV kgf/m²g uilt-up Back Pressure : 0.14 kgf/m²g			
SIZING & SELECTION		Office Dia.(mm)		-		D	and up back i ressure . 0.14 kg// ull g			
V,				-						
	Paint System	n & Color	49	See Rem	ark					
ETC	Test Gag		50	Yes						
	Bug screen		51	No						
			_							

				Pressure Sa	-	alve	Specification and Calculation Sh	eet	
	®	.	-	Sheet No.	2 of 20				
	J.K J	OKWANG I.L.I		Project Name		Ye	osu No.2 Complex Project(E2) 2nd PO		
	Since 1968		<u> </u>	Project No. Date	2021-01-27	7	Ву	S.W.PARK	
				Checked	S.C.KIM		Approved	S.C.KIM	
	P&ID No.		1	cricencu		H46	5-E2-PID-2002A	0.0	
ب	Tag No.		2				E2-PSV-2120		
GENERAL	Service Line		3		PT-20		P-201 Steam Turbine)		
SEN.	Model No.		4	JSV-FF1		171 (201 Steam Tarbine)		
	Quantity		5	1	00		Calculation		
	- /		6		710		Calculation of Area		
	Nozzle Type						Calculation of Area		
TYPE	Design Type		7	Convention					
Ţ	Bonnet Type	2		Open					
	Lever Type		9	Plain Lev	ver	A1	= 190.4*W1/((P*1.1+101.325)*Kd*Kb*	*Kc*Kn*Ksh)	
	Cap Type		10	Plain					
ż	Size. Inlet /		11	6"X8"		=	190.4*35753/((1765*1.1+101.325)*0.8	31*1*1*1*0.872)	
CONN.	Inlet. Rating		12	ASME CL.3				,	
	Outlet. Ratir	ng / Facing	13	ASME CL.1	50 RF				
	Body (Base)		14	SA216 W	/CB		= <u>4598.654269</u> mm²		
	Bonnet		15	SA216 W	/CB				
S	Seat		16	316 SS-	st.				
MATERIALS	Disc		17	316 SS-	st.		Calculation of Capacity		
ATE	Guide		18	316 SS	5				
M	Gasket (Bon	net)	19	Graphit	te				
	Spring		20	316 SS	S	W	= A*(P*1.1+101.325)*Kd*Kb*Kc*Kn*Ks	sh/190.4	
	Bellows		21	None					
	Approved b	V	22	KGS UV ST	AMP		= 7132.89*(1765*1.1+101.325)		
	Comply with		23	No			31*1*1*1*0.872/190.4		
	EN 10204		24	No					
BASIS	Code		25	API RP 5	520		= 55456 kg/h		
B/	Fire		26	No	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		<u>55 150</u> kg/		
	Sizing Basis		27	Blocked O	utlet				
	Rupture Dis		28	No	dict	W	Valve Capacity	55456 kg/h	
	Fluid / State		29	MP Steam /	CTEANA	W1	Required Capacity	35753 kg/h	
		: / Specific Gravity	30	18.02		P	Set Pressure	1765 KPag	
								1	
	Compressibi	<u> </u>	31	0.971		A1	Calculated Area	4598.654269 mm²	
	Ratio of Spe	еспіс неаг	32	1.290		A	Selected Area	7132.89 mm²	
S	Viscosity	D.II. T.	33	- 204 /		Kd	Coefficient of Discharge	0.831	
Ě		Relieving Temp.	34			Ksh	Steam Correction Factor	0.872	
JNC		/ Design Max. Temp.	35			Kb	Correction Factor Due to Back Pressure	1	
E C(Set Pressure	36	1.569 / 1.765		Kc	Correction Factor for a rupture disk	1	
SERVICE CONDITION	Design Pres	sure / C.D.T.P	37	1.765/F.V / 1.835		Kn	Correction Factor for Napier equation	1	
SER		Superimposed - Constant	38		0 MPag			1	
	Back	Superimposed - Variable	39		- MPag				
	Pressure	Built-up	40		5 MPag		Remarks		
		Total	41	0.1	5 MPag		Kelliaiks		
	Allowable O	<u>'</u>	42		10 %	*D.	pint Color(*)		
	Closing Pres	sure / Blowdown(%)	43	Min. 1.64145 MF	Pag / 7%	_	aint Color(*) inting : P-5 (RAL 9006 Silver)		
z	Required Ca	pacity	44	357	53 kg/h	. u	g (
SIZING & SELECTION	Valve Actua	Capacity	45	554	56 kg/h		<u>emark</u>		
LEC	Calculated C	Orifice Area	46	4598.654	4269 mm²		Operating Pressure : 16 kgf/m²g		
ž SE	Selected Ori	fice Area	47	713	32.89 mm²		Setting Pressure : 18 kgf/m²g		
1G 8	Orifice Dia.(ı	mm)	48	Q(95.3			Design Pressure : 18/F.V kgf/m²g Built-up Back Pressure : 1.526 kgf/m²g		
IZIN	·			_		C	Tank up buck i ressure . 1.520 kgi/ull g		
S			\vdash	-					
	Paint Systen	n & Color	49	See Rem	ark				
ETC	Test Gag	. 2. 20.0.	50	Yes					
ш	Bug screen		51	No					
	bug scieeli		ار	INU					

Ref. No : SLO200337-20-642964 JOKWANG I.L.I CO.,LTD. No.TTIPCF500-2

				Pressure Sa	afety & Relief Va	lve	Specification and Calculation Sh	eet		
	®			Sheet No.	3 of 20	Rev . No 1				
	TAK J	OKWANG I.L.I		Project Name		Yeosu No.2 Complex Project(E2) 2nd PO				
	Since 1968			Project No.						
				Date Checked	2021-01-27		By	S.W.PARK		
	P&ID No.		1	Criecked	S.C.KIM	116	Approved 5-E2-PID-2008A	S.C.KIM		
يـ	Tag No.		2		<u>'</u>		E2-PSV-2121			
GENERAL	Service Line		3	PT-2			P-205 Steam Turbine)			
E N	Model No.		4	JSV-FF1) A.	r-203 Steam Turbline)			
	Quantity		5	1	00		Calculation			
	Nozzle Type	<u> </u>	6	Full Noz	7 0		Calculation of Area			
	Design Type		7	Convention	<u> </u>		Calculation of Area			
TYPE	Bonnet Type		8	Open						
۲	Lever Type	-	9	Plain Lev			400 45444 (((Dtd 4 - 404 205)))) (1544 1544 1544 1544 1544 1544 1544 154	+14 +14 +14 \		
	Cap Type		10	Plain	, c.i	ΑΙ	$= 190.4*W1/((P*1.1+101.325)*Kd*Kb^{3}$	^KC^KN^KSN)		
	Size. Inlet /	Outlet	11	6"X8"						
CONN.	Inlet. Rating		12	ASME CL.3		=	190.4*34875/((1765*1.1+101.325)*0.8	31*1*1*1*0.872)		
8	Outlet. Rating	·	13	ASME CL.3						
	Body (Base)	ig / Tucing	14	SA216 W			= 4485.723369 mm²			
	Bonnet		15	SA216 W						
	Seat		16	316 SS-						
MATERIALS	Disc		17	316 SS-			Calculation of Capacity			
품	Guide		18	316 SS			Calculation of Capacity			
MA	Gasket (Bon	net)	19	Graphit						
	Spring	net)	20	316 SS		۱۸/	- Δ*/P*1 1±101 325)*Kd*Kh*Kc*Kn*Ks	·h/190 /		
	Bellows		21	None			W = A*(P*1.1+101.325)*Kd*Kb*Kc*Kn*Ksh/190.4			
	Approved b	· · · · · · · · · · · · · · · · · · ·	22	KGS UV ST			7122 00+/17/5+1 1 - 101 225\			
	Comply with		23	No			= 7132.89*(1765*1.1+101.325) 31*1*1*1*0.872/190.4			
	EN 10204	INACE	24	No		0.0	31 1 1 1 0.072, 130.1			
BASIS	Code		25	API RP 5	:20					
B.A	Fire		26	No	720		= <u>55456</u> kg/h			
	Sizing Basis		27	Blocked O	utlet					
	Rupture Dis	k	28	No.	<u> </u>	W	Valve Capacity	55456 kg/h		
	Fluid / State		29	MP Steam /		N1	Required Capacity	34875 kg/h		
		t / Specific Gravity	30	18.02		P	Set Pressure	1765 KPag		
	Compressib		31	0.971		41	Calculated Area	4485.723369 mm²		
	Ratio of Spe		32	1.290		A	Selected Area	7132.89 mm²		
	Viscosity	Jenie Frede	33	-		Kd	Coefficient of Discharge	0.831		
Θ		Relieving Temp.	34			(sh	Steam Correction Factor	0.872		
SERVICE CONDITION		/ Design Max. Temp.	35			Kb	Correction Factor Due to Back Pressure	1		
OS N		Set Pressure	36	1.569 / 1.76		Kc	Correction Factor for a rupture disk	1		
		sure / C.D.T.P	37	1.765/F.V / 1.835		Kn	Correction Factor for Napier equation	1		
<u>8</u>		Superimposed - Constant	38		0 MPag		The second of th	<u> </u>		
SE	Back	Superimposed - Variable	39		- MPag					
	Pressure	Built-up	40		5 MPag			,		
		Total	41		5 MPag		Remarks			
	Allowable O		42	5	10 %					
		ssure / Blowdown(%)	43	Min. 1.64145 MF			aint Color(*)			
-	Required Ca		44		75 kg/h	Pai	inting: P-5 (RAL 9006 Silver)			
SIZING & SELECTION	Valve Actua	•	45		56 kg/h	*Re	emark			
ECI	Calculated (46	4485.723		- C	Dperating Pressure : 16 kgf/m²g			
s SEI	Selected Ori		47		2.89 mm²		etting Pressure : 18 kgf/m²g			
8	Orifice Dia.(48	Q(95.3			Design Pressure : 18/F.V kgf/m²g			
NIN	(-		- B	uilt-up Back Pressure : 1.526 kgf/m²g			
S			\vdash	_						
	Paint Systen	n & Color	49	See Rem	ark					
ETC	Test Gag	5. 50101	50	Yes						
	Bug screen		51	No						
	Day sciecti		۱ ر	110						

