



شماره ۵ بهمان:

شماره ۵ بهمان:

نگهداشت و افزایش تولید میدان نفتی بینک

سطح الارض و ابينه تحت الارض

خرید پکیج های کمپرسور گاز (رفت و برگشتی) بینک

(قرارداد ۰۳_۸-۰۰۰-CO-GCS-HD-BK)



شماره صفحه: ۱ از ۲۰

DATASHEET FOR SAFETY VALVES						
نسخه	سرمال	نوع	رشته	تهیه‌یلات	صادرکننده	پروژه
V03	0004	DS	IN	120	HY	BK

طرح نگهداشت و افزایش تولید ۲۷ مخزن

DATASHEET FOR SAFETY VALVES

نگهداشت و افزایش تولید میدان نفتی بینک

V03	Jan.2024	IFR	R.Dehghan	M.Fakharian	S.Faramarzpour	
V02	Dec.2023	IFR	R.Dehghan	M.Fakharian	S.Faramarzpour	
V01	Nov.2023	IFR	R.Dehghan	M.Fakharian	S.Faramarzpour	
V00	SEP.2023	IFR	Havayar Co.	M.Fakharian	M.Mehrshad	
Rev.	Date	Purpose of Issue/Status	Prepared By	Checked By	Approved By	Client Approval

CLIENT Doc. Number:

status:

IFA: Issued For Approval

IFR:Issued For Review

IFI: Issued For Information

AFC: Approved For Construction



NISOC

شماره پیمان:

۰۵۳ - ۰۷۳ - ۹۱۸۴

نگهداشت و افزایش تولید میدان نفتی بینک
سطح الارض و ابنیه تحت الارض
خرید پکیج های کمپرسور گاز (رفت و برگشتی) بینک
(قرارداد ۰۳_۰۰۰۸-BK-HD-GCS-CO)



DATASHEET FOR SAFETY VALVES

نسخه	سریال	نوع	رشته	تسهیلات	صادر کننده	بسته کاری	پروژه
V03	0004	DS	IN	120	HY	GCS	BK

شماره صفحه: ۲ از ۲۰

Revision Record Sheet

Page	V00	V01	V02	V03	V04
1	X	X	X	X	
2	X	X	X	X	
3	X	X	X	X	
4	X	X	X	X	
5	X	X	X	X	
6	X	X	X	X	
7	X	X	X	X	
8	X	X	X	X	
9				X	
10				X	
11				X	
12				X	
13				X	
14				X	
15				X	
16				X	
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 NISOC		نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض خرید پکیج های کمپرسور گاز (دفت و برگشتی) بینک (قرارداد ۰۳-۰۰۸-۰۰۰۰-GCS-HD-BK)						 HAVAYAR INDUSTRIAL GROUP		
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴		DATASHEET FOR SAFETY VALVES								شماره صفحه: ۳ از ۲۰
		پروژه	بسته کاری	صادر کننده	تهیهات	رشته	نوع	سریال	نسخه	
		BK	GCS	HY	120	IN	DS	0004	V03	
GENERAL										
1	TAG NO.		PSV-2122A/PSV-2123A				PSV-2132A/PSV-2133A			
2	SERVICE		1STG DISCHARGE SNUBBER				2nd STAGE DISCHARGE SNUBBER			
3	P&ID NO.		BK-GCS-HY-120-PR-PI-0001- Page1				BK-GCS-HY-120-PR-PI-0001- Page1			
4	LINE NO. / VESSEL NO.		GAS-111-0036A-CN05-6"-IS				GAS-111-0051A-FN05-6"-IS			
5	FULL NOZZLE, SEMI NOZZLE		FULL NOZZLE				FULL NOZZLE			
6	SAFETY OR RELIEF		SAFETY & RELIEF				SAFETY & RELIEF			
7	CONV., BELLOWS, PILOT OP.		CONVENTIONAL				CONVENTIONAL			
8	BONNET TYPE		CLOSED				CLOSED			
CONNECTION										
9	SIZE: INLET	OUTLET	3"		4"		1.1/2"		3"	
10	FLANGE RATING OR SCRWED: IN	OUT	300#, ASME B 16.5		150#, ASME B 16.5		600#, ASME B 16.5		150#, ASME B 16.5	
11	FACING/ FINISHING : IN	OUT	RF ASME B16.5		RF ASME B16.5		RF ASME B16.5		RF ASME B16.5	
MATERIALS										
12	BODY & BONNET		A216 Gr.WCB (NACE MR0175)				A216 Gr.WCB (NACE MR0175)			
13	SEAT		Hard/S.S. 316 L Stellite Gr. 6				Hard/S.S. 316 L Stellite Gr. 6			
14	NOZZLE & Disk		S.S. 316L (NACE MR0175)				S.S. 316L (NACE MR0175)			
15	GUID AND RINGS		S.S. 316L (NACE MR0175)				S.S. 316L (NACE MR0175)			
16	SPRINGS		S.S. 316L (NACE MR0175)				S.S. 316L (NACE MR0175)			
17	BELLOWS		N/A				N/A			
18	NACE MR0175 MATERIAL		Yes				Yes			
OPTIONS										
19	CAP : SCREWED OR BOLTED		Screwed				Screwed			
20	LEVER : PLAIN OR PACKED		NOT REQUIRED				NOT REQUIRED			
21	TEST GAG		Yes				Yes			
22	RUPTURE DISC		NO				NO			
BASIS										
23	CODE		API RP 520				API RP 520			
24	FIRE		No				No			
25	OTHER		BLOCK OUTLET				BLOCK OUTLET			
FLUID DATA										
26	FLUID & STATE		Process Gas				Process Gas			
27	REQUIRED CAPACITY		kg/h	8,936			8,936			
28	MOL. WT.	Mass Density (kg/m3)	24.52	14.62		24.52	42.01			
29	OPER. PRESS. Barg	SET PRESSURE Barg	18	24.5		54.9	62			
30	OPER. TEMP. °C	REL. TEMP. °C	129	159		148	170			
31	BACK PRESSURE Barg	CONSTANT	1			1				
32		VARIABLE	0			0				
33		TOTAL	1			1				
34	% ALLOWABLE OVER PRESS.		10			10				
35	OVER PRESSURE FACTOR		10%			10%				
36	COMPRESSIBILITY FACTOR (Z)		0.9668			0.9281				
37	LATENT HEAT OF VAPORIZATION (Kj / Kg)		-			-				
38	RATIO OF SPECIFIC HEATS (Cp / Cv)		1.221			1.271				
39	OPERATING VISCOSITY cP		1.49E-02			1.65E-02				
40	barometric pressure	m bara	Summer: 914-winter: 991			Summer: 914-winter: 991				
41	CORROSION		3mm			3mm				
SPECIFICATION										
42	CALCULATION ORIFICE AREA	mm ²	562.7			224.65				
43	SELECTED ORIFICE AREA	mm ²	908			325				
44	ORIFICE DESIGNATION		J			G				
45	MANUFACTURE		Kiasa			Kiasa				
46	MODEL NO.		C3J42/1A21705			C1.5G33/1A21705				
47	Noise Level @ 30 m		109.13 dB			109.13 dB				

		نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض خرید پکیج های کمپرسور گاز (دفت و برگشتی) بینک (قرارداد ۰۳-۰۰۸-۰۳-BK-HD-GCS-CO)								
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴		DATASHEET FOR SAFETY VALVES								شماره صفحه: ۴ از ۲۰
		پروژه	بسته کاری	صادر کننده	تهیهات	رشته	نوع	سریال	نسخه	
		BK	GCS	HY	120	IN	DS	0004	V03	
GENERAL										
1	TAG NO.		PSV-2122B/PSV-2123B				PSV-2132B/PSV-2133B			
2	SERVICE		1STG DISCHARGE SNUBBER				2nd STAGE DISCHARGE SNUBBER			
3	P&ID NO.		BK-GCS-HY-120-PR-PI-0001- Page1				BK-GCS-HY-120-PR-PI-0001- Page1			
4	LINE NO. / VESSEL NO.		GAS-111-0036B-CN05-6"-IS				GAS-111-0051B-FN05-6"-IS			
5	FULL NOZZLE, SEMI NOZZLE		FULL NOZZLE				FULL NOZZLE			
6	SAFETY OR RELIEF		SAFETY & RELIEF				SAFETY & RELIEF			
7	CONV., BELLOWS, PILOT OP.		CONVENTIONAL				CONVENTIONAL			
8	BONNET TYPE		CLOSED				CLOSED			
CONNECTION										
9	SIZE: INLET	OUTLET	3"		4"		1.1/2"		3"	
10	FLANGE RATING OR SCRWD: IN	OUT	300#, ASME B 16.5		150#, ASME B 16.5		600#, ASME B 16.5		150#, ASME B 16.5	
11	FACING/ FINISHING : IN	OUT	RF ASME B16.5		RF ASME B16.5		RF ASME B16.5		RF ASME B16.5	
MATERIALS										
12	BODY & BONNET		A216 Gr.WCB (NACE MR0175)				A216 Gr.WCB (NACE MR0175)			
13	SEAT		Hard/S.S. 316 L Stellite Gr. 6				Hard/S.S. 316 L Stellite Gr. 6			
14	NOZZLE & Disk		S.S. 316L (NACE MR0175)				S.S. 316L (NACE MR0175)			
15	GUID AND RINGS		S.S. 316L (NACE MR0175)				S.S. 316L (NACE MR0175)			
16	SPRINGS		S.S. 316L (NACE MR0175)				S.S. 316L (NACE MR0175)			
17	BELLOWS		N/A				N/A			
18	NACE MR0175 MATERIAL		Yes				Yes			
OPTIONS										
19	CAP : SCREWED OR BOLTED		Screwed				Screwed			
20	LEVER : PLAIN OR PACKED		NOT REQUIRED				NOT REQUIRED			
21	TEST GAG		Yes				Yes			
22	RUPTURE DISC		NO				NO			
BASIS										
23	CODE		API RP 520				API RP 520			
24	FIRE		No				No			
25	OTHER		BLOCK OUTLET				BLOCK OUTLET			
FLUID DATA										
26	FLUID & STATE		Process Gas				Process Gas			
27	REQUIRED CAPACITY		kg/h	8,936			8,936			
28	MOL. WT.	Mass Density (kg/m3)	24.52	14.62		24.52		42.01		
29	OPER. PRESS. Barg	SET PRESSURE Barg	18	24.5		54.9		62		
30	OPER. TEMP. °C	REL. TEMP. °C	129	159		148		170		
31	BACK PRESSURE Barg	CONSTANT	1		1					
32		VARIABLE	0		0					
33		TOTAL	1		1					
34	% ALLOWABLE OVER PRESS.		10		10					
35	OVER PRESSURE FACTOR		10%		10%					
36	COMPRESSIBILITY FACTOR (Z)		0.9668		0.9281					
37	LATENT HEAT OF VAPORIZATION (Kj / Kg)		-		-					
38	RATIO OF SPECIFIC HEATS (Cp / Cv)		1.221		1.271					
39	OPERATING VISCOSITY cP		1.49E-02		1.65E-02					
40	barometric pressure	m bara	Summer: 914-winter: 991		Summer: 914-winter: 991					
41	CORROSION		3mm		3mm					
SPECIFICATION										
42	CALCULATION ORIFICE AREA	mm ²	562.7		224.65					
43	SELECTED ORIFICE AREA	mm ²	908		325					
44	ORIFICE DESIGNATION		J		G					
45	MANUFACTURE		Kiasa		Kiasa					
46	MODEL NO.		C3J42/1A21705		C1.5G33/1A21705					
47	MAXIMUM SOUND LEVEL (db)		109.13 dB		109.13 dB					

		نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض خرید پکیج های کمپرسور گاز (دفت و برگشتی) بینک (قرارداد ۰۳-۰۰۸-۰۰۰۰-GCS-HD-BK)								
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴		DATASHEET FOR SAFETY VALVES								شماره صفحه: ۵ از ۲۰
		پروژه	بسته کاری	صادر کننده	تهیهات	رشته	نوع	سریال	نسخه	
		BK	GCS	HY	120	IN	DS	0004	V03	
GENERAL										
1	TAG NO.		PSV-2122C/PSV-2123C				PSV-2132C/PSV-2133C			
2	SERVICE		1STG DISCHARGE SNUBBER				2nd STAGE DISCHARGE SNUBBER			
3	P&ID NO.		BK-GCS-HY-120-PR-PI-0001- Page1				BK-GCS-HY-120-PR-PI-0001- Page1			
4	LINE NO. / VESSEL NO.		GAS-111-0036C-CN05-6"-IS				GAS-111-0051C-FN05-6"-IS			
5	FULL NOZZLE, SEMI NOZZLE		FULL NOZZLE				FULL NOZZLE			
6	SAFETY OR RELIEF		SAFETY & RELIEF				SAFETY & RELIEF			
7	CONV., BELLOWS, PILOT OP.		CONVENTIONAL				CONVENTIONAL			
8	BONNET TYPE		CLOSED				CLOSED			
CONNECTION										
9	SIZE: INLET	OUTLET	3"		4"		1.1/2"		3"	
10	FLANGE RATING OR SCRWED: IN	OUT	300#, ASME B 16.5		150#, ASME B 16.5		600#, ASME B 16.5		150#, ASME B 16.5	
11	FACING/ FINISHING : IN	OUT	RF ASME B16.5		RF ASME B16.5		RF ASME B16.5		RF ASME B16.5	
MATERIALS										
12	BODY & BONNET		A216 Gr.WCB (NACE MR0175)				A216 Gr.WCB (NACE MR0175)			
13	SEAT		Hard/S.S. 316 L Stellite Gr. 6				Hard/S.S. 316 L Stellite Gr. 6			
14	NOZZLE & Disk		S.S. 316L (NACE MR0175)				S.S. 316L (NACE MR0175)			
15	GUID AND RINGS		S.S. 316L (NACE MR0175)				S.S. 316L (NACE MR0175)			
16	SPRINGS		S.S. 316L (NACE MR0175)				S.S. 316L (NACE MR0175)			
17	BELLOWS		N/A				N/A			
18	NACE MATERIAL		Yes				Yes			
OPTIONS										
19	CAP : SCREWED OR BOLTED		Screwed				Screwed			
20	LEVER : PLAIN OR PACKED		NOT REQUIRED				NOT REQUIRED			
21	TEST GAG		Yes				Yes			
22	RUPTURE DISC		NO				NO			
BASIS										
23	CODE		API RP 520				API RP 520			
24	FIRE		No				No			
25	OTHER		BLOCK OUTLET				BLOCK OUTLET			
FLUID DATA										
26	FLUID & STATE		Process Gas				Process Gas			
27	REQUIRED CAPACITY		kg/h	8,936			8,936			
28	MOL. WT.	Mass Density (kg/m3)	24.52	14.62		24.52	42.01			
29	OPER. PRESS. Barg	SET PRESSURE Barg	18	24.5		54.9	62			
30	OPER. TEMP. °C	REL. TEMP. °C	129	159		148	170			
31	BACK PRESSURE Barg	CONSTANT	1			1				
32		VARIABLE	0			0				
33		TOTAL	1			1				
34	% ALLOWABLE OVER PRESS.		10			10				
35	OVER PRESSURE FACTOR		10%			10%				
36	COMPRESSIBILITY FACTOR (Z)		0.9668			0.9281				
37	LATENT HEAT OF VAPORIZATION (Kj / Kg)		-			-				
38	RATIO OF SPECIFIC HEATS (Cp / Cv)		1.221			1.271				
39	OPERATING VISCOSITY cP		1.49E-02			1.65E-02				
40	barometric pressure	m bara	Summer: 914-winter: 991			Summer: 914-winter: 991				
41	CORROSION		3mm			3mm				
SPECIFICATION										
42	CALCULATION ORIFICE AREA	mm ²	562.7			224.65				
43	SELECTED ORIFICE AREA	mm ²	908			325				
44	ORIFICE DESIGNATION		J			G				
45	MANUFACTURE		Kiasa			Kiasa				
46	MODEL NO.		C3J42/1A21705			C1.5G33/1A21705				
47	MAXIMUM SOUND LEVEL (db)		109.13 dB			109.13 dB				

		نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض خرید پکیج های کمپرسور گاز (رفت و برگشتی) بینک (قرارداد ۰۳-۰۰۸-۰۰۰-۰۰۰۰-BK-HD-GCS-CO)							
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴		DATASHEET FOR SAFETY VALVES						شماره صفحه: ۶ از ۲۰	
		پروژه	بسته کاری	صادر کننده	تجهیزات	رشته	نوع		سریال
		BK	GCS	HY	120	IN	DS		0004
GENERAL									
1	TAG NO.		PSV-2203A			PSV-2204A			
2	SERVICE		N2 Gas Supply			N2 Gas Supply			
3	P&ID NO.		BK-GCS-HY-120-PR-PI-0001-Page4			BK-GCS-HY-120-PR-PI-0001-Page4			
4	LINE NO. / VESSEL NO.		NIT-112-0002A-SS-1"-IS			NIT-112-0001A-SS-1"-IS			
5	FULL NOZZLE, SEMI NOZZLE		FULL NOZZLE			FULL NOZZLE			
6	SAFETY OR RELIEF		SAFETY & RELIEF			SAFETY & RELIEF			
7	CONV., BELLOWS, PILOT OP.		CONVENTIONAL			CONVENTIONAL			
8	BONNET TYPE		CLOSED			CLOSED			
CONNECTION									
9	SIZE: INLET	OUTLET	1/2"		1/2"		1/2"		
10	FLANGE RATING OR SCRWED: IN	OUT	Threaded		Threaded		Threaded		
11	FACING/ FINISHING : IN	OUT	-		-		-		
MATERIALS									
12	BODY & BONNET		S.S. 316			S.S. 316			
13	SEAT		Hard/S.S.316L			Hard/S.S.316L			
14	NOZZLE & Disk		S.S. 316L			S.S. 316L			
15	GUID AND RINGS		S.S. 316L			S.S. 316L			
16	SPRINGS		S.S. 316L			S.S. 316L			
17	BELLOWS		NOT REQUIRED			NOT REQUIRED			
18	NACE MATERIAL		NOT REQUIRED			NOT REQUIRED			
OPTIONS									
19	CAP : SCREWED OR BOLTED		Screwed			Screwed			
20	LEVER : PLAIN OR PACKED		NOT REQUIRED			NOT REQUIRED			
21	TEST GAG		Yes			Yes			
22	RUPTURE DISC		NO			NO			
BASIS									
23	CODE		API RP 520			API RP 520			
24	FIRE		No			No			
25	OTHER		BLOCK OUTLET			BLOCK OUTLET			
FLUID DATA									
26	FLUID & STATE		N2 Gas Supply			N2 Gas Supply			
27	REQUIRED CAPACITY		Nm3/h		3		3		
28	MOL. WT.	Mass Density (kg/m3)	28.01		2.037		28.01		
29	OPER. PRESS. Barg	SET PRESSURE Barg	1		2.8		2.2		
30	OPER. TEMP. °C	REL TEMP. °C	60		60		60		
31	BACK PRESSURE Barg	CONSTANT	NO		NO		NO		
32		VARIABLE	NO		NO		NO		
33		TOTAL	NO		NO		NO		
34	% ALLOWABLE OVER PRESS.		10		10		10		
35	OVER PRESSURE FACTOR		10%		10%		10%		
36	COMPRESSIBILITY FACTOR (Z)		9.99E-01		0.999		0.999		
37	LATENT HEAT OF VAPORIZATION (Kj / Kg)		-		-		-		
38	RATIO OF SPECIFIC HEATS (Cp / Cv)		1.4		1.4		1.4		
39	OPERATING VISCOSITY cP		1.99E-02		1.99E-02		1.99E-02		
40	barometric pressure	m bara	Summer: 914-winter: 991		Summer: 914-winter: 991		Summer: 914-winter: 991		
41	CORROSION		N/A		N/A		N/A		
SPECIFICATION									
42	CALCULATION ORIFICE AREA	mm ²	1.33		1.33		1.33		
43	SELECTED ORIFICE AREA	mm ²	28.26		28.26		28.26		
44	ORIFICE DESIGNATION		Kiasa Performance		Kiasa Performance		Kiasa Performance		
45	MANUFACTURE		Kiasa		Kiasa		Kiasa		
46	MODEL NO.		C2638302 1705		C2638302 1705		C2638302 1705		
47	MAXIMUM SOUND LEVEL (db)		86 dB		86 dB		86 dB		
Note: As per API standard minimum orifice letter is "D" & the letter is too much for required flow. we have chatterin in PSV for flange PSV & orifice D So threaded PSV has been supplied.									

