JOKWANG I.L.I CO.,LTD.

DATA SHEETS FOR QUOTATION

Doc. No. : 190219-033

PROJECT NAME	NA
PROJECT NO.	NA
HULL NO.	NA
CLIENT	NA

0	2019-02-21		JAEWOO KIM	S.C.KIM	S.C.KIM		
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D	APP'D	DATE
						CLIENT	

Head Office & Plant

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JOKWANG I.L.I

Pressure Safety & Relief Valve Specification and Calculation Sheet

Sheet No.	1 of 2	Rev . No	0
Project Name			
Project No.			
Date	2019-02-19	By	SUNGWOO JUNG
Checked	S.C.KIM	Approved	S.C.KIM

GENERAL	P&ID No.	1	-	
	Tag No.	2	-	
	Service Line	3	-	
	Model No.	4	JSV-FF100	
	Quantity	5	1	
TYPE	Nozzle Type	6	Full Nozzle	
	Design Type	7	Conventional	
	Bonnet Type	8	Close	
	Lever Type	9	None	
	Cap Type	10	Screwed	
CONN.	Size. Inlet / Outlet	11	3/4"X1"	
	Inlet. Rating / Facing	12	ASME CL.150 RF	
	Outlet. Rating / Facing	13	ASME CL.150 RF	
MATERIALS	Body (Base)	14	SA351 CF8M	
	Bonnet	15	SA351 CF8M	
	Seat	16	316 SS-st.	
	Disc	17	316 SS-st.	
	Guide	18	316 SS	
	Gasket (Bonnet)	19	PTFE	
	Spring	20	316 SS	
	Bellows	21	None	
BASIS	Approved by	22	UV STAMP	
	Comply with NACE	23	No	
	EN 10204	24	Type 3.1	
	Code	25	API RP 520	
	Fire	26	No	
	Sizing Basis	27	-	
	Rupture Disk	28	No	
SERVICE CONDITION	Fluid / State	29	Gas / GAS	
	Mol. Weight / Specific Gravity	30	28.96	
	Compressibility Factor	31	1	
	Ratio of Specific Heat	32	1.4	
	Viscosity	33	-	
	Operating / Relieving Temp.	34	/ 20 ℃	
	Design Min. / Design Max. Temp.	35	- ℃	
	Operating / Set Pressure	36	/ 5.5 barg	
	Design Pressure / C.D.T.P	37	- / 5.5 barg	
	Back Pressure: Superimposed - Constant	38	- barg	
	Back Pressure: Superimposed - Variable	39	- barg	
	Back Pressure: Built-up	40	- barg	
	Back Pressure: Total	41	0 barg	
	Allowable Overpressure	42	10 %	
	Closing Pressure / Blowdown(%)	43	Min. 4.95 barg / 10%	
SIZING & SELECTION	Required Capacity	44	0 kg/h	
	Valve Actual Capacity	45	354 kg/h	
	Calculated Orifice Area	46	0 ㎟	
	Selected Orifice Area	47	70.97 ㎟	
	Orifice Dia.(mm)	48	D(9.5)	
ETC	Paint System & Color	49	None	
	Test Gag	50	None	
	Bug screen	51	None	

Calculation

Calculation of Area

A1 = 13160*W1*(√ZT/M)/(C*Kd*(P*1.1+101.325)*Kb*Kc)

= 13160*0*(√1*293/28.96)/(356.06*0.831*(550*1.1+101.325)*1*1)

= **0** ㎟

Calculation of Capacity

W = A*C*Kd*(P*1.1+101.325)*Kb*Kc/(13160*√(ZT/M))

= 70.97*356.06*0.831*(550*1.1+101.325)*1*1/(13160*√(1*293/28.96))

= **354** kg/h

W	Valve Capacity	354 kg/h
W1	Required Capacity	0 kg/h
P	Set Pressure	550 KPag
A1	Calculated Area	0 ㎟
A	Selected Area	70.97 ㎟
Kd	Coefficient of Discharge	0.831
C	Coefficient base on Ratio of Specific Heat	356.06
T	Kelvin Temperature	293 K
M	Molecular Weight	28.96
Z	Compressibility Factor	1
Kb	Correction Factor Due to Back Pressure	1
Kc	Correction Factor for a rupture disk	1