Ref. No : SLO200337-30-642968 JOKWANG I.L.I CO.,LTD. No.TTIPCF500-2

				Pressure Safety	v & Relief Valv	⁄e	Specification and Calculation She	et	
	®			Sheet No.	4 of 20				
	J.K J	OKWANG I.L.I		Project Name	Y	ec/	osu No.2 Complex Project(E2) 2nd PO		
	Since 1968		<u> </u>	Project No. Date	2021-01-27		By	S.W.PARK	
				Checked	S.C.KIM		Approved	S.C.KIM	
	P&ID No.		1	CHECKEU		16	5-E2-PID-3008	J.C.KIIVI	
پ	Tag No.		2				-PSV-3127A/B		
GENERAL	Service Line		3				Gasoline Stripper Reboler) TS		
SEN.	Model No.		4	JSV-FF100	-320A/B (Fylolys	515	Gasonine Stripper Repoler) 13		
_			5	2			Calculation		
	Quantity						Calculation of Assa		
	Nozzle Type		6	Full Nozzle			Calculation of Area		
퓚	Design Type		7	Bellows					
TYPE	Bonnet Type	!	8	Close					
	Lever Type		9	None	A	.1	= $11.78*W1*(\sqrt{G/(P1-Pb)})/(Kd*Kb*Kc*)$	Kv)	
	Сар Туре		10	Screwed					
ż	Size. Inlet /		11	1"X2"			= 11.78*165*\(\)(0.6652/(463.1-41))/(0.6	15*1*1*1)	
CONN.	Inlet. Rating		12	ASME CL.150 R			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	,	
	Outlet. Ratin	g / Facing	13	ASME CL.150 R	F				
	Body (Base)		14	SA216 WCB			= <u>125.464992</u> mm²		
	Bonnet		15	SA216 WCB					
S.	Seat		16	316 SS-st.					
RIAI	Disc		17	316 SS-st.			Calculation of Capacity		
MATERIALS	Guide		18	316 SS					
Σ	Gasket (Bon	net)	19	PTFE					
	Spring		20	Chrome Alloy(SWO	SC-B) W	١ -	= A*Kd*Kb*Kc*Kv/(11.78*√(G/(P1-Pb))))	
	Bellows		21	316L SS					
	Approved by	/	22	KGS UV STAMF)	:	= 132.9*0.615*1*1*1/(11.78*\/(0.6652/	(463.1-41)))	
	Comply with		23	No					
	EN 10204		24	No			= 174.80 { /min		
BASIS	Code		25	API RP 520-Certific	ation		= 10.5 m3/h		
B,	Fire		26	No					
	Sizing Basis		27	Blocked Outlet (with he	eat input)				
	Rupture Disl	(28	No	T w	,	Valve Capacity	174.80 l/min	
	Fluid / State		29	Reboiler Liquid / LIC		\dashv	Required Capacity	165 ℓ/min	
		/ Specific Gravity	30	0.6652	P	-	Set Pressure	421 KPag	
	Compressibi	-	31	- 0.0032	A1	┪	Calculated Area	125.464992 mm²	
	Ratio of Spe		32	<u>-</u>	A	\dashv	Selected Area	132.9 mm²	
	Viscosity	cinc ricat	33		Kd	\dashv	Coefficient of Discharge	0.615	
O		Relieving Temp.	34	125 / 165		\dashv	Specific Gravity	0.6652	
Ε	1 5,	/ Design Max. Temp.	35	· · · · · · · · · · · · · · · · · · ·		-	· · · · · · · · · · · · · · · · · · ·		
SERVICE CONDITION		, <u> </u>	36	-18/165		\dashv	Back Pressure	41 KPag	
) E		Set Pressure	36	0.092 / 0.421 MF		-	Correction Factor Due to Back Pressure	1	
Σ	Design Press	sure / C.D.T.P	_	0.421/HV / 0.42521 MF		\dashv	Correction Factor for a rupture disk	1	
SEF	Do al-	Superimposed - Constant Superimposed - Variable	38	0.03 MF		-	Correction Factor due to Viscosity	463.1 KDa.::	
	Back		39	- MF		Ц	Set Pressure plus Overpressure	463.1 KPag	
	Pressure	Built-up	40	0.011 MF			Remarks		
	A11- 11 0	Total	41	0.041 MF					
	Allowable O	<u>'</u>	42	10	*	Pa	int Color(*)		
		sure / Blowdown(%)	43	Min. 0.3579 MPag / 14.988	P P		nting : P-5 (RAL 9006 Silver)		
S	Required Ca	·	44	9.9 m					
SIZING & SELECTION	Valve Actual		45	10.5 m			e <u>mark</u> Operating Pressure : 0.94 kgf/m²g		
SELE	Calculated C		46	125.464992			etting Pressure : 0.94 kgi/mig		
8	Selected Ori		47	132.9	IIIII		esign Pressure : 4.3/H.V kgf/m²g		
NG	Orifice Dia.(r	nm)	48	D1(13)		C	onstant Back Pressure : 0.3 kgf/m²g		
SIZ				-		В	uilt-up Back Pressure : 0.112 kgf/m²g		
				-					
	Paint System	1 & Color	49	See Remark					
ETC	Test Gag		50	Yes					
	Bug screen		51	Yes					

Ref. No : SLO200337-40-642981 JOKWANG I.L.I CO.,LTD. No.TTIPCF500-2

				Pressure Sat	ety & Relief Val	lve	Specification and Calculation She	eet		
	®			Sheet No.	5 of 20		Rev . No	1		
	T.K J	OKWANG I.L.I		Project Name	•	Yec	osu No.2 Complex Project(E2) 2nd PO			
	Since 1968			Project No.						
				Date 2021-01-2 Checked S.C.KIM				S.W.PARK S.C.KIM		
	P&ID No.		1	Спескей	S.C.KIM	146	Approved 5-E2-PID-9206	S.C.KIIVI		
_			2			_	-PSV-9037A/B			
GENERAL	Tag No. Service Line		3				,			
EN EN							Compressor 1 st stage discharge			
	Model No.		5	JSV-FF10	0		Calculation			
	Quantity		_	2			Calculation of Avec			
	Nozzle Type		6	Full Nozz	le		Calculation of Area			
뿚	Design Type		7	Bellows						
TYPE	Bonnet Type	2	8	Close						
	Lever Type		9	None		A1	$= 13160*W1*(\sqrt{ZT/M})/(C*Kd*(P*1.1+1)$	101.325)*Kb*Kc)		
	Cap Type		10	Screwed						
ż	Size. Inlet /		11	3"X4"			= 13160*7800*(\sqrt{0.9913*392.6/16})/(34	15.08*0.831*		
CONN.	Inlet. Rating		12	ASME CL.30		140	1*1.1+101.325)*1*1)			
	Outlet. Ratir	ng / Facing	13	ASME CL.15	0 RF					
	Body (Base)		14	SA216 W0	СВ		= <u>1074.884601</u> mm²			
	Bonnet		15	SA216 W0	СВ					
S	Seat		16	316 SS-st	t.					
RAI	Disc		17	316 SS-st	t.		Calculation of Capacity			
MATERIALS	Guide		18	316 SS						
Σ	Gasket (Bon	net)	19	PTFE						
	Spring		20	Chrome Alloy(SAE9254)			$W = A*C*Kd*(P*1.1+101.325)*Kb*Kc/(13160*\sqrt{ZT/M}))$			
	Bellows		21	316L SS						
	Approved b	у	22	KGS UV STA	MP	:	= 1187.74*345.08*0.831*(1401*1.1+10	01.325)*1*1/		
	Comply with	n NACE	23	No	(1	131	60*√(0.9913*392.6/16))			
	EN 10204		24	No						
BASIS	Code		25	API RP 52	20	= <u>8619</u> kg/h				
-	Fire		26	No			 -			
	Sizing Basis		27	Blocked Ou	tlet					
	Rupture Dis	k	28	No	W	νl	Valve Capacity	8619 kg/h		
	Fluid / State	<u> </u>	29	Fuel Gas / C	SAS W	/1	Required Capacity	7800 kg/h		
		t / Specific Gravity	30	16	P	P	Set Pressure	1401 KPag		
	Compressib	•	31	0.9913	A	1	Calculated Area	1074.884601 mm²		
	Ratio of Spe		32	1.28	Α	\dashv	Selected Area	1187.74 mm²		
_	Viscosity		33	-	K	\dashv	Coefficient of Discharge	0.831		
<u>S</u>		Relieving Temp.	34	119.6 / 119		\dashv	Coefficient base on Ratio of Specific Heat	345.08		
Ī		/ Design Max. Temp.	35		80 °C T	\dashv	Kelvin Temperature	392.6 K		
SERVICE CONDITION		Set Pressure	36	1.184 / 1.401		\dashv	Molecular Weight	16		
GE (sure / C.D.T.P	37	1.401 / 1.41501	_	-	Compressibility Factor	0.9913		
₹	g 1103	Superimposed - Constant	38	-	MPag KI	\dashv	Correction Factor Due to Back Pressure	1		
S	Back	Superimposed - Variable	39		MPag K	\dashv	Correction Factor for a rupture disk	1		
	Pressure	Built-up	40		MPag	-~		'		
	i i cooule	Total	41		MPag		Remarks			
	Allowable O		42		10 %					
		ssure / Blowdown(%)	43	Min. 1.30293 MPa	ng / 7%		int Color(*)			
	Required Ca		44		0 kg/h	Pai	nting : P-5 (RAL 9006 Silver)			
<u>o</u>	Valve Actua	•	45			*D^	emark			
SIZING & SELECTION	Calculated (46	1074.8840			perating Pressure : 12.07 kgf/m²g			
SEL			46		30 1 11111		etting Pressure: 14.3 kgf/m²g			
8	Selected Ori				./4	- D	esign Pressure : 14.3 kgf/m²g			
ING	Orifice Dia.(111111)	48	K(38.9)			onstant Back Pressure : 0.3 kgf/m²g			
SIZ			 	-		- B	uilt-up Back Pressure : 1.43 kgf/m²g			
			<u> </u>	-						
,	Paint Systen	n & Color	49	See Rema	rk					
ETC	Test Gag		50	Yes						
	Bug screen		51	Yes						

Ref. No : SLO200337-50-643002 JOKWANG I.L.I CO.,LTD. No.TTIPCF500-2

				Pressure Sa	fety & Relief Valv	/e	Specification and Calculation She	et		
	R			Sheet No.	6 of 20		Rev . No	1		
	Tek J	OKWANG I.L.I		Project Name	Y	Yeosu No.2 Complex Project(E2) 2nd PO				
	Since 1968		<u> </u>	Project No.						
				Date Checked	2021-01-27 S.C.KIM			S.W.PARK S.C.KIM		
	P&ID No.		1	Спескей		16	Approved 5-E2-PID-9206	S.C.KIIVI		
ب	Tag No.		2			_	PSV-9038A/B			
GENERAL	Service Line		3	C			Compressor 2nd stage discharge			
E N	Model No.		4	JSV-FF10		mg	Compressor Zha stage discharge			
	Quantity		5	2			Calculation			
	Nozzle Type		6	Full Nozz	zlo.		Calculation of Area			
	Design Type		7	Conventio			Calculation of Area			
TYPE	Bonnet Type		8	Close	iriai					
7	Lever Type	:	9	None		.1	- 12160*\\\\1*(\\\7T\\\\\\\\C*V*\D*1.1.1	01 225*Vb*Vc\		
	, ,		10	Screwed		\ I	= 13160*W1*(√ZT/M)/(C*Kd*(P*1.1+1	01.525)"ND"NC)		
	Cap Type Size. Inlet / 0	Outlet.	-	2"X3"	л ————————————————————————————————————		12150170001//0.00511205.0/15///	5 0010 0041		
CONN.			11)O DE (2-		= 13160*7800*(√0.9864*395.2/16)/(34 6*1.1+101.325)*1*1)	5.08*0.831*		
8	Inlet. Rating	·	12	ASME CL.30	`	74	0 1.1+101.525) 1 1)			
	Outlet. Ratin	g / Facing	13	ASME CL.15			440 400750			
	Body (Base)		14	SA216 W		-	= <u>418.498758</u> mm²			
	Bonnet		15	SA216 W						
ALS.	Seat		16	316 SS-s	<u> </u>					
MATERIALS	Disc		17	316 SS-s			Calculation of Capacity			
MA	Guide		18	316 SS						
	Gasket (Boni	net)	19 20	PTFE	WOSC B)	.,	A+C+I/ +/D+4 4	CO+ /(7T () ())		
		Spring		<u> </u>			$W = A*C*Kd*(P*1.1+101.325)*Kb*Kc/(13160*\sqrt{(ZT/M)})$			
	Bellows		21	None						
	Approved by		22	KGS UV ST.			= 506.45*345.08*0.831*(3746*1.1+101	.325)*1*1/		
	Comply with	NACE	23	No	(1:	31	60*√(0.9864*395.2/16))			
BASIS	EN 10204	· ·		No						
BAS	Code		25 API RI 26 N		20	-	= 9439 kg/h			
	Fire			No		-				
	Sizing Basis		27	Blocked O		. T	VI 6 "	0.420 4		
	Rupture Disk		28	No 5 1 G	W	-	Valve Capacity	9439 kg/h		
	Fluid / State		29	Fuel Gas /		\dashv	Required Capacity	7800 kg/h		
		/ Specific Gravity	30	16	P	-	Set Pressure	3746 KPag		
	Compressibi		31	0.9864		-	Calculated Area	418.498758 mm²		
	Ratio of Spe	cific Heat	32	1.28	A	\dashv	Selected Area	506.45 mm²		
8	Viscosity	Della da a Tanan	33	122.2.7.12	Kd	\dashv	Coefficient of Discharge	0.831		
Ę		Relieving Temp.	34	122.2 / 12		\dashv	Coefficient base on Ratio of Specific Heat	345.08		
SERVICE CONDITION		/ Design Max. Temp.	35		180 °C T	\dashv	Kelvin Temperature	395.2 K		
E C		Set Pressure	36	3.118 / 3.746		\dashv	Molecular Weight	16		
SVIC.	Design Press	sure / C.D.T.P	37	3.746 / 3.753766		\dashv	Compressibility Factor	0.9864		
SER	DI	Superimposed - Constant	38		MPag Kb	\dashv	Correction Factor Due to Back Pressure	1		
	Back	Superimposed - Variable	39		- MPag Kc	١	Correction Factor for a rupture disk	1		
	Pressure	Built-up	40		P MPag		Remarks			
	Allowable O	Total	41	0.3746	MPag 10 %					
		verpressure sure / Blowdown(%)	43	Min. 3.48378 MP	*	P <u>a</u>	int Color(*)			
			-		P	Pair	nting : P-5 (RAL 9006 Silver)			
O	Required Ca		44		00 kg/h	D-	am ark			
SIZING & SELECTION	Valve Actual	· · ·	45 46				<u>mark</u> perating Pressure : 31.8 kgf/m²g			
SELI	Calculated C		-	418.498	77 30 11111		etting Pressure: 38.2 kgf/m²g			
8	Selected Ori		47			· D	esign Pressure : 38.2 kgf/m²g			
NE S	Orifice Dia.(r	nm)	48	H(25.4)		- Constant Back Pressure : 0.3 kgf/៣²g				
SIZ			\vdash	-		- Bı	uilt-up Back Pressure : 3.5 kgf/m²g			
		1		-						
ETC	Paint System	n & Color	49	See Rema	ark					
=	Test Gag		50	Yes						
	Bug screen		51	No						