		تجهیزات و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض خرید پکیج های کمپرسور گاز (رفت و برگشتی) بینک (قرارداد ۳-۰۰۰۸-۰۰۰۰-GCS-HD-BK)								
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴		DATASHEET FOR SAFETY VALVES							شماره صفحه: ۷ از ۲۰	
		پروژه	بسته کاری	صادر کننده	تجهیزات	رشته	نوع	سریال		نسخه
		BK	GCS	HY	120	IN	DS	0004		V03
GENERAL										
1	TAG NO.		PSV-2203B				PSV-2204B			
2	SERVICE		N2 Gas Supply				N2 Gas Supply			
3	P&ID NO.		BK-GCS-HY-120-PR-PI-0001-Page4				BK-GCS-HY-120-PR-PI-0001-Page4			
4	LINE NO. / VESSEL NO.		NIT-112-0002B-SS-1"-IS				NIT-112-0001B-SS-1"-IS			
5	FULL NOZZLE, SEMI NOZZLE		FULL NOZZLE				FULL NOZZLE			
6	SAFETY OR RELIEF		SAFETY & RELIEF				SAFETY & RELIEF			
7	CONV., BELLOWS, PILOT OP.		CONVENTIONAL				CONVENTIONAL			
8	BONNET TYPE		CLOSED				CLOSED			
CONNECTION										
9	SIZE: INLET	OUTLET	1/2"		1/2"		1/2"		1/2"	
10	FLANGE RATING OR SCRWED: IN	OUT	Threaded		Threaded		Threaded		Threaded	
11	FACING/ FINISHING : IN	OUT	-		-		-		-	
MATERIALS										
12	BODY & BONNET		S.S. 316				S.S. 316			
13	SEAT		Hard/S.S.316L				Hard/S.S.316L			
14	NOZZLE & Disk		S.S. 316L				S.S. 316L			
15	GUID AND RINGS		S.S. 316L				S.S. 316L			
16	SPRINGS		S.S. 316L				S.S. 316L			
17	BELLOWS		NOT REQUIRED				NOT REQUIRED			
18	NACE MATERIAL		NOT REQUIRED				NOT REQUIRED			
OPTIONS										
19	CAP : SCREWED OR BOLTED		Screwed				Screwed			
20	LEVER : PLAIN OR PACKED		NOT REQUIRED				NOT REQUIRED			
21	TEST GAG		Yes				Yes			
22	RUPTURE DISC		NO				NO			
BASIS										
23	CODE		API RP 520				API RP 520			
24	FIRE		No				No			
25	OTHER		BLOCK OUTLET				BLOCK OUTLET			
FLUID DATA										
26	FLUID & STATE		N2 Gas Supply				N2 Gas Supply			
27	REQUIRED CAPACITY		Nm3/h		3		3			
28	MOL. WT.	Mass Density (kg/m3)	28.01		2.037		28.01		3.251	
29	OPER. PRESS. Barg	SET PRESSURE Barg	1		2.8		2.2		2.8	
30	OPER. TEMP. °C	REL. TEMP. °C	60		60		60		60	
31	BACK PRESSURE Barg	CONSTANT	NO		NO		NO		NO	
32		VARIABLE	NO		NO		NO		NO	
33		TOTAL	NO		NO		NO		NO	
34	% ALLOWABLE OVER PRESS.		10		10		10		10	
35	OVER PRESSURE FACTOR		10%		10%		10%		10%	
36	COMPRESSIBILITY FACTOR (Z)		9.99E-01		0.999		0.999		0.999	
37	LATENT HEAT OF VAPORIZATION (Kj / Kg)		-		-		-		-	
38	RATIO OF SPECIFIC HEATS (Cp / Cv)		1.4		1.4		1.4		1.4	
39	OPERATING VISCOSITY cP		1.99E-02		1.99E-02		1.99E-02		1.99E-02	
40	barometric pressure	m bara	Summer: 914-winter: 991		Summer: 914-winter: 991		Summer: 914-winter: 991		Summer: 914-winter: 991	
41	CORROSION									
SPECIFICATION										
42	CALCULATION ORIFICE AREA	mm ²	1.33		1.33		1.33		1.33	
43	SELECTED ORIFICE AREA	mm ²	28.26		28.26		28.26		28.26	
44	ORIFICE DESIGNATION		Kiasa Performance		Kiasa Performance		Kiasa Performance		Kiasa Performance	
45	MANUFACTURE		Kiasa		Kiasa		Kiasa		Kiasa	
46	MODEL NO.		C2638302 1705		C2638302 1705		C2638302 1705		C2638302 1705	
47	MAXIMUM SOUND LEVEL (db)		86 dB		86 dB		86 dB		86 dB	
Note: As per API standard minimum orifice letter is "D" & the letter is too much for required flow. we have chatterin in PSV for flange PSV & orifice D So threaded PSV has been supplied.										

		نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض خرید پکیج های کمپرسور گاز (رفت و برگشتی) بینک (قرارداد ۰۳-۰۰۸-۰۰۰۰-BK-HD-GCS-CO)								
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴		DATASHEET FOR SAFETY VALVES							شماره صفحه: ۸ از ۲۰	
		پروژه	بسته کاری	صادر کننده	تهیهات	رشته	نوع	سریال		نسخه
		BK	GCS	HY	120	IN	DS	0004		V03
GENERAL										
1	TAG NO.		PSV-2203C				PSV-2204C			
2	SERVICE		N2 Gas Supply				N2 Gas Supply			
3	P&ID NO.		BK-GCS-HY-120-PR-PI-0001-Page4				BK-GCS-HY-120-PR-PI-0001-Page4			
4	LINE NO. / VESSEL NO.		NIT-112-0002C-SS-1"-IS				NIT-112-0001C-SS-1"-IS			
5	FULL NOZZLE, SEMI NOZZLE		FULL NOZZLE				FULL NOZZLE			
6	SAFETY OR RELIEF		SAFETY & RELIEF				SAFETY & RELIEF			
7	CONV., BELLOWS, PILOT OP.		CONVENTIONAL				CONVENTIONAL			
8	BONNET TYPE		CLOSED				CLOSED			
CONNECTION										
9	SIZE: INLET	OUTLET	1/2"		1/2"		1/2"		1/2"	
10	FLANGE RATING OR SCREWED: IN	OUT	Threaded		Threaded		Threaded		Threaded	
11	FACING/ FINISHING : IN	OUT	-		-		-		-	
MATERIALS										
12	BODY & BONNET		S.S. 316				S.S. 316			
13	SEAT		Hard/S.S.316L				Hard/S.S.316L			
14	NOZZLE & Disk		S.S. 316L				S.S. 316L			
15	GUID AND RINGS		S.S. 316L				S.S. 316L			
16	SPRINGS		S.S. 316L				S.S. 316L			
17	BELLOWS		NOT REQUIRED				NOT REQUIRED			
18	NACE MATERIAL		NOT REQUIRED				NOT REQUIRED			
OPTIONS										
19	CAP : SCREWED OR BOLTED		Screwed				Screwed			
20	LEVER : PLAIN OR PACKED		NOT REQUIRED				NOT REQUIRED			
21	TEST GAG		Yes				Yes			
22	RUPTURE DISC		NO				NO			
BASIS										
23	CODE		API RP 520				API RP 520			
24	FIRE		No				No			
25	OTHER		BLOCK OUTLET				BLOCK OUTLET			
FLUID DATA										
26	FLUID & STATE		N2 Gas Supply				N2 Gas Supply			
27	REQUIRED CAPACITY		Nm3/h		3		3			
28	MOL. WT.	Mass Density (kg/m3)	28.01		2.037		28.01		3.251	
29	OPER. PRESS. Barg	SET PRESSURE Barg	1		2.8		2.2		2.8	
30	OPER. TEMP. °C	REL. TEMP. °C	60		60		60		60	
31	BACK PRESSURE Barg	CONSTANT	NO		NO		NO		NO	
32		VARIABLE	NO		NO		NO		NO	
33		TOTAL	NO		NO		NO		NO	
34	% ALLOWABLE OVER PRESS.		10		10		10		10	
35	OVER PRESSURE FACTOR		10%		10%		10%		10%	
36	COMPRESSIBILITY FACTOR (Z)		9.99E-01		0.999		0.999		0.999	
37	LATENT HEAT OF VAPORIZATION (Kj / Kg)		-		-		-		-	
38	RATIO OF SPECIFIC HEATS (Cp / Cv)		1.4		1.4		1.4		1.4	
39	OPERATING VISCOSITY cP		1.99E-02		1.99E-02		1.99E-02		1.99E-02	
40	barometric pressure	m bara	Summer: 914-winter: 991		Summer: 914-winter: 991		Summer: 914-winter: 991		Summer: 914-winter: 991	
41	CORROSION									
SPECIFICATION										
42	CALCULATION ORIFICE AREA	mm ²	1.33		1.33		1.33		1.33	
43	SELECTED ORIFICE AREA	mm ²	28.26		28.26		28.26		28.26	
44	ORIFICE DESIGNATION		Kiasa Performance		Kiasa Performance		Kiasa Performance		Kiasa Performance	
45	MANUFACTURE		Kiasa		Kiasa		Kiasa		Kiasa	
46	MODEL NO.		C2638302 1705		C2638302 1705		C2638302 1705		C2638302 1705	
47	MAXIMUM SOUND LEVEL (db)		86 dB		86 dB		86 dB		86 dB	
Note: As per API standard minimum orifice letter is "D" & the letter is too much for required flow. we have chatterin in PSV for flange PSV & orifice D So threaded PSV has been supplied.										