Remarks

JOKWANG I.L.I

Pressure Safety & Relief Valve Specification and Calculation Sheet

Sheet No.	2 of 2	Rev . No	0
Project Name			
Project No.			
Date	2019-02-19	By	SUNGWOO JUNG
Checked	S.C.KIM	Approved	S.C.KIM

GENERAL	P&ID No.	1	-	
	Tag No.	2	-	
	Service Line	3	-	
	Model No.	4	JSV-FF100	
	Quantity	5	1	
TYPE	Nozzle Type	6	Full Nozzle	
	Design Type	7	Conventional	
	Bonnet Type	8	Close	
	Lever Type	9	None	
	Cap Type	10	Screwed	
CONN.	Size. Inlet / Outlet	11	3/4"X1"	
	Inlet. Rating / Facing	12	ASME CL.150 RF	
	Outlet. Rating / Facing	13	ASME CL.150 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	PTFE	
	Spring	20	SWOSC(Carbon steel)	
	Bellows	21	None	
BASIS	Approved by	22	UV STAMP	
	Comply with NACE	23	No	
	EN 10204	24	Type 3.1	
	Code	25	API RP 520-Certification	
	Fire	26	No	
	Sizing Basis	27	-	
	Rupture Disk	28	No	
SERVICE CONDITION	Fluid / State	29	C.W / LIQUID	
	Mol. Weight / Specific Gravity	30	1	
	Compressibility Factor	31	-	
	Ratio of Specific Heat	32	-	
	Viscosity	33	-	
	Operating / Relieving Temp.	34	44 / 36 ℃	
	Design Min. / Design Max. Temp.	35	- ℃	
	Operating / Set Pressure	36	5.5 / 10 barg	
	Design Pressure / C.D.T.P	37	- / 10 barg	
	Back Pressure: Superimposed - Constant	38	- barg	
	Back Pressure: Superimposed - Variable	39	- barg	
	Back Pressure: Built-up	40	- barg	
	Back Pressure: Total	41	0 barg	
	Allowable Overpressure	42	10 %	
	Closing Pressure / Blowdown(%)	43	Min. 7.5 barg / 25%	
SIZING & SELECTION	Required Capacity	44	4.384 m3/h	
	Valve Actual Capacity	45	7.4 m3/h	
	Calculated Orifice Area	46	42.198123 ㎟	
	Selected Orifice Area	47	70.97 ㎟	
	Orifice Dia.(mm)	48	D(9.5)	
ETC	Paint System & Color	49	Heat Resistant Silver QT603	
	Test Gag	50	None	
	Bug screen	51	None	

Calculation

Calculation of Area

A1 = 11.78*W1*(√G/(P1-Pb))/(Kd*Kb*Kc*Kv)

= 11.78*73.066667*√(1/(1.1*1000-0))/(0.615*1*1*1)

= **42.198123** ㎟

Calculation of Capacity

W = A*Kd*Kb*Kc*Kv/(11.78*√(G/(P1-Pb)))

= 70.97*0.615*1*1*1/(11.78*√(1/(1.1*1000-0)))