Ref. No : SLO200337-60-643010 JOKWANG I.L.I CO.,LTD. No.TTIPCF500-2

				Pressure Sa	afety & Relief V	alve	Specification and Calculation Sh	eet	
	®	0101/4110111		Sheet No.	7 of 20				
	J.K J	OKWANG I.L.I	-	Project Name		Ye	osu No.2 Complex Project(E2) 2nd PO		
	Since 1968			Project No. Date	2021-01-27	7	Ву	S.W.PARK	
				Checked	S.C.KIM	,	Approved	S.C.KIM	
	P&ID No.		1			H46	5-E2-PID-9001A		
ب	Tag No.		2				E2-PSV-9003		
GENERAL	Service Line		3		PT-901A (S		BFW PUMP P-901A Turbine)		
SEN.	Model No.		4	JSV-FF1		111 6	W T GIVII T 30 IX TUIDING		
	Quantity		5	1			Calculation		
	Nozzle Type		6	Full Noz	710		Calculation of Area		
			+ -		-	Calculation of Area			
TYPE	Design Type		7 8	Convention					
Ţ	Bonnet Type	2	+	Open					
	Lever Type		9	Plain Lev	ver	A1	= 190.4*W1/((P*1.1+101.325)*Kd*Kb*	*Kc*Kn*Ksh)	
	Cap Type		10	Plain					
ż	Size. Inlet /		11	6"X8"		=	190.4*57600/((1765*1.1+101.325)*0.8	31*1*1*1*0.943)	
CONN.	Inlet. Rating		12	ASME CL.30					
	Outlet. Ratir	ng / Facing	13	ASME CL.1	50 RF		6050 067465		
	Body (Base)		14	SA216 W	/CB		= <u>6850.867165</u> mm²		
	Bonnet		15	SA216 W	/CB				
S	Seat		16	316 SS-	st.				
MATERIALS	Disc		17	316 SS-	st.		Calculation of Capacity		
ATE	Guide		18	316 SS	S				
Δ	Gasket (Bon	net)	19	Graphit	te				
	Spring		20	316 SS	S	W	= A*(P*1.1+101.325)*Kd*Kb*Kc*Kn*Ks	sh/190.4	
	Bellows		21	None					
	Approved by	У	22	KGS UV ST	AMP		= 7132.89*(1765*1.1+101.325)		
	Comply with	NACE	23	No			31*1*1*1*0.943/190.4		
	EN 10204		24	No					
BASIS	Code		25	API RP 5	520		= 59971 kg/h		
B	Fire		26	No		i —			
	Sizing Basis		27	Blocked O	utlet				
	Rupture Dis	<	28	No		W	Valve Capacity	59971 kg/h	
	Fluid / State		29	MP Steam /	STEAM	W1	Required Capacity	57600 kg/h	
		: / Specific Gravity	30	18.02		P	Set Pressure	1765 KPag	
	Compressibi		31	0.951	i i	A1	Calculated Area	6850.867165 mm²	
	Ratio of Spe	·	32	1.36		A	Selected Area	7132.89 mm²	
	Viscosity	icine rieut	33	-		Kd	Coefficient of Discharge	0.831	
ō		Relieving Temp.	34	270 /		Ksh	Steam Correction Factor	0.943	
DIT	1 3.	/ Design Max. Temp.	35			Kb	Correction Factor Due to Back Pressure	1	
O		Set Pressure	36	1.47 / 1.765	-	Kc	Correction Factor for a rupture disk	1	
SERVICE CONDITION		sure / C.D.T.P	37	1.765/F.V / 1.8179		Kn	Correction Factor for Napier equation	1	
N.	Design Fles	Superimposed - Constant	38		0 MPag	IXII	correction ractor for traplet equation	 	
SE	Back	Superimposed - Variable	39		- MPag				
	Pressure	Built-up	40		9 MPag				
	riessule	Total	41		9 MPag		Remarks		
	Allowable O		41	0.03	10 %				
		sure / Blowdown(%)	43	Min. 1.64145 MF		*Pa	aint Color(*)		
			-			Pa	inting : P-5 (RAL 9006 Silver)		
O	Required Ca	<u>'</u>	44 4E		00 kg/h	*D	omark		
ECT	Valve Actual		45		71 kg/h		e <u>mark</u> Operating Pressure : 15 kgf/m²g		
SELI	Calculated C		46	6850.867			setting Pressure : 18 kgf/m²g		
8	Selected Ori		47		2.89 mm²		Design Pressure : 18/F.V kgf/m²g		
SIZING & SELECTION	Orifice Dia.(ı	nm)	48	Q(95.3)	- B	Built-up Back Pressure : 0.92kgf/m²g		
SIZ				-					
				-					
O	Paint Systen	n & Color	49	See Rem	ark				
ETC	Test Gag		50	Yes					
	Bug screen		51	No					

Ref. No : SLO200337-70-643013 JOKWANG I.L.I CO.,LTD. No.TTIPCF500-2

				Pressure Sa	fety & Relief V	alve	Specification and Calculation She	et																			
	®			Sheet No.	8 of 20	Rev . No 1																					
	J.K J	OKWANG I.L.I		Project Name		Yeosu No.2 Complex Project(E2) 2nd PO																					
	Since 1968			Project No.	2021 01 23	7	D.,	TAN DA DIK																			
			-	Date Checked	2021-01-27 S.C.KIM		,	S.W.PARK S.C.KIM																			
	P&ID No.		1	CHECKEG		H46'	5-E2-PID-9001A	J.C.KIIVI																			
4	Tag No.		2				E2-PSV-9009																				
GENERAL	Service Line		3	P-901	A-E3 (SHP BFW P		P P-901A Turbine Gland Condenser) TS	3																			
H	Model No.		4	JSV-FF1	<u> </u>		,																				
	Quantity		5	1			Calculation																				
	Nozzle Type		6	Full Noz	zle		Calculation of Area																				
	Design Type		7	Convention	-																						
TYPE	Bonnet Type		8	Open																							
F		Lever Type		Plain Lev		۸1	_ 100 4*\\/1 ///D*1 1 , 101 22E*Vd*Vb*k	(c*l/n*l/ch)																			
	Cap Type		9	Plain		ΑI	= 190.4*W1/((P*1.1+101.325)*Kd*Kb*k	C"KII"KSII)																			
	Size. Inlet /	Outlet	11	3/4"X1																							
CONN.	Inlet. Rating		12	ASME CL.1!		=	190.4*65.5/((1358*1.1+101.325)*0.831*	1*1*1*1)																			
S	Outlet. Ratin		13	ASME CL.15																							
	Body (Base)	.9 , 1 401119	14	SA216 W			= 9.408329 mm²																				
	Bonnet		15	SA216 W																							
	Seat		16	316 SS-:																							
MATERIALS	Disc		17	316 SS-			Calculation of Capacity																				
H	Guide		18	316 SS	-		Calculation of Capacity																				
MA	Gasket (Bon	not)	19	Graphit																							
	Spring	net)	20				11/014 4 404 205) 11/11/11/11/11/11/11/11/11/11/11/11/11/	4004																			
	Bellows		21	Chrome Alloy(SWOSC-B) None			W = A*(P*1.1+101.325)*Kd*Kb*Kc*Kn*Ksh/190.4																				
		,	22	KGS UV ST																							
	Approved by Comply with		23	No	AIVIP		= 132.9*(1358*1.1+101.325)*0.831*1*1	*1*1/190.4																			
	EN 10204	INACE	24	No																							
BASIS	Code		25	API RP 5	20		= 925 kg/h																				
BA			26	No	020		<u>===</u> g,																				
		Fire																		Sizing Basis	g Basis	27	Blocked O	utlet			
	Rupture Disk	,	28	No		W	Valve Capacity	925 kg/h																			
	Fluid / State		29	Cooling Water		W1	Required Capacity	65.5 kg/h																			
		/ Specific Gravity	30	18.02		P	Set Pressure	1358 KPag																			
	Compressibi		31	0.904		A1	Calculated Area	9.408329 mm²																			
	Ratio of Spe	-	32	1.313		A	Selected Area	132.9 mm²																			
		CITIC FIEAL	33	0.016 c		Kd		0.831																			
O	Viscosity Operating /	Relieving Temp.	34	41.06 / 20		Ka	Coefficient of Discharge Steam Correction Factor	1																			
H		/ Design Max. Temp.	35	41.00 / 20	T T	Ksn Kb	Correction Factor Correction Factor Correction Factor	1																			
SERVICE CONDITION		Set Pressure	36	0.49 / 1.358		Kc		1																			
SE C		sure / C.D.T.P	37	1.358 / 1.358		Kn	Correction Factor for a rupture disk Correction Factor for Napier equation	1																			
Š	Design Fless	Superimposed - Constant	38	-	0 MPag	IXII	Correction Factor for Mapier equation	ı																			
SE	Back	Superimposed - Constant Superimposed - Variable	39		- MPag																						
		Built-up	40		6 MPag																						
	Pressure	Total	40		6 MPag		Remarks																				
	Allowable O		42	0.000	10 %																						
		sure / Blowdown(%)	43	Min. 1.26294 MF			aint Color(*)																				
			44			Pai	inting : P-5 (RAL 9006 Silver)																				
O	Required Ca		45		5.5 kg/h	*D.	amark																				
ECT	Valve Actual Calculated C	· · · · ·	46		25 kg/h 8329 mm²		e <u>mark</u> Operating Pressure : 5 kgf/m²g																				
SEL			46				letting Pressure : 13.85 kgf/m²g																				
SIZING & SELECTION	Selected Ori		\vdash		32.9 mm²	- D	Design Pressure : 13.85 kgf/m²g																				
NE S	Orifice Dia.(r	11111)	48	D1(13))	- B	uilt-up Back Pressure : 0.88 kgf/m²g																				
SIZ			\vdash	-																							
	<u> </u>			-																							
ပ	Paint System	n & Color	49	See Rem	ark																						
ETC	Test Gag		50	Yes																							
	Bug screen		51	No																							