 NISOC شماره پیمان:	تکهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض خرید پکیج های کمپرسور گاز (رفت و برگشتی) بینک (BK-HD-GCS-CO-000۸-۰۳ قرارداد)																	
۰۵۳ - ۰۷۳ - ۹۱۸۴	DATASHEET FOR SAFETY VALVES <table border="1"> <tr> <td>پروژه</td><td>یسته کاری</td><td>صادر کننده</td><td>تهیلات</td><td>رشته</td><td>نوع</td><td>سریال</td><td>نسخه</td></tr> <tr> <td>BK</td><td>GCS</td><td>HY</td><td>120</td><td>IN</td><td>DS</td><td>0004</td><td>V03</td></tr> </table>	پروژه	یسته کاری	صادر کننده	تهیلات	رشته	نوع	سریال	نسخه	BK	GCS	HY	120	IN	DS	0004	V03	شماره صفحه: ۲۰ از ۹
پروژه	یسته کاری	صادر کننده	تهیلات	رشته	نوع	سریال	نسخه											
BK	GCS	HY	120	IN	DS	0004	V03											

		Savasoft V1.0 β - KIASA Safety Valve Sizing Software						
1	VALVE ID				11	CALCULATION NOTES		
2	TAG No.	PSV-2122A/PSV-2123A			12			
3	VALVE MODEL NO.	C3J42/1A21705			13			
4	SIZING DATA				14			
5	DESIGN CODE	ASME SECTION VIII	SIZING STD.	API 520	15			
6	FLUID STATE	GAS			16			
7	CALCULATION SUMMARY							
8	DISCHARGE CAPACITY	REQUIRED (kg/h)	8936		18	AREA	REQUIRED (mm²)	562.7
9		RATED (kg/h)	14419.51		19		SELECTED (mm²)	908
10	REACTION FORCE (N)	3536.51			20	NOISE LEVEL (db) @ 30m		109.23
VARIABLE TYPE		VARIABLE NAME		SYMBOL	INPUT VALUE	EQUATION VALUE		
21	FLUID DATA	MOLECULAR WEIGHT		M	24.52			
22		RATIO OF SPECIFIC HEATS		K	1.22			
23		COMPRESSIBILITY		Z	0.97			
24	SIZING DATA	REQUIRED DISCHARGE CAPACITY (kg/h)		Wreq.	8936			
25		SET PRESSURE (barg)		Pset	24.5			
26		OVER PRESSURE (barg)		Pover	2.45			
27		CONSTANT BACK PRESSURE (barg)			1			
28		VARIABLE BACK PRESSURE (barg)			0			
29		BUILT UP BACK PRESSURE (barg)			0			
30		TOTAL BACK PRESSURE (barg)		Pback	1			
31		RELIEVING TEMP. (°C)		T	129			
32		RUPTURE DISC COEFFICIENT		Kc	1			
33		DISCHARGE COEFFICIENT		Kd	0.88			
34		BACK PRESSURE CORRECTION FACTOR		Kb	1			
35	OUTLET DIAMETER (mm)		D0	101.6				
CALCULATION UPSTREAM RELIEVING PRESSURE, BACK PRESSURE								
36	P1=Pset +Pover +Patm (kPa)			P1		2795		
37	P2=Pback +Patm (kPa)			P2		200		
38	PR=P2/P1			PR		0.07		
CALCULATION GAS CONSTANT								
39	$C = 0.03948 \times \left\{ K \times \left[\frac{2}{K+1} \right]^{\frac{K+1}{K-1}} \right\}^{0.5}$			C		0.03		
CALCULATED RATED DISCHARGE CAPACITY								
40	$W_s = [A_s \times C \times K_d \times P_1 \times K_b \times K_c] / \sqrt{\frac{(T + 273.15) \times Z}{M}}$			W _s (kg/h)		14419.51		
CALCULATION REQUIRED ORIFICE AREA								
41	$A_{req} = \frac{W_{req.}}{C \times K_d \times P_1 \times K_b \times K_c} \times \sqrt{\frac{(T + 273.15) \times Z}{M}}$			A _{req.} (mm²)		562.7		
NOISE CALCULATION ACC. TO API RP 521								
42	$L_{30} = L + 10 \log \left[0.5 \times \frac{W_s}{3600} \times \left(91.2 \times \left(\frac{K \times (T + 273.15)}{M} \right)^{0.5} \right)^2 \right]$			db		109.23		
CALCULATION REACTION FORCE								
43	$A_0 = (\pi \times D_0^2) / 4$			F _r (N)		3536.51		
44	$F = 129 \times \left(\frac{W_s}{3600} \right) \times \sqrt{\frac{K \times (T + 273.15)}{(K + 1) \times M} + \frac{(A_0 \times P_0)}{1000}}$							