= 122.90 ℓ/min
= **7.4** m3/h

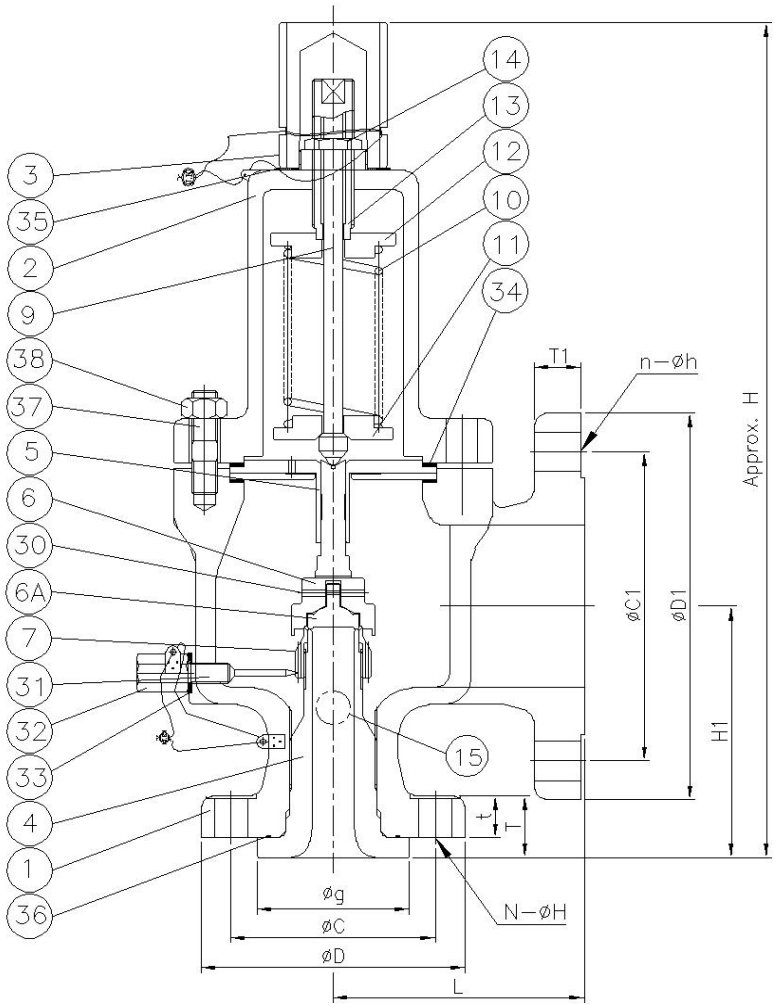
W	Valve Capacity	122.90 ℓ/min
W1	Required Capacity	73.066667 ℓ/min
P	Set Pressure	1000 KPag
A1	Calculated Area	42.198123 ㎟
A	Selected Area	70.97 ㎟
Kd	Coefficient of Discharge	0.615
G	Specific Gravity	1
Pb	Back Pressure	0 KPag
Kb	Correction Factor Due to Back Pressure	1
Kc	Correction Factor for a rupture disk	1
Kv	Correction Factor due to Viscosity	1
P1	Set Pressure plus Overpressure	1100 KPag

Remarks

*Remark
* Based on previous JK supply record (SLO087892-20)

2019-02-19

TAG NO.



DIMENSION **UNIT : mm**

SIZE	L	H1	H	INLET FLANGE ASME B 16.5 CL150 RF							OUTLET FLANGE ASME B 16.5 CL150 RF				Wt(kg)
				ØD	Øg	ØC	ØP	T	t	N-ØH	ØD1	ØC1	T1	n-Øh	
3/4"xDx1"	96	87	293	100	42.9	69.9	-	23	16	4-16	110	79.4	12.7	4-16	8.6