Ref. No : SLO200337-80-643015 JOKWANG I.L.I CO.,LTD. No.TTIPCF500-2

				Pressure Sa	-	alve	Specification and Calculation Sh	eet	
	®			Sheet No.	9 of 20				
	J.K J	OKWANG I.L.I		Project Name		Ye	osu No.2 Complex Project(E2) 2nd PO		
	Since 1968			Project No. Date	2021-01-27	7	Ву	S.W.PARK	
				Checked	S.C.KIM	,	Approved	S.C.KIM	
	P&ID No.		1	cindenda	0.0	H46	5-E2-PID-91 57	0.0	
ب	Tag No.		2				2-PSV-3750B		
GENERAL	Service Line		3		CT-301		Turbine Sealing Steam		
SEN GEN	Model No.		4	JSV-FF1		Litte	Turbine seaming steam		
	Quantity		5	1			Calculation		
	Nozzle Type		6	Full Noz	710		Calculation of Area		
			7	Conventional			Calculation of Area		
TYPE	Design Type		8						
₽	Bonnet Type	2	\vdash	Open					
	Lever Type		9	Plain Lev	ver	A1	= 190.4*W1/((P*1.1+101.325)*Kd*Kb*	*Kc*Kn*Ksh)	
	Cap Type		10	Plain					
ż	Size. Inlet /		11	3"X4"		=	190.4*1147/((127*1.1+101.325)*0.831	*1*1*1*0.811)	
CONN.	Inlet. Rating		12	ASME CL.1			,	,	
	Outlet. Ratir	ng / Facing	13	ASME CL.1	50 RF				
	Body (Base)		14	SA217 W	/C6		= <u>1344.455377</u> mm²		
	Bonnet		15	SA217 W	/C6				
S.	Seat		16	AS(2.25Cr	r)-st.				
RIAI	Disc		17	Inconel 6	525		Calculation of Capacity		
MATERIALS	Guide		18	316 SS	5				
Σ	Gasket (Bon	net)	19	Graphit	te				
	Spring		20	316 SS	S	W	= A*(P*1.1+101.325)*Kd*Kb*Kc*Kn*Ks	sh/190.4	
	Bellows		21	None					
	Approved by	У	22	KGS UV ST	AMP		= 1846.45*(127*1.1+101.325)		
	Comply with	•	23	No			31*1*1*1*0.811/190.4		
	EN 10204	-	24	No					
BASIS	Code		25	API RP 5	520		= <u>1575</u> kg/h		
B,	Fire		26	No.			<u></u>		
	Sizing Basis		27	Blocked O	utlet				
	Rupture Disl	<u> </u>	28	No	i	W	Valve Capacity	1575 kg/h	
	Fluid / State		29	LP Steam / S	STEAM	W1	Required Capacity	1147 kg/h	
		: / Specific Gravity	30	18.02		P	Set Pressure	127 KPag	
	Compressibi		31	0.997	i i	A1	Calculated Area	1344.455377 mm²	
	Ratio of Spe	·	32	1.281		A	Selected Area	1846.45 mm²	
	Viscosity	cinc ricat	33	1,201		Kd	Coefficient of Discharge	0.831	
O		Relieving Temp.	34	415 / 43		Ksh	Steam Correction Factor	0.811	
E			35			Kb		0.011	
SERVICE CONDITION		/ Design Max. Temp. Set Pressure	36	0.019 / 0.127		Kc	Correction Factor Due to Back Pressure Correction Factor for a rupture disk		
)E C							·	1	
Σ	Design Press	Sure / C.D.T.P	37	0.127/FV / 1.358		Kn	Correction Factor for Napier equation	+ '-	
SEF	Pa al:	Superimposed - Constant Superimposed - Variable	38 39		0 MPag - MPag			-	
	Back						<u> </u>		
	Pressure	Built-up	40		3 MPag		Remarks		
	A II - 1 1	Total	41	0.01:	3 MPag				
	Allowable O	<u>'</u>	42	NA: 044044 : :-	10 %	*Pa	aint Color(*)		
		sure / Blowdown(%)	43	Min. 0.11811 MF			inting : P-5 (RAL 9006 Silver)		
S	Required Ca	<u>'</u>	44		47 kg/h				
CT	Valve Actual		45		75 kg/h		emark Operating Pressure : 0.2 kgf/m²g		
SELE	Calculated C		46	1344.455			Setting Pressure : 0.2 kgf/m²g		
8	Selected Ori		47		6.45 mm²		Design Pressure: 1.3/F.V kgf/m²g		
SIZING & SELECTION	Orifice Dia.(r	mm)	48	L(48.5))		Built-up Back Pressure : 0.13 kgf/m²g		
SIZ			\square	-					
				-					
	Paint System	n & Color	49	See Rem	ark				
ETC	Test Gag		50	Yes					
	Bug screen		51	No					

Ref. No : SLO200337-90-643017 JOKWANG I.L.I CO.,LTD. No.TTIPCF500-2

	,			Pressure Sa	afety & Relief Va	alve	Specification and Calculation Sho	eet		
	®			Sheet No.	10 of 20		Rev . No	1		
	TAR J	OKWANG I.L.I		Project Name		Yeosu No.2 Complex Project(E2) 2nd PO				
	Since 1968			Project No.						
				Date	2021-01-27	7	By	S.W.PARK		
	P&ID No.		1 1	Checked	S.C.KIM	⊔ <i>16</i>	Approved 55-E2-PID-9161	S.C.KIM		
ب_	Tag No.		2				2-PSV-5850B			
GENERAL	Service Line		3	CT 50			Turbine Sealing Steam			
E N	Model No.		4	ICV_EE1		LINC	Turbine Sealing Steam			
	Quantity		5	JSV-FF100			Calculation			
	Nozzle Type		6	Full Noz	77 0		Calculation of Area			
	Design Type		7	Conventi			Calculation of Area			
TYPE	Bonnet Type		8	Open						
۲	Lever Type	•	9	Plain Le			400 44444 ((D+4 4500 404 205)+(
	Cap Type		10	Plain		ΑT	= 190.4*W1/((P*1.1628+101.325)*Kd	'KD*KC*Kn*Ksn)		
	Size. Inlet /	Outlet	11	1-1/2"X						
CONN.	Inlet. Rating		12	ASME CL.1		=	190.4*228/((127*1.1628+101.325)*0.8	31*1*1*1*0.877)		
8	Outlet. Rating		13	ASME CL.1						
	Body (Base)	ig / Tucing	14	SA216 W			= 239.221815 mm²			
	Bonnet		15	SA216 V						
	Seat		16	316 SS-						
IALS	Disc		17							
MATERIALS	Guide		18	316 SS-st. 316 SS			Calculation of Capacity			
MA	Gasket (Bon	net)	19	Graphi						
	Spring	nety	20	316 S		W	= A*(P*1.1628+101.325)*Kd*Kb*Kc*Kr	n*Ksh/190.4		
	Bellows			None		The state of the s				
	Approved b	<i>I</i>	21	KGS UV STAMP			= 260*(127*1.1628+101.325)			
	Comply with NACE		23	No			331*1*1*1*0.877/190.4			
	EN 10204		24	No						
BASIS	Code		25	API RP 5	520		= 248 kg/h			
2	Fire		26	No			<u> </u>			
	Sizing Basis		27	Blocked Outlet						
	Rupture Disl	<	28	No		W	Valve Capacity	248 kg/h		
	Fluid / State		29	LP Steam /	STEAM	W1	Required Capacity	228 kg/h		
	Mol. Weight	/ Specific Gravity	30	18.02	2	Р	Set Pressure	127 KPag		
	Compressibi		31	0.996	5	A1	Calculated Area	239.221815 mm²		
	Ratio of Spe	-	32	1.290)	Α	Selected Area	260 mm²		
_	Viscosity		33	-		Kd	Coefficient of Discharge	0.831		
<u> </u>	Operating /	Relieving Temp.	34	299 / 3	47.2 °C ∣	Ksh	Steam Correction Factor	0.877		
SERVICE CONDITION	Design Min.	/ Design Max. Temp.	35		347 ℃	Kb	Correction Factor Due to Back Pressure	1		
8	Operating /	Set Pressure	36	0.019 / 0.12	7 MPag	Kc	Correction Factor for a rupture disk	1		
JG.	Design Press	sure / C.D.T.P	37	0.127/FV / 0.1308	1 MPag	Kn	Correction Factor for Napier equation	1		
8		Superimposed - Constant	38		0 MPag					
S	Back	Superimposed - Variable	39		- MPag					
	Pressure	Built-up	40	0.01	3 MPag		Domes also			
		Total	41	0.01	3 MPag		Remarks			
	Allowable O	verpressure	42		3 psi	*D	aint Color(t)			
	Closing Pres	sure / Blowdown(%)	43	Min. 0.11811 M	Pag / 7%		aint Color(*) inting : P-5 (RAL 9006 Silver)			
z	Required Ca	pacity	44	2	28 kg/h	. u	9 (.4 12 3000 311401)			
SIZING & SELECTION	Valve Actual	Capacity	45	2	48 kg/h		emark			
ELEC	Calculated C	Orifice Area	46	239.22	1815 mm²		Operating Pressure : 0.2 kgf/m²g			
8 S	Selected Ori	fice Area	47		260 mm²		Setting Pressure : 1.3 kgf/m²g Design Pressure : 1.3/F.V kgf/m²g			
9	Orifice Dia.(r	mm)	48	F1(18.2	2)		Built-up Back Pressure : 0.13 kgf/m²g			
SIZI				-						
			$oxed{oxed}$	-						
6.3	Paint System	n & Color	49	See Rem	nark					
ETC	Test Gag		50	Yes						
	Bug screen		51	No						

Ref. No : SLO200337-100-643037 JOKWANG I.L.I CO.,LTD. No.TTIPCF500-2

				Pressure Sa	fety & Relief Va	alve	Specification and Calculation She	et
	®			Sheet No.	11 of 20		Rev . No	1
	J. K J	OKWANG I.L.I		Project Name		Yeo	osu No.2 Complex Project(E2) 2nd PO	
	Since 1968			Project No. Date	2021-01-27	,	By	S.W.PARK
				Checked	S.C.KIM		Approved	S.C.KIM
	P&ID No.		1	4.		H46	5-E2-PID-91 64	
AL	Tag No.		2				2-PSV-6850B	
GENERAL	Service Line		3		CT-601	ERC	Turbine Sealing Steam	
æ	Model No.		4	JSV-FF100			-	
	Quantity		5	1			Calculation	
	Nozzle Type		6	Full Noz	zle		Calculation of Area	
	Design Type		7	Convention	onal			
TYPE	Bonnet Type		8	Open				
-	Lever Type		9	Plain Lev	ver .	Δ1	= 190.4*W1/((P*1.1628+101.325)*Kd*	Kh*Kc*Kn*Kch)
		Сар Туре		Plain		Α1	= 130.4 W1/((F 1.1020+101.323) Kd	NO RC RII RSII)
	Size. Inlet / 0	Outlet	11	2"X3"				
CONN.	Inlet. Rating / Facing		12	ASME CL.1		=	190.4*578/((127*1.1628+101.325)*0.83	31*1*1*1*0.817)
ö	Outlet. Rating / Facing		13	ASME CL.1				
	Body (Base)		14	SA216 W			= <u>650.98549</u> mm²	
	Bonnet		15	SA216 W				
	Seat		16	316 SS-		Calculation of Capacity		
MATERIALS	Disc		17	316 SS-				
TER	Guide		18	316 SS				
MA	Gasket (Boni	net)	19	Graphit		1		
	Spring	net/	20	316 SS		W	= A*(P*1.1628+101.325)*Kd*Kb*Kc*Kn	*Ksh/190 4
	Spring Bellows		21	None		••	71 (1 1.1020 · 101.323) Rd Rb Rc Rd	131, 130.1
		1	22	KGS UV STAMP			= 834.19*(127*1.1628+101.325)	
	Approved by		23	No			31*1*1*1*0.817/190.4	
	Comply with NACE EN 10204		24	No		0.0	3	
BASIS	Code		25	API RP 5	520		= 741 kg/h	
B.A			26	No	720		- <u>/+1</u> kg/11	
	Sizing Basis	Fire		Blocked O	utlet			
	Rupture Disk	•	27 28	No		W	Valve Capacity	741 kg/h
	Fluid / State		29	LP Steam / S		W1	Required Capacity	578 kg/h
		/ Specific Gravity	30	18.02		P	Set Pressure	127 KPag
	Compressibi		31	0.997		<u>.</u> A1	Calculated Area	650.98549 mm²
	Ratio of Spe		32	1.282		A	Selected Area	834.19 mm²
	Viscosity	cine ricut	33	m		Kd	Coefficient of Discharge	0.831
<u>S</u>		Relieving Temp.	34	419 / 4		Ksh	Steam Correction Factor	0.817
DIT		/ Design Max. Temp.	35			Kb	Correction Factor Due to Back Pressure	1
O		Set Pressure	36	0.019 / 0.12		Kc	Correction Factor for a rupture disk	1
SERVICE CONDITION		sure / C.D.T.P	37	0.127/FV / 0.1308		Kn	Correction Factor for Napier equation	1
Š	Design Fress	Superimposed - Constant	38		0 MPag	IXII	correction ractor for traplet equation	
SE	Back	Superimposed - Variable	39		- MPag			
	Pressure	Built-up	40		3 MPag			
	iicssule	Total	41		3 MPag		Remarks	
	Allowable O		42	0.01.	3 psi			
		sure / Blowdown(%)	43	Min. 0.11811 MF			aint Color(*)	
	Required Ca		44		78 kg/h	Pai	inting : P-5 (RAL 9006 Silver)	
ON N	Valve Actual	·	45		41 kg/h	*D	emark	
ECT	Calculated C	· · ·	46		8549 mm²		<u>emark</u> Operating Pressure : 0.2 kgf/m²g	
SEL	Selected Ori		47		34.19 mm²	- S	Setting Pressure : 1.3 kgf/m²g	
8	Orifice Dia.(r		48	J(32.6)			Design Pressure : 1.3/F.V kgf/m²g	
SIZING & SELECTION	Office Dia.(f	11111 <i>j</i>	40	1(32.0)	<u>'</u>	- B	Built-up Back Pressure : 0.13 kgf/m²g	
SIS			\vdash	-				
	Daint C :	0. 6-1	40	-				
ETC	Paint System	1 & Color	49	See Rem	arĸ			
Ξ	Test Gag		50 51	Yes				
	Bug screen			No				