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Address: Street 306- Isargran Blv. - No. 3 Industrial Estate(kheirabad)- Arak-Iran

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض خرید پکیج های کمپرسور گاز (رفت و برگشتی) بینک (قرارداد ۰۳-۰۰۸-۰۰۰۰-BK-HD-GCS-CO)	 HAVAYAR INDUSTRIAL GROUP																											
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	<table><tr><th colspan="9">DATASHEET FOR SAFETY VALVES</th></tr><tr><th>پروژه</th><th>صادر کننده</th><th>بسته کاری</th><th>تهیهات</th><th>رشته</th><th>نوع</th><th>سریال</th><th colspan="2">نسخه</th></tr><tr><td>BK</td><td>GCS</td><td>HY</td><td>120</td><td>IN</td><td>DS</td><td>0004</td><td colspan="2">V03</td></tr></table>	DATASHEET FOR SAFETY VALVES									پروژه	صادر کننده	بسته کاری	تهیهات	رشته	نوع	سریال	نسخه		BK	GCS	HY	120	IN	DS	0004	V03		شماره صفحه: ۲۰ از ۱۰
DATASHEET FOR SAFETY VALVES																													
پروژه	صادر کننده	بسته کاری	تهیهات	رشته	نوع	سریال	نسخه																						
BK	GCS	HY	120	IN	DS	0004	V03																						

		Savasoft V1.0 B - KIASA Safety Valve Sizing Software					
1	VALVE ID				11	CALCULATION NOTES	
2	TAG No. PSV-2132A/PSV-2133A				12		
3	VALVE MODEL NO. C1.5G33/1A21705				13		
4	SIZING DATA				14		
5	DESIGN CODE ASME SECTION VIII		SIZING STD. API 520		15		
6	FLUID STATE GAS				16		
7	CALCULATION SUMMARY						
8	DISCHARGE CAPACITY		REQUIRED (kg/h) 8936		18	AREA	REQUIRED (mm²) 224.65
9			RATED (kg/h) 12927.65		19		SELECTED (mm²) 325
10	REACTION FORCE (N)		4261.99		20	NOISE LEVEL (db) @ 30m 109.13	
VARIABLE TYPE		VARIABLE NAME		SYMBOL	INPUT VALUE	EQUATION VALUE	
21	FLUID DATA	MOLECULAR WEIGHT		M	24.52		
22		RATIO OF SPECIFIC HEATS		K	1.27		
23		COMPRESSIBILITY		Z	0.93		
24	SIZING DATA	REQUIRED DISCHARGE CAPACITY (kg/h)		Wreq.	8936		
25		SET PRESSURE (barg)		Pset	62		
26		OVER PRESSURE (barg)		Pover	6.2		
27		CONSTANT BACK PRESSURE (barg)			1		
28		VARIABLE BACK PRESSURE (barg)			0		
29		BUILT UP BACK PRESSURE (barg)			0		
30		TOTAL BACK PRESSURE (barg)		Pback	1		
31		RELIEVING TEMP. (°C)		T	148		
32		RUPTURE DISC COEFFICIENT		Kc	1		
33		DISCHARGE COEFFICIENT		Kd	0.88		
34		BACK PRESSURE CORRECTION FACTOR		Kb	1		
35		OUTLET DIAMETER (mm)		D0	76.2		
CALCULATION UPSTREAM RELIEVING PRESSURE, BACK PRESSURE							
36	P1=Pset +Pover +Patm (kPa)			P1		6920	
37	P2=Pback +Patm (kPa)			P2		200	
38	PR=P2/P1			PR		0.03	
CALCULATION GAS CONSTANT							
39	$C = 0.03948 \times \left\{ K \times \left[\frac{2}{K+1} \right]^{\frac{K+1}{K-1}} \right\}^{0.5}$			C		0.03	
CALCULATED RATED DISCHARGE CAPACITY							
40	$W_s = [A_s \times C \times K_d \times P_1 \times K_b \times K_c] / \sqrt{\frac{(T + 273.15) \times Z}{M}}$			W _s (kg/h)		12927.65	
CALCULATION REQUIRED ORIFICE AREA							
41	$A_{req} = \frac{W_{req.}}{C \times K_d \times P_1 \times K_b \times K_c} \times \sqrt{\frac{(T + 273.15) \times Z}{M}}$			A _{req.} (mm²)		224.65	
NOISE CALCULATION ACC. TO API RP 521							
42	$L_{30} = L + 10 \log \left[0.5 \times \frac{W_s}{3600} \times \left(91.2 \times \left(\frac{K \times (T + 273.15)}{M} \right)^{0.5} \right)^2 \right]$			db		109.13	
CALCULATION REACTION FORCE							
43	A ₀ = (π × D ₀ ²)/4			F _r (N)		4261.99	
44	$F = 129 \times \left(\frac{W_s}{3600} \right) \times \sqrt{\frac{K \times (T + 273.15)}{(K + 1) \times M}} + \frac{(A_0 \times P_0)}{1000}$						