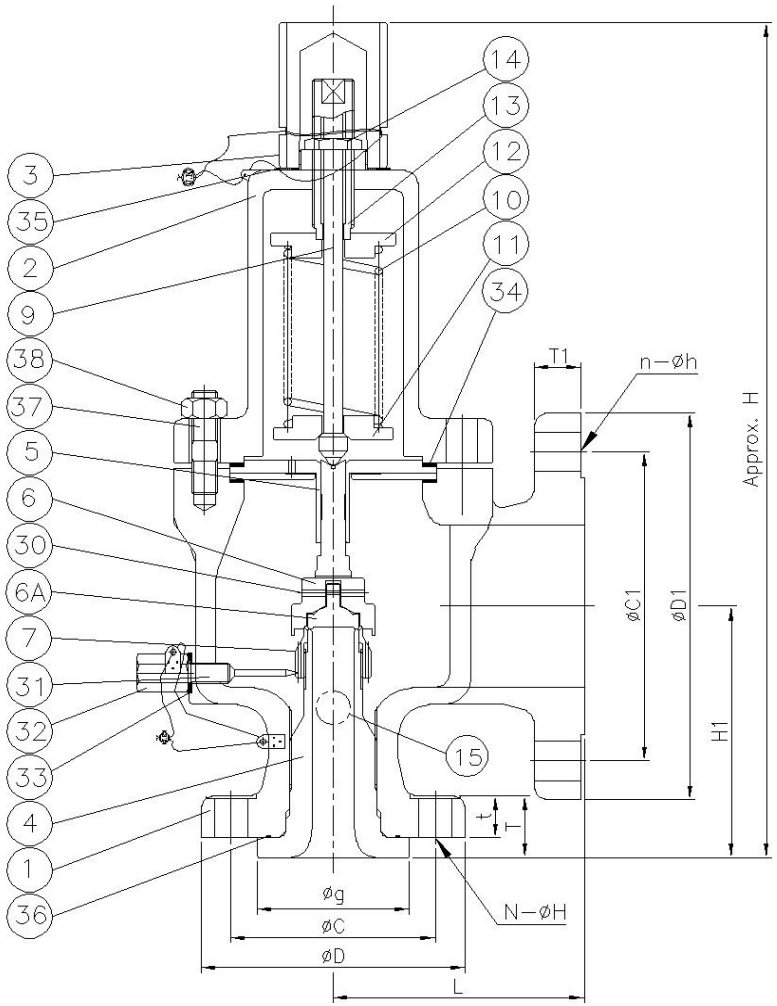
NO	PART NAME	MATERIAL	Q'TY	REMARK
38	STUD NUT	SA194 8M	4	
37	STUD BOLT	SA193 B8M	4	
36	GASKET (SEAT)	PTFE	1	
35	GASKET (CAP)	PTFE	1	
34	GASKET (BODY)	PTFE	2	
33	GASKET (SET SCREW)	PTFE	1	
32	CAP NUT	316 SS	1	
31	SET SCREW	316 SS	1	
30	SPRING PIN	Steel	1	
15	PLUG	316 SS	1	
14	LOCK NUT	316 SS	1	
13	ADJUST SCREW	316 SS	1	
12	SPRING SEAT (UPP.)	316 SS	1	
11	SPRING SEAT (LOW.)	316 SS	1	
10	SPRING	316 SS	1	
9	STEM	316 SS	1	
7	ADJUST RING	316 SS	1	
6A	DISC	316 SS -st.	1	
6	HOLDER	316 SS	1	
5	GUIDE	316 SS	1	
4	SEAT	316 SS -st.	1	
3	CAP	316 SS	1	
2	BONNET	SA351 CF8M	1	
1	BODY	SA351 CF8M	1	

DWG NO.	JKS-SLQ035480-10	Designed	Checked	Approved
MODEL	**JSV-FF100**	S.C.NA	C.U.LIM	S.B.HYUN
DATE	2019-02-19			

FULL BORE TYPE SAFETY RELIEF VALVE REV

JOKWANG I.L.I CO.,LTD. 0

TAG NO.



NO	PART NAME	MATERIAL	Q'TY	REMARK
38	STUD NUT	SA194 2H	4	
37	STUD BOLT	SA193 B7	4	
36	GASKET (SEAT)	PTFE	1	
35	GASKET (CAP)	PTFE	1	
34	GASKET (BODY)	PTFE	2	
33	GASKET (SET SCREW)	PTFE	1	
32	CAP NUT	316 SS	1	
31	SET SCREW	316 SS	1	
30	SPRING PIN	Steel	1	
15	PLUG	316 SS	1	
14	LOCK NUT	316 SS	1	
13	ADJUST SCREW	316 SS	1	
12	SPRING SEAT (UPP.)	Carbon Steel	1	
11	SPRING SEAT (LOW.)	Carbon Steel	1	
10	SPRING	SWOSC(Carbon steel)	1	
9	STEM	316 SS	1	
7	ADJUST RING	316 SS	1	
6A	DISC	316 SS -st.	1	
6	HOLDER	316 SS	1	
5	GUIDE	316 SS	1	
4	SEAT	316 SS -st.	1	
3	CAP	Carbon Steel	1	
2	BONNET	SA216 WCB	1	
1	BODY	SA216 WCB	1	

DWG NO.	JKS-SLQ035480-20	Designed	Checked	Approved
MODEL	**JSV-FF100**	S.C.NA	C.U.LIM	S.B.HYUN
DATE	2019-02-19			

FULL BORE TYPE SAFETY RELIEF VALVE REV

JOKWANG I.L.I CO.,LTD. 0

DIMENSION **UNIT : mm**

SIZE	L	H1	H	INLET FLANGE ASME B 16.5 CL150 RF							OUTLET FLANGE ASME B 16.5 CL150 RF				Wt(kg)
				ØD	Øg	ØC	ØP	T	t	N-ØH	ØD1	ØC1	T1	n-Øh	
3/4"xDx1"	96	87	293	100	42.9	69.9	-	23	16	4-16	110	79.4	12.7	4-16	7.5