Ref. No : SLO200337-110-643061 JOKWANG I.L.I CO.,LTD. No.TTIPCF500-2

				Pressure Sa	fety & Relief V	alve	Specification and Calculation Shee	et	
	R			Sheet No.	12 of 20		Rev . No	1	
	Tek J	OKWANG I.L.I		Project Name	Yeosu No.2 Complex Project(E2) 2nd PO				
	Since 1968			Project No.	2024 04 2			N/ D 4 D/	
				Date Checked	2021-01-27 S.C.KIM	/	-	.W.PARK S.C.KIM	
	P&ID No.		1	Checked	3.C.KIIVI	НДЕ	55-E2-PID-9207	3.C.KIIVI	
ب	Tag No.		2				E2-PSV-9039		
GENERAL	Service Line		3		C-941 GTG FG Bo		ng Compressor Lube Oil Cooler 2		
뿝	Model No.		4	JSV-FF1(050			
	Quantity		5	1			Calculation		
	Nozzle Type		6	Full Noz	zle		Calculation of Area		
	Design Type		7	Convention					
TYPE	Bonnet Type		8	Close					
-	Lever Type		9	None		۸1	= 11.78*W1*(√G/(P1-Pb))/(Kd*Kb*Kc*K	w)	
	Cap Type		10	Screwe	d	Αī	= 11.76 W1 (VG/(F1-FB))/(Rd RB RC R	v)	
	Size. Inlet /	Outlet	11	3/4"X1					
CONN.	Inlet. Rating / Facing		12	ASME CL.15	50 RF		$= 11.78*0*\sqrt{(0.986/(1133-103))/(0.615*1)}$	l*1*1)	
5	Outlet. Ratin		13	ASME CL.15	50 RF				
	Body (Base)		14	SA216 W			$= \underline{0} \mathrm{mm}^{2}$		
	Bonnet		15	SA216 W					
S	Seat		16	316 SS-		1			
MATERIALS	Disc		17	316 SS-	-				
ATE	Guide		18	316 SS	;				
Ž	Gasket (Bon	Gasket (Bonnet)		PTFE					
	Spring		20	316 SS	5	W	$= A*Kd*Kb*Kc*Kv/(11.78*\sqrt{(G/(P1-Pb))})$		
	Bellows		21	None					
	Approved by		22	UV STAN	ИP		= 70.97*0.615*1*1*1/(11.78*0.986/(11.00000000000000000000000000000000000	133-103)))	
	Comply with NACE		23	No					
S	EN 10204		24	No			= 119.80 l /min		
BASIS	Code		25	API RP 520-Cer	tification		= 7.2 m3/h		
-	Fire		26	No					
	Sizing Basis		27	Thermal Expansion					
	Rupture Disl	<	28	No		W	Valve Capacity	119.80 ℓ /min	
	Fluid / State		29	Cooling Water	/ LIQUID	W1	Required Capacity	0 l/min	
	Mol. Weight	/ Specific Gravity	30	0.986		Р	Set Pressure	1030 KPag	
	Compressibi		31	-		A1	Calculated Area	O mm²	
	Ratio of Spe	cific Heat	32	-		Α	Selected Area	70.97 mm²	
Z	Viscosity		33	0.5 cP		Kd	Coefficient of Discharge	0.615	
ΙĔ		Relieving Temp.	34		′ 55 ℃	G	Specific Gravity	0.986	
SERVICE CONDITION		/ Design Max. Temp.	35		/65 ℃	Pb	Back Pressure	103 KPag	
E CC		Set Pressure	36	0.539 / 1.03	_	Kb	Correction Factor Due to Back Pressure	1	
NIC.	Design Press	sure / C.D.T.P	37	1.03 / 1.03		Kc	Correction Factor for a rupture disk	1	
SER	р .	Superimposed - Constant	38		- MPag	Kv	Correction Factor due to Viscosity	1122.45	
	Back	Superimposed - Variable	39		- MPag	P1	Set Pressure plus Overpressure	1133 KPag	
	Pressure	Built-up Total	40		B MPag B MPag		Remarks		
	Allowable O		41	0.103	10 %				
		sure / Blowdown(%)	43	Min. 0.78 MPag / 2			aint Color(*)		
	Required Ca		44		0 m3/h	Pa	inting: P-5 (RAL 9006 Silver)		
<u>S</u>	Valve Actual	· · ·	45		2 m3/h	*D	emark		
SIZING & SELECTION	Calculated C		46	7.			<u>ernark</u> Operating Pressure : 5.5 kgf/m²g		
SEL	Selected Ori		47	0 mm² 70.97 mm²		- S	Setting Pressure : 1 0.5 kgf/m²g		
<u>ಹ</u>	Orifice Dia.(r		48	D(9.5)		- Design Pressure : 1 0.5 kgf/m²g			
Ň	Jimee Dia.(I	,		-			Constant Back Pressure : 0 kgf/m²g Built-up Back Pressure : 1 .05 kgf/m²g		
S			$\vdash \vdash$			- 0	bank up back riessule . I .U3 kgi/ull g		
	Paint System	n & Color	49	See Rem	ark				
ETC	Test Gag	1 4 4 4 4 4	50	Yes	u.i.\				
	Bug screen		51	No					
	Day sciecil		۱ ر	110					

 Ref. No : SLO200337-120-643067
 JOKWANG I.L.I CO.,LTD.
 No.TTIPCF500-2

				Pressure Sa	fety & Relief Va	alve	Specification and Calculation Shee	et
	®			Sheet No.	13 of 20		Rev . No	1
	T. 72	OKWANG I.L.I		Project Name	15 0. 20	Yeo	osu No.2 Complex Project(E2) 2nd PO	
	Since 1968	OKWAITO I.L.I		Project No.			, , , ,	
				Date	2021-01-27			.W.PARK
			Щ,	Checked	S.C.KIM			S.C.KIM
	P&ID No.		1		l	H46	55-E2-PID-9207	
₹	Tag No.		2			E	2-PSV-9040	
GENERAL	Service Line		3	C-941 GTG FG		oos	ting Compressor Rod Packing 1	
95	Model No.		4	JSV-FF100			Calandatian	
	Quantity		5	1			Calculation	
	Nozzle Type		6 Full Nozzle				Calculation of Area	
	Design Type		7	Conventio	nal			
TYPE	Bonnet Type		8	Close				
_	Lever Type		9	None		Δ1	= 11.78*W1*(√G/(P1-Pb))/(Kd*Kb*Kc*k	(v)
	Cap Type		10	Screwed		Α1	= 11.70 W1 (VG/(F1-FB))/(Kd KB KC K	(V)
	Size. Inlet /	Outlet	11	3/4"X1'				
CONN.			12	ASME CL.15			= 11.78*0*\(\sqrt{(0.94/(1133-103))}/(0.615*1	*1*1)
CO	Inlet. Rating / Facing Outlet. Rating / Facing		13	ASME CL.15				
			-				= 0 mm²	
	Body (Base)		14	SA216 W			≥	
	Bonnet		15	SA216 W				
STI	Seat		16	316 SS-s			Calculation of Capacity	
MATERIALS	Disc		17	316 SS-s	st.			
1ATI	Guide		18	316 SS				
2	Gasket (Boni	net)	19	PTFE				
	Spring		20	316 SS		W	= $A*Kd*Kb*Kc*Kv/(11.78*\sqrt{(G/(P1-Pb))})$	
	Bellows		21	None				
	Approved by		22	UV STAMP			= 70.97*0.615*1*1*1/(11.78*\(\sqrt{(0.94/(11.78)})	33-103)))
	Comply with NACE		23	No				
	EN 10204		24	No			= 122.60 <i>l</i> /min	
BASIS	Code		25	API RP 520-Cer	tification		= 7.4 m3/h	
B	Fire		26	No				
	Sizing Basis		27	Thermal Expansion				
	Rupture Disk	·	28	No	1	W	Valve Capacity	122.60 {/min
	Fluid / State		29	Cooling Water ,		W1	Required Capacity	0 {/min
	-	/ Specific Gravity	30	0.94		P	Set Pressure	1030 KPag
	Compressibi	· · · · · · · · · · · · · · · · · · ·	31	0.54	-	<u>'</u> A1	Calculated Area	0 mm²
	Ratio of Spe	•	32				Selected Area	70.97 mm²
		CIIIC Heat				Α		
NO.	Viscosity	D.I	33	0.22 cP		Kd	Coefficient of Discharge	0.615
Ē		Relieving Temp.	34	43 / 12		G	Specific Gravity	0.94
SERVICE CONDITION		/ Design Max. Temp.	35			Pb	Back Pressure	103 KPag
S C	Operating /		36	0.539 / 1.03		Kb	Correction Factor Due to Back Pressure	1
NC.	Design Press	sure / C.D.T.P	37	1.03 / 1.03		Kc	Correction Factor for a rupture disk	1
SER		Superimposed - Constant	38			Κv	Correction Factor due to Viscosity	1
,,	Back	Superimposed - Variable	39			P1	Set Pressure plus Overpressure	1133 KPag
	Pressure	Built-up	40	0.103	B MPag		Remarks	
		Total	41	0.103	B MPag		Keillarks	
	Allowable O	verpressure	42		10 %	+6	int Calau(t)	
	Closing Pres	sure / Blowdown(%)	43	Min. 0.78 MPag / 24	4.2718%		aint Color(*) inting : P-5 (RAL 9006 Silver)	
z	Required Ca	pacity	44	(0 m3/h	rdl	inding . r-5 (IML 3000 SIIVEI)	
SIZING & SELECTION	Valve Actual	· · · ·	45	7.5	4 m3/h	*Re	emark_	
LEC	Calculated C	<u> </u>	46		O mm²	- C	Operating Pressure : 5.5 kgf/m²g	
SE 3	Selected Ori		47	7(0.97 mm²		etting Pressure : 10.5 kgf/m²g	
8 9	Orifice Dia.(r		48	D(9.5)			Design Pressure : 10.5 kgf/m²g	
NIN	2CO DIG.(I	,		-			Constant Back Pressure : 0 kgf/m²g uilt-up Back Pressure : 10.7 kgf/m²g	
S			\vdash			- 0	Tank up back riessule . 10.7 kgi/uii g	
	Daint C: 1	Q. Calar		-	and a			
ETC	Paint System	1 & COIOF	49	See Rema	ar K			
ы	Test Gag		50	Yes				
	Bug screen		51	No				

 Ref. No : SLO200337-130-643070
 JOKWANG I.L.I CO.,LTD.
 No.TTIPCF500-2

				Pressure Sa	fety & Relief Va	lve	Specification and Calculation Shee	et	
	R			Sheet No.	14 of 20		Rev . No	1	
	TAK J	OKWANG I.L.I		Project Name		Yeosu No.2 Complex Project(E2) 2nd PO			
	Since 1968			Project No.					
				Date Checked	2021-01-27			.W.PARK	
	P&ID No.		1	Спескей	S.C.KIM	⊔ <i>16</i>	Approved 55-E2-PID-9207	S.C.KIM	
ب	Tag No.		2			_	E2-PSV-9041		
GENERAL	Service Line		3		C-0/1 GTG EG B		ting Compressor Rod Packing 2		
E N	Model No.		4	JSV-FF10		003	ting compressor Rod Facking 2		
	Quantity		5	1	50		Calculation		
	Nozzle Type		6	Full Nozz	zlo.		Calculation of Area		
	Design Type		7	Conventio	-		Calculation of Area		
TYPE	Bonnet Type		8	Close	niai				
7	Lever Type	:	9	None					
	Cap Type		10	Screwed		Α1	= $11.78*W1*(\sqrt{G/(P1-Pb)})/(Kd*Kb*Kc*K)$	(V)	
	Size. Inlet /	Outlot	11	3/4"X1"					
CONN.	· · · · · · · · · · · · · · · · · ·		12	ASME CL.15			= 11.78*0*\(\sqrt{(0.94/(1133-103))}/(0.615*1	*1*1)	
8	Inlet. Rating / Facing		13	ASME CL.15					
	Outlet. Rating / Facing Body (Base)						= 0 mm²		
			14 15	SA216 W			-		
	Bonnet Seat		16	SA216 W 316 SS-s		-			
ALS			17				Calculation of Canacity		
MATERIALS	Disc Guide		18	316 SS-s			Calculation of Capacity		
MA		- at\	-	316 SS	<u> </u>				
	Gasket (Bon	net)	19 20	PTFE		١٨/	= A*Kd*Kb*Kc*Kv/(11.78*√(G/(P1-Pb)))		
	Spring		21	316 SS	<u> </u>	VV			
	Bellows			None	40	= 70.97*0.615*1*1*1/(11.78*\(0.94/(1133-103)			
	Approved by		22	UV STAN	ЛР		= 70.97 0.013 1 1 1/(11.78 V(0.94/(11.	33-103)))	
	Comply with NACE		23 24	No.			422.60.87		
BASIS	EN 10204		25	No API RP 520-Cer	tification		= 122.60 {/min = 7.4 m3/h		
BA	Code Fire		26	No	tilication				
	Sizing Basis		27		ansion				
	Rupture Disk	,	28	Thermal Expansion No		W	Valve Capacity	122.60 l/min	
	Fluid / State		29	Cooling Water ,		W1	Required Capacity	0 l/min	
		/ Specific Gravity	30	0.94		P	Set Pressure	1030 KPag	
	Compressibi	· · · · · · · · · · · · · · · · · · ·	31	- 0.94		<u>г</u> А1	Calculated Area	0 mm²	
	Ratio of Spe		32			A	Selected Area	70.97 mm²	
	Viscosity	CIIIC Fleat	33	0.22 cF		Kd	Coefficient of Discharge	0.615	
S S		Relieving Temp.	34	43 / 12		G	Specific Gravity	0.013	
SERVICE CONDITION		/ Design Max. Temp.	35			Pb	Back Pressure	103 KPag	
O		Set Pressure	36	0.539 / 1.03		Kb	Correction Factor Due to Back Pressure	103 Kray	
8		sure / C.D.T.P	37			Kc			
Š	Design Fless	Superimposed - Constant	38	1.03 / 1.03		Kv	Correction Factor due to Viscosity	1	
SE	Back	Superimposed - Constant Superimposed - Variable	39			P1	Correction Factor due to Viscosity Set Pressure plus Overpressure	1133 KPag	
	Pressure	Built-up	40		B MPag	. 1	Secritessure plus Overpressure	1133 Kray	
	iicssult	Total	41		B MPag		Remarks		
	Allowable O		42	0.103	10 %				
		sure / Blowdown(%)	43	Min. 0.78 MPag / 24			aint Color(*)		
	Required Ca		44		0 m3/h	Pai	inting : P-5 (RAL 9006 Silver)		
<u>o</u>	Valve Actual	· · ·	45		4 m3/h	*P.	emark		
SIZING & SELECTION	Calculated C		46	1.	0 mm²		emark Operating Pressure : 5.5 kgf/m²g		
SEL	Selected Ori		47	7	0.97 mm²	- S	etting Pressure : 10.5 kgf/m²g		
8			48	D(9.5)	0.57	- Design Pressure : 10.5 kgf/m²g			
ZINC	Office Dia.(I	Orifice Dia.(mm)		D(9.3)		- Constant Back Pressure : 0 kgf/m²g			
S				-		- B	uilt-up Back Pressure : 1.05 kgf/m²g		
	Daint Contract	2 Color	49		ark				
ETC	Paint System	1 & C0101	-	See Rema	di K				
iii	Test Gag		50	Yes					
	Bug screen		51	No					