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شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	<table><tr><th colspan="8">DATASHEET FOR SAFETY VALVES</th></tr><tr><th>نسخه</th><th>سریال</th><th>نوع</th><th>رشته</th><th>تهیلات</th><th>صادر کننده</th><th>بسته کاری</th><th>پروژه</th></tr><tr><td>V03</td><td>0004</td><td>DS</td><td>IN</td><td>120</td><td>HY</td><td>GCS</td><td>BK</td></tr></table>	DATASHEET FOR SAFETY VALVES								نسخه	سریال	نوع	رشته	تهیلات	صادر کننده	بسته کاری	پروژه	V03	0004	DS	IN	120	HY	GCS	BK	شماره صفحه: ۲۰ از ۱۱
DATASHEET FOR SAFETY VALVES																										
نسخه	سریال	نوع	رشته	تهیلات	صادر کننده	بسته کاری	پروژه																			
V03	0004	DS	IN	120	HY	GCS	BK																			

		Savasoft V1.0 β - KIASA Safety Valve Sizing Software							
1	VALVE ID					11	CALCULATION NOTES		
2	TAG No.	PSV-2122B/PSV-2123B				12			
3	VALVE MODEL NO.	C3J42/1A21705				13			
4	SIZING DATA					14			
5	DESIGN CODE	ASME SECTION VIII		SIZING STD.	API 520	15			
6	FLUID STATE	GAS				16			
7	CALCULATION SUMMARY								
8	DISCHARGE CAPACITY	REQUIRED (kg/h)		8936		18	AREA	REQUIRED (mm²)	562.7
9		RATED (kg/h)		14419.51		19		SELECTED (mm²)	908
10	REACTION FORCE (N)		3536.51		20	NOISE LEVEL (db) @ 30m		109.23	
VARIABLE TYPE		VARIABLE NAME			SYMBOL	INPUT VALUE	EQUATION VALUE		
21	FLUID DATA	MOLECULAR WEIGHT			M	24.52			
22		RATIO OF SPECIFIC HEATS			K	1.22			
23		COMPRESSIBILITY			Z	0.97			
24	SIZING DATA	REQUIRED DISCHARGE CAPACITY (kg/h)			Wreq.	8936			
25		SET PRESSURE (barg)			Pset	24.5			
26		OVER PRESSURE (barg)			Pover	2.45			
27		CONSTANT BACK PRESSURE (barg)				1			
28		VARIABLE BACK PRESSURE (barg)				0			
29		BUILT UP BACK PRESSURE (barg)				0			
30		TOTAL BACK PRESSURE (barg)			Pback	1			
31		RELIEVING TEMP. (°C)			T	129			
32		RUPTURE DISC COEFFICIENT			Kc	1			
33		DISCHARGE COEFFICIENT			Kd	0.88			
34		BACK PRESSURE CORRECTION FACTOR			Kb	1			
35		OUTLET DIAMETER (mm)			D0	101.6			
CALCULATION UPSTREAM RELIEVING PRESSURE, BACK PRESSURE									
36	P1=Pset +Pover +Patm (kPa)				P1		2795		
37	P2=Pback +Patm (kPa)				P2		200		
38	PR=P2/P1				PR		0.07		
CALCULATION GAS CONSTANT									
39	$C = 0.03948 \times \left\{ K \times \left[\frac{2}{K+1} \right]^{\frac{K+1}{K-1}} \right\}^{0.5}$				C		0.03		
CALCULATED RATED DISCHARGE CAPACITY									
40	$W_s = [A_s \times C \times K_d \times P1 \times K_b \times K_c] / \sqrt{\frac{(T + 273.15) \times Z}{M}}$				W _s (kg/h)		14419.51		
CALCULATION REQUIRED ORIFICE AREA									
41	$A_{req} = \frac{W_{req.}}{C \times K_d \times P1 \times K_b \times K_c} \times \sqrt{\frac{(T + 273.15) \times Z}{M}}$				A _{req.} (mm²)		562.7		
NOISE CALCULATION ACC. TO API RP 521									
42	$L_{30} = L + 10 \log \left[0.5 \times \frac{W_s}{3600} \times \left(91.2 \times \left(\frac{K \times (T + 273.15)}{M} \right)^{0.5} \right)^2 \right]$				db		109.23		
CALCULATION REACTION FORCE									
43	$A_0 = (\pi \times D_0^2) / 4$				F _{r.} (N)		3536.51		
44	$F = 129 \times \left(\frac{W_s}{3600} \right) \times \sqrt{\frac{K \times (T + 273.15)}{(K + 1) \times M}} + \frac{(A_0 \times P_0)}{1000}$								

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 NISOC	تکداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض خرید پکیج های کمپرسور گاز (رفت و برگشتی) بینک (قرارداد ۰۳_۰۰۰۸-GCS-CO-BK-HD)	 HAVAYAR INDUSTRIAL GROUP																								
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	<table><tr><th colspan="8">DATASHEET FOR SAFETY VALVES</th></tr><