Ref. No : SLO200337-140-643073 JOKWANG I.L.I CO.,LTD. No.TTIPCF500-2

				Pressure Sa	fety & Relief Va	lve	Specification and Calculation Shee	et
	R			Sheet No.	15 of 20		Rev . No	1
	Tek J	OKWANG I.L.I		Project Name		Ye	osu No.2 Complex Project(E2) 2nd PO	
	Since 1968			Project No.	2024 04 27	27		
			\vdash	Date Checked	2021-01-27 S.C.KIM			s.w.park s.c.kim
	P&ID No.		1	Checked		НЛЕ	55-E2-PID-9207	3.C.KIIVI
ب	Tag No.		2			_	E2-PSV-9042	
GENERAL	Service Line		3		C-941 GTG FG B		ting Compressor Rod Packing 3	
뿝	Model No.		4	JSV-FF10		-	-	
	Quantity		5	1			Calculation	
	Nozzle Type		6	Full Nozz	zle		Calculation of Area	
	Design Type		7	Conventio				
TYPE	Bonnet Type		8	Close				
-	Lever Type		9	None		Δ1	= 11.78*W1*(√G/(P1-Pb))/(Kd*Kb*Kc*k	(1)
	Cap Type		10	Screwed		Λī	= 11.70 W1 (VG/(F1-FB))/(KG KB KC K	(V)
	Size. Inlet /	Outlet	11	3/4"X1'	п			
CONN.	Inlet. Rating / Facing		12	ASME CL.15	50 RF		$= 11.78*0*\sqrt{(0.94/(1133-103))/(0.615*11)}$	*1*1)
5	Outlet. Rating / Facing		13	ASME CL.15	50 RF			
	Body (Base)		14	SA216 W			$=$ $\underline{0}$ mm ²	
	Bonnet		15	SA216 W				
S	Seat		16	316 SS-s		Calculation of Capacity		
MATERIALS	Disc		17	316 SS-s				
ATE	Guide		18	316 SS				
Ž	Gasket (Bon	net)	19	PTFE				
	Spring		20	316 SS		W	$= A*Kd*Kb*Kc*Kv/(11.78*\sqrt{(G/(P1-Pb))})$	
	Bellows		21	None				
	Approved by		22	UV STAN	ИP		$= 70.97*0.615*1*1*1/(11.78*\sqrt{0.94/(11.78*)})$	33-103)))
	Comply with NACE		23	No				
S	EN 10204		24	No			= 122.60 l /min	
BASIS	Code		25	API RP 520-Cer	tification		= 7.4 m3/h	
-	Fire		26	No				
	Sizing Basis		27	Thermal Expansion				
	Rupture Disl	<	28	No	,	W	Valve Capacity	122.60 {/min
	Fluid / State		29	Cooling Water ,	/ LIQUID \	W1	Required Capacity	0 l/min
	Mol. Weight	/ Specific Gravity	30	0.94		Р	Set Pressure	1030 KPag
	Compressibi		31	-	,	A1	Calculated Area	O mm²
	Ratio of Spe	cific Heat	32	-		Α	Selected Area	70.97 mm²
Z	Viscosity		33	0.22 cP		Kd	Coefficient of Discharge	0.615
ΙĔ		Relieving Temp.	34	43 / 12		G	Specific Gravity	0.94
SERVICE CONDITION		/ Design Max. Temp.	35			Pb	Back Pressure	103 KPag
E CC		Set Pressure	36	0.539 / 1.03		Kb	Correction Factor Due to Back Pressure	1
N N	Design Press	sure / C.D.T.P	37	1.03 / 1.03		Kc	Correction Factor for a rupture disk	1
SER	р. і	Superimposed - Constant	38			Kv D1	Correction Factor due to Viscosity	1122 15
	Back	Superimposed - Variable	39		- 3	P1	Set Pressure plus Overpressure	1133 KPag
	Pressure	Built-up	40		B MPag		Remarks	
	Allowabla	Total	41 42	0.103	B MPag			
	Allowable O	verpressure sure / Blowdown(%)	42	Min. 0.78 MPag / 24	10 %	*Pa	aint Color(*)	
	Required Ca		44		0 m3/h	Pai	inting: P-5 (RAL 9006 Silver)	
NO.	Valve Actual	· · ·	45		4 m3/h	*D.	emark	
SIZING & SELECTION	Calculated C		45	1.5	0 mm²		emark Operating Pressure : 5.5 kgf/m²g	
SEL	Selected Ori		47	71	0.97 mm²	- S	Setting Pressure : 10.5 kgf/m²g	
જ	Orifice Dia.(r		48	D(9.5)	O.J / IIIII		Design Pressure : 10.5 kgf/m²g	
ZIN	Jimee Dia.(I	/	10	D(9.5)			Constant Back Pressure : 0 kgf/m²g Built-up Back Pressure : 1.05 kgf/m²g	
S			$\vdash \vdash$			- 0	ount up back riessule . 1.05 kgi/ull g	
	Paint System	a & Color	49	See Rema	ark			
ETC	Test Gag	1 4 40101	50	Yes	MIN.			
ш	Bug screen		51	No				
	pag scieell		۱ ر	INU				

Ref. No : SLO200337-150-643077 JOKWANG I.L.I CO.,LTD. No.TTIPCF500-2

				Pressure Sa	afety & Relief Valv	⁄e	Specification and Calculation Shee	et
	®		_	Sheet No.	16 of 20		Rev . No	1
	J.K J	OKWANG I.L.I	<u> </u>	Project Name	Ye	'eo	su No.2 Complex Project(E2) 2nd PO	
	Since 1968		<u> </u>	Project No. Date	2021-01-27		By S	S.W.PARK
				Checked	S.C.KIM			S.C.KIM
	P&ID No.		1	,		46:	5-E2-PID-3047	
4	Tag No.		2				PSV-3128A/B	
GENERAL	Service Line		3				Guard Dryer Filter)	
EN SE	Model No.		4	JSV-FF1		- (-		
	Quantity		5	2			Calculation	
	Nozzle Type		6	Full Noz	7 0		Calculation of Area	
	Design Type		7	Convention			Calculation of Arca	
TYPE	Bonnet Type		8	Close				
7	Lever Type		9			1	12160+1411+/ /77/44/ //6+// 4+/0+11.11	01 225)+1/5+1/5
				None		. 1 :	= 13160*W1*(√ZT/M)/(C*Kd*(P*1.1+10	J1.325)^KD^KC)
	Cap Type	O 11 1	10	Screwe				
CONN.	Size. Inlet / Outlet		11	1"X2"			= 13160*3793*(√0.610*461/27.10)/(339	9.24*0.831*
Ö	Inlet. Rating / Facing		12	ASME CL.3		51	1*1.1+101.325)*1*1)	
	Outlet. Rating / Facing		13	ASME CL.1				
	Body (Base)		14	SA216 W		=	= <u>112.64632</u> mm²	
	Bonnet		15	SA216 W		Calculation of Capacity		
rs	Seat		16	316 SS-	st.			
RIA	Disc		17	316 SS-	st.			
MATERIALS	Guide		18	316 SS	5			
2	Gasket (Boni	net)	19	PTFE				
	Spring		20	316 SS	S W	V =	= A*C*Kd*(P*1.1+101.325)*Kb*Kc/(131	60*√(ZT/M))
	Bellows		21	None				
	Approved by	/	22	KGS UV ST	AMP	=	= 126.45*339.24*0.831*(4511*1.1+101.	.325)*1*1/
	Comply with NACE		23	No	(13	31	60*√(0.610*461/27.10))	
S	EN 10204		24	No				
BASIS	Code		25	API RP 5	520	=	= <u>4258</u> kg/h	
	Fire		26	No				
	Sizing Basis		27	External	Fire			
	Rupture Disk	(28	No		,	Valve Capacity	4258 kg/h
	Fluid / State		29	Reactor Effluer	nt / GAS W1	1	Required Capacity	3793 kg/h
	Mol. Weight	/ Specific Gravity	30	27.10	Р	T	Set Pressure	4511 KPag
	Compressibi	lity Factor	31	0.610	A1	П	Calculated Area	112.64632 mm²
	Ratio of Spe	cific Heat	32	1.22	А	┪	Selected Area	126.45 mm²
_	Viscosity		33	0.01 cl	P Kd	1	Coefficient of Discharge	0.831
ē		Relieving Temp.	34	40 /	188 °C C	┪	Coefficient base on Ratio of Specific Heat	339.24
	Design Min.	/ Design Max. Temp.	35	-18/	′149 °C T	\dashv	Kelvin Temperature	461 K
SERVICE CONDITION		Set Pressure	36	3.677 / 4.51		-	Molecular Weight	27.10
CE		sure / C.D.T.P	37	4.511 / 4.48		\rightarrow	Compressibility Factor	0.610
<u>8</u>	J 335	Superimposed - Constant	38		3 MPag Kb	\neg	Correction Factor Due to Back Pressure	1
S	Back	Superimposed - Variable	39		- MPag Kc	-	Correction Factor for a rupture disk	1
	Pressure	Built-up	40		4 MPag	_	·	
	11033010	Total	41		4 MPag		Remarks	
	Allowable O		42	0.14	10 %			
		sure / Blowdown(%)	43	Min. 4.19523 MF	Pag / 7% *F		int Color(*)	
	Required Ca		44		93 kg/h	air	nting : P-5 (RAL 9006 Silver)	
NO.	Valve Actual		45		58 kg/h			
ECT	Calculated C	· · ·	46		4632 mm²			
SEL	Selected Ori		47		46.45 mm²			
8	Orifice Dia.(r		47	E(12.7				
SIZING & SELECTION	Ornice Dia.(f	11111 <i>j</i>	40	E(12.7)			
SIZ			$\vdash\vdash\vdash$	-				
		0.61	 	-				
ETC	Paint System	n & Color	49	See Rem	ark			
<u>=</u>	Test Gag		50	Yes				
	Bug screen		51	No				

Ref. No : SLO200337-160-643078 JOKWANG I.L.I CO.,LTD. No.TTIPCF500-2

				Pressure Sa	fety & Relief Va	alve	Specification and Calculation She	et	
	R			Sheet No.	17 of 20		Rev . No	1	
	T. 17	OKWANG I.L.I		Project Name	0. 20	Yeosu No.2 Complex Project(E2) 2nd PO			
	Since 1968			Project No.					
				Date	2021-01-27		-	S.W.PARK	
			Ļ,	Checked	S.C.KIM			S.C.KIM	
	P&ID No.		1			55-E2-PID-9201			
RAL	Tag No.		2				E2-PSV-9044		
GENERAL	Service Line		3		W-931 No.1	Gas	Turbine Generator Package		
G	Model No.		4	JSV-FF100			Calculation		
	Quantity		5	1			Calculation		
	Nozzle Type		6	Full Nozz	zle		Calculation of Area		
ш	Design Type		7	Conventio	nal				
TYPE	Bonnet Type	?	8	Close					
	Lever Type		9	None		Α1	= $11.78*W1*(\sqrt{G/(P1-Pb)})/(Kd*Kb*Kc*h)$	(v)	
	Сар Туре		10	Screwed	b				
z	Size. Inlet /	Outlet	11	3/4"X1'	1		= 11.78*0*\((0.941/(1133-103))/(0.615*	1*1*1)	
CONN.	Inlet. Rating	/ Facing	12	ASME CL.15	50 RF		= 11.70 0 V(0.5417(1155-105))/(0.015	1 1 1)	
_	Outlet. Rating / Facing		13	ASME CL.15	50 RF				
	Body (Base)		14	SA216 W	СВ		$=$ $\underline{\mathbf{O}}$ mm^{2}		
	Bonnet		15	SA216 W	СВ				
S	Seat		16	316 SS-s	st.				
RIAL	Disc		17	316 SS-s	st.		Calculation of Capacity		
MATERIALS	Guide		18	316 SS		Carculation of Capacity			
Σ	Gasket (Bon	net)	19	PTFE					
	Spring		20	316 SS		$W = A*Kd*Kb*Kc*Kv/(11.78*\sqrt{(G/(P1-Pb)))}$			
	Bellows		21	None					
	Approved by		22	UV STAM	ИP		$= 70.97*0.615*1*1*1/(11.78*\sqrt{0.941/(1})$	133-103)))	
	Comply with NACE		23	No					
	EN 10204		24	No			= 122.60 l/min		
BASIS	Code		25	API RP 520-Cer	tification		= 7.4 m3/h		
	Fire			No					
	Sizing Basis		27	Thermal Expansion					
	Rupture Disl	(28	No	,	W	Valve Capacity	122.60 l/min	
	Fluid / State		29	Cooling Water ,	/ LIQUID V	W1	Required Capacity	0 l/min	
	Mol. Weight	/ Specific Gravity	30	0.941		Р	Set Pressure	1030 KPag	
	Compressibi	lity Factor	31	-	,	A1	Calculated Area	O mm²	
	Ratio of Spe	cific Heat	32	-		Α	Selected Area	70.97 mm²	
z	Viscosity		33	0.22 cP)	Kd	Coefficient of Discharge	0.615	
100	Operating /	Relieving Temp.	34	43 /	123 ℃	G	Specific Gravity	0.941	
SERVICE CONDITION	Design Min.	/ Design Max. Temp.	35	-18	/65 ℃ 1	Pb	Back Pressure	103 KPag	
8	Operating /	Set Pressure	36	0.539 / 1.03	B MPag	Kb	Correction Factor Due to Back Pressure	1	
JCE	Design Press	sure / C.D.T.P	37	1.03 / 1.03	В МРад	Kc	Correction Factor for a rupture disk	1	
ER.		Superimposed - Constant	38	-	- MPag	Κv	Correction Factor due to Viscosity	1	
S	Back	Superimposed - Variable	39	-	- MPag	P1	Set Pressure plus Overpressure	1133 KPag	
	Pressure	Built-up	40	0.103	В МРад		Domestics		
		Total	41	0.103	В МРад		Remarks		
	Allowable O	verpressure	42		10 %	*D	oint Color(*)		
	Closing Pres	sure / Blowdown(%)	43	Min. 0.78 MPag / 24	4.2718%	_	aint Color(*) inting : P-5 (RAL 9006 Silver)		
z	Required Ca	pacity	44	(0 m3/h	· ai	g . 1 3 (IVIL 3000 311VCI)		
OIT.	Valve Actual	Capacity	45	7.4	4 m3/h		<u>emark</u>		
LEC	Calculated C	Orifice Area	46		O mm²		Operating Pressure : 5.5 kgf/m²g		
S SE	Selected Ori	fice Area	47	7	0.97 mm²		Setting Pressure : 10.5 kgf/m²g Design Pressure : 10.5 kgf/m²g		
16.8	Orifice Dia.(r	mm)	48	D(9.5)			Design Pressure : 10.5 kgf/m/g Constant Back Pressure : 0 kgf/m²g		
SIZING & SELECTION		Strice Dia.(tilli)		-			Built-up Back Pressure : 1.05 kgf/m²g		
				-			- 3		
	Paint System	n & Color	49	See Rema	ark				
ETC	Test Gag		50	Yes					
	Bug screen		51	No					

 Ref. No : SLO200337-170-643080
 JOKWANG I.L.I CO.,LTD.
 No.TTIPCF500-2

				Pressure Sa	fety & Relief Va	alve	Specification and Calculation She	et	
	R			Sheet No.	18 of 20	f 20 Rev . No 1			
	T. 72	OKWANG I.L.I		Project Name	10 0. 20	Yeo	osu No.2 Complex Project(E2) 2nd PO		
	Since 1968	OKWAITO I.L.I		Project No.			, , , , , , , , , , , , , , , , , , , ,		
				Date	2021-01-27			S.W.PARK	
			Щ,	Checked	S.C.KIM			S.C.KIM	
	P&ID No.		1			H46	55-E2-PID-9202		
₹	Tag No.		2			E	E2-PSV-9045		
GENERAL	Service Line		3		W-941 No.2	Gas	Turbine Generator Package		
95	Model No.		4	JSV-FF10	00		Calandatian		
	Quantity		5	1			Calculation		
	Nozzle Type		6	Full Nozz	zle		Calculation of Area		
	Design Type		7	Conventio	onal				
TYPE	Bonnet Type		8	Close					
_	Lever Type		9	None		Δ1	= $11.78*W1*(\sqrt{G/(P1-Pb)})/(Kd*Kb*Kc*k$	(v)	
	Сар Туре		10	Screwed		Λī	= 11.70 W1 (VG/(F1-FB))/(Kd KB KC F	(V)	
	Size. Inlet / 0	Outlet	11	3/4"X1'					
CONN.	Inlet. Rating / Facing		12	ASME CL.15			= 11.78*0*\((0.941/(1133-103))/(0.615*	1*1*1)	
00	Outlet. Rating / Facing		13	ASME CL.15					
			-				= 0 mm²		
	Body (Base)		14	SA216 W			≚ '''''		
	Bonnet		15	SA216 W		_			
STI	Seat		16	316 SS-s					
MATERIALS	Disc		17	316 SS-s	st.		Calculation of Capacity		
1ATI	Guide		18	316 SS	;				
2	Gasket (Boni	net)	19	PTFE					
	Spring		20	316 SS	;	W	= $A*Kd*Kb*Kc*Kv/(11.78*\sqrt{(G/(P1-Pb))})$		
	Bellows		21	None					
	Approved by		22	UV STAMP			= 70.97*0.615*1*1*1/(11.78*\/(0.941/(1	133-103)))	
	Comply with NACE		23	No					
	EN 10204		24	No			= 122.60 l/min		
BASIS	Code		25	API RP 520-Cer	tification		= 7.4 m3/h		
B/	Fire		26	No					
	Sizing Basis		27	Thermal Expansion					
	Rupture Disk	,	28	No No	The state of the s	W	Valve Capacity	122.60 {/min	
	Fluid / State		29	Cooling Water ,		W1	Required Capacity	0 {/min	
	-	/ Specific Gravity	30	0.941		P	Set Pressure	1030 KPag	
		· '	-	0.941					
	Compressibi	-	31	-	-	A1	Calculated Area	0 mm²	
	Ratio of Spe	cific Heat	32	-		Α	Selected Area	70.97 mm²	
Z	Viscosity		33	0.22 cF		Kd	Coefficient of Discharge	0.615	
Ĕ		Relieving Temp.	34			G	Specific Gravity	0.941	
SERVICE CONDITION		/ Design Max. Temp.	35			Pb	Back Pressure	103 KPag	
CC		Set Pressure	36	0.539 / 1.03		Kb	Correction Factor Due to Back Pressure	1	
/ICE	Design Press	sure / C.D.T.P	37	1.03 / 1.03	B MPag	Kc	Correction Factor for a rupture disk	1	
ER.		Superimposed - Constant	38		- MPag I	Κv	Correction Factor due to Viscosity	1	
S	Back	Superimposed - Variable	39	-	- MPag I	P1	Set Pressure plus Overpressure	1133 KPag	
	Pressure	Built-up	40	0.103	B MPag		D 1		
		Total	41	0.103	3 MPag		Remarks		
	Allowable O	verpressure	42		10 %				
		sure / Blowdown(%)	43	Min. 0.78 MPag / 24		_	aint Color(*)		
_	Required Ca	· · · · · · · · · · · · · · · · · · ·	44	_	0 m3/h	Pai	inting : P-5 (RAL 9006 Silver)		
SIZING & SELECTION	Valve Actual	· · · · ·	45		4 m3/h	*R4	emark		
ECT	Calculated C	<u> </u>	46	<i>r:</i>	O mm²		Operating Pressure : 5.5 kgf/m²g		
SEL	Selected Ori		47	7	0.97 mm²	- S	etting Pressure : 10.5 kgf/m²g		
8 8			47		U. 9 / IIIIII		Design Pressure : 10.5 kgf/ဏ²g		
ING	Orifice Dia.(r	11111)	40	D(9.5)			Constant Back Pressure : 0 kgf/m²g		
SIZ			\vdash	-		- B	uilt-up Back Pressure : 1.05 kgf/m²g		
			igsquare	-					
o	Paint System	n & Color	49	See Rema	ark				
ETC	Test Gag		50	Yes					
	Bug screen		51	No					

Ref. No : SLO200337-180-643081 JOKWANG I.L.I CO.,LTD. No.TTIPCF500-2

				Pressure Sa	fety & Relief Val	lve	Specification and Calculation She	et	
	, \L/_B			Sheet No.	19 of 20	_	Rev . No	1	
	***	OKWANG I.L.I		Project Name		Yeosu No.2 Complex Project(E2) 2nd PO			
	Since 1968	ORVVAING I.L.I		Project No.					
				Date	2021-01-27		By	S.W.PARK	
			<u> </u>	Checked	S.C.KIM		Approved	S.C.KIM	
	P&ID No.		1		H	146	5-E2-PID-9201		
₫	Tag No.		2			Е	2-PSV-9046		
GENERAL	Service Line		3		W-93	1 Lu	ube Oil Cooler Cold		
8	Model No.		4	JSV-FF100			Coloulation		
	Quantity		5	1			Calculation		
	Nozzle Type		6	Full Noz	zle		Calculation of Area		
	Design Type		7	Convention	onal				
TYPE	Bonnet Type	!	8	Close					
-	Lever Type		9	None		Δ1	= 11.78*W1*(√G/(P1-Pb))/(Kd*Kb*Kc*h	(v)	
	Cap Type		10	Screwe		ΑΙ	= 11.70 W1 (VG/(1118))/(Rd RB RC 1	ν)	
	Size. Inlet /	Outlet	11	3/4"X1	"				
CONN.	Inlet. Rating		12	ASME CL.15		:	= 11.78*0*√(0.972/(1133-103))/(0.615*	1*1*1)	
S	Outlet. Rating / Facing		13	ASME CL.15					
	Body (Base)		14	SA216 W			= <u>O</u> mm²		
			15				- "		
	Bonnet			SA216 W		Calculation of Capacity			
ALS	Seat		16	316 SS-s					
MATERIALS	Disc		17	316 SS-s					
MAT	Guide		18	316 SS	5				
-	Gasket (Bon	net)	19	PTFE					
	Spring		20	316 SS	· ·	W =	= A*Kd*Kb*Kc*Kv/(11.78*√(G/(P1-Pb)))		
	Bellows		21	None					
	Approved by		22	UV STAMP		:	= 70.97*0.615*1*1*1/(11.78*√(0.972/(1	133-103)))	
	Comply with	Comply with NACE		No					
S	EN 10204		24	No			= 120.60 {/min		
BASIS	Code		25	API RP 520-Cer	tification	:	= 7.2 m3/h		
_	Fire		26	No					
	Sizing Basis		27	Thermal Exp	ansion				
	Rupture Disl	(28	No	V	<i>N</i>	Valve Capacity	120.60 l /min	
	Fluid / State		29	Cooling Water	/ LIQUID W	V1	Required Capacity	0 l/min	
	Mol. Weight	/ Specific Gravity	30	0.972	F	P	Set Pressure	1030 KPag	
	Compressibi	lity Factor	31	-	А	۱1	Calculated Area	O mm²	
	Ratio of Spe	cific Heat	32	-	A	A	Selected Area	70.97 mm²	
_	Viscosity		33	0.35 cF	, к	(d	Coefficient of Discharge	0.615	
ē		Relieving Temp.	34			G	Specific Gravity	0.972	
		/ Design Max. Temp.	35			b	Back Pressure	103 KPag	
Ö		Set Pressure	36	0.539 / 1.03		(b	Correction Factor Due to Back Pressure	1	
G.		sure / C.D.T.P	37	1.03 / 1.03		(c	Correction Factor for a rupture disk	1	
SERVICE CONDITION		Superimposed - Constant	38	-		(v	Correction Factor due to Viscosity	1	
S	Back	Superimposed - Variable	39			21	Set Pressure plus Overpressure	1133 KPag	
	Pressure	Built-up	40		3 MPag	_	·	. 155 Ki ug	
	riessuie	Total	41		B MPag		Remarks		
	Allowable O		42	0.103	10 %				
		sure / Blowdown(%)	43	Min. 0.78 MPag / 2	A 27100/		int Color(*)		
		· · · · · · · · · · · · · · · · · · ·	-	_		Pai	nting : P-5 (RAL 9006 Silver)		
Ö	Required Ca	· · · · ·	44		0 m3/h	+0	no out		
SIZING & SELECTION	Valve Actual	<u> </u>	45	/.			<u>mark</u> perating Pressure : 5.5 kgf/m²g		
SELE	Calculated C		46		- · · · · · · · · · · · · · · · · · · ·		etting Pressure : 5.5 kgf/m²g		
8	Selected Ori		47				esign Pressure : 10.5 kgf/m²g		
NG	Orifice Dia.(r	nm)	48	D(9.5)		- Design Pressure : 10.5 kgf/m g - Constant Back Pressure : 0 kgf/m²g			
SIZ			\sqcup	-		- B	uilt-up Back Pressure : 1.05 kgf/m²g		
				-					
6.3	Paint System	n & Color	49	See Rem	ark				
ETC	Test Gag		50	Yes					
ш	Test Gag Bug screen		51						

 Ref. No : SLO200337-190-643084
 JOKWANG I.L.I CO.,LTD.
 No.TTIPCF500-2

				Pressure Sa	fety & Relief V	alve	Specification and Calculation Shee	et		
	R			Sheet No.	20 of 20		Rev . No	1		
	T.K J	OKWANG I.L.I		Project Name		Yeosu No.2 Complex Project(E2) 2nd PO				
	Since 1968			Project No.		27				
				Date Checked	2021-01-27 S.C.KIM			s.w.park s.c.kim		
	P&ID No.		1	Спескеа		⊔ <i>16</i>	Approved 55-E2-PID-9202	S.C.KIIVI		
ب	Tag No.		2	+			E2-PSV-9047			
GENERAL	Service Line		3		\\/_9.		ube Oil Cooler Cold			
N N	Model No.		4	JSV-FF1		71 6	use on cooler cold			
	Quantity		5	1			Calculation			
	Nozzle Type		6	Full Noz	zle		Calculation of Area			
	Design Type		7	Convention			calculation of Area			
YPE	Bonnet Type		8	Close						
F	Lever Type	<u> </u>	9	None		۸ 1	_ 11 70*\\/1*/-/C //D1 Db\\//Vd*Vb*Vc*V	5.0		
	Сар Туре		10	Screwe		AI	$= 11.78*W1*(\sqrt{G/(P1-Pb)})/(Kd*Kb*Kc*k)$	(V)		
	Size. Inlet /	Outlet	11	3/4"X1						
CONN.	Inlet. Rating / Facing		12	ASME CL.1			= 11.78*0*\(\sqrt{(0.972/(1133-103))/(0.615*)}	1*1*1)		
8	Outlet. Ratin	·	13	ASME CL.1						
	Body (Base)		14	SA216 W			$=$ $\underline{\mathbf{O}}$ mm ²			
	Bonnet		15	SA216 W		-				
L/A	Seat		16	316 SS-		Calculation of Capacity				
NAL	Disc		17	316 SS-						
MATERIALS	Guide		18	316 SS			, ,			
Ž	Gasket (Bon	net)	19	PTFE						
	Spring		20	316 SS	S	W	= A*Kd*Kb*Kc*Kv/(11.78*√(G/(P1-Pb)))			
	Bellows		21	None						
	Approved by		22	UV STAMP			= 70.97*0.615*1*1*1/(11.78*\((0.972/(1	133-103)))		
	Comply with NACE		23	No						
100	EN 10204		24	No			= 120.60 l /min			
BASIS	Code		25	API RP 520-Ce	rtification		= 7.2 m3/h			
_	Fire		26	No						
	Sizing Basis		27	Thermal Expansion						
	Rupture Disl	<	28	No		W	Valve Capacity	120.60 {/min		
	Fluid / State		29	Cooling Water	/ LIQUID	W1	Required Capacity	0 ℓ/min		
	Mol. Weight	/ Specific Gravity	30	0.972		Р	Set Pressure	1030 KPag		
	Compressibi		31	-		A1	Calculated Area	O mm²		
	Ratio of Spe	cific Heat	32	-		Α	Selected Area	70.97 mm²		
z	Viscosity		33	0.35 cl		Kd	Coefficient of Discharge	0.615		
Ĕ		Relieving Temp.	34		/ 80 ℃	G	Specific Gravity	0.972		
SERVICE CONDITION		/ Design Max. Temp.	35			Pb	Back Pressure	103 KPag		
E CC		Set Pressure	36	0.539 / 1.03		Kb	Correction Factor Due to Back Pressure	1		
N N	Design Press	sure / C.D.T.P	37	1.03 / 1.03		Kc	Correction Factor for a rupture disk	1		
SER	F .	Superimposed - Constant	38		- MPag	Kv	Correction Factor due to Viscosity	1122.45		
	Back	Superimposed - Variable	39		- MPag	P1	Set Pressure plus Overpressure	1133 KPag		
	Pressure	Built-up	40		3 MPag		Remarks			
	Allowabla	Total	41 42	0.10:	3 MPag 10 %					
	Allowable O	verpressure sure / Blowdown(%)	42	Min. 0.78 MPag / 2		<u>*P</u> a	aint Color(*)			
			43		4.2718% 0 m3/h	Pa	inting : P-5 (RAL 9006 Silver)			
O	Required Ca Valve Actual	· · ·	44			*D	amark			
ECT	Calculated C		45	7.	2 m3/h 0 mm²		e <u>mark</u> Operating Pressure : 5.5 kgf/m²g			
SIZING & SELECTION	Selected Ori		47	7	'0.97 mm²	- S	etting Pressure : 10.5 kgf/m²g			
&			48	D(9.5)			Design Pressure : 10.5 kgf/m²g			
ZINC	Office Dia.(I	Orifice Dia.(mm)		D(9.3)			Constant Back Pressure : 0 kgf/m²g Built-up Back Pressure : 1.05 kgf/m²g			
Si			\vdash	-		- 5	ount-up back riessule . 1.05 kgi/ull g			
	Paint System	a & Color	49	See Rem	ark					
EHC	Test Gag	1 4 40101	50	Yes	ui K					
ш	Bug screen		51	No						
	Dug scieeil		١٦	INU						

 Ref. No : SLO200337-200-643085
 JOKWANG I.L.I CO.,LTD.
 No.TTIPCF500-2

				Pressure Sa	afety & Relief Va	alve	Specification and Calculation She	et		
	R		-	Sheet No.	1 of 1		Rev . No	1		
	T 77 10	OKWANG I.L.I		Project Name		Yeosu No.2 Complex Project (긴급분)				
	Since 1968	OKWAITO I.L.I		Project No.		, , , ===,				
				Date	2021-03-24	ŀ		S.W.PARK		
			Щ,	Checked	S.C.KIM		Approved	S.C.KIM		
	P&ID No.		1			H46	55-E2-PID-2013			
₹	Tag No.		2			E	E2-PSV-2122			
GENERAL	Service Line		3		E-211 (Process	Cor	ndensate Stripper Reboiler) SS			
5	Model No.		4	JSV-FF100			Calculation			
	Quantity		5	1			Calculation			
	Nozzle Type	!	6	Full Noz	zle		Calculation of Area			
	Design Type)	7	Conventi	onal					
TYPE	Bonnet Type	2	8	Close						
_	Lever Type		9	None		Α1	$= 11.78*W1*(\sqrt{G/(P1-Pb)})/(Kd*Kb*Kc*)$	Kv)		
	Cap Type		10	Screwe	ed	, , ,	11.70 W1 (VG/(L112))) (Rd Rb Rc	(1117)		
	Size. Inlet /	Outlet	11	3/4"X1	н					
CONN.	Inlet. Rating		12	ASME CL.150 RF			$= 11.78*0*\sqrt{(0.894/(1455.3-25))/(0.615)}$	*1*1*1)		
8	Outlet. Ratin	· <u> </u>	13							
	Body (Base)	<i>3</i> , · <u>9</u>	14	ASME CL.150 RF SA216 WCB			$=$ \mathbf{O} mm ²			
	Bonnet		15	SA216 W			_			
	Seat		16							
MATERIALS	Disc		- − − −				Calculation of Canacity			
						Calculation of Capacity				
MA	Guide									
	Gasket (Bon	net)	 	PTFE			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			
	Spring		20	Chrome Alloy(S		W	= A*Kd*Kb*Kc*Kv/(11.78*√(G/(P1-Pb))			
	Bellows		21	None			455.2.25			
	Approved by		22	KGS UV ST	ГАМР		= 70.97*0.615*1*1*1/(11.78*\(0.894/(1	455.3-25)))		
-	Comply with NACE		23	/						
2	EN 10204		24	No			= 148.20 l/min			
BASIS	Code		25	API RP 520-Ce	rtification		= 8.9 m3/h			
	Fire		26	No						
	Sizing Basis		27	Thermal Exp	ansion					
	Rupture Disl	<	28	No		W	Valve Capacity	148.20 l/min		
	Fluid / State		29	Process Condensa	ate / LIQUID	W1	Required Capacity	0 l/min		
	Mol. Weight	: / Specific Gravity	30	0.894		Р	Set Pressure	1323 KPag		
	Compressibi	lity Factor	31	-		A1	Calculated Area	O mm²		
	Ratio of Spe	cific Heat	32	-		Α	Selected Area	70.97 mm²		
_	Viscosity		33	0.155 (:P	Kd	Coefficient of Discharge	0.615		
5	Operating /	Relieving Temp.	34	117.1 / 1	73.4 °C	G	Specific Gravity	0.894		
5	Design Min.	/ Design Max. Temp.	35	-18,	⁄195 ℃	Pb	Back Pressure	25 KPag		
Ö		Set Pressure	36	0.072 / 1.32	-	Kb	Correction Factor Due to Back Pressure	1		
SERVICE CONDITION		sure / C.D.T.P	37	1.323/FV / 1.3362		Kc	Correction Factor for a rupture disk	1		
<u>S</u>		Superimposed - Constant	38	, , ,		Kv	Correction Factor due to Viscosity	1		
S	Back	Superimposed - Variable	39			P1	Set Pressure plus Overpressure	1455.3 KPag		
	Pressure	Built-up	40		5 MPag					
	11033010	Total	41		5 MPag		Remarks			
	Allowable O		42	0.02	10 %					
		sure / Blowdown(%)	43	Min. 1.12455 MP			aint Color(*)			
	Required Ca		44	7.12 133 IVII	0 m3/h	P-5				
SIZING & SELECTION	Valve Actual	· · ·	45	0	.9 m3/h	*D.	emark			
ECT	Calculated C	<u> </u>	45	0	.9 m3/n 0 mm²		emark Operating Pressure : 0.74 kgf/m²g			
SEL			46	-			letting Pressure : 13.5 kgf/m²g			
8	Selected Ori		47		70.97 mm²	- D	Design Pressure : 13.5/FV kgf/m²g			
NE S	Orifice Dia.(r	11111)	48 48	D(9.5))		Constant Back Pressure : 0 kgf/m²g			
SIZ			$\vdash\vdash\vdash$	-		- B	uilt-up Back Pressure : 0.251 kgf/m²g			
			Щ	-						
ပ္	Paint System	n & Color	49	See Rem	ark					
ETC	Test Gag		50	Yes						
	Bug screen		51	No						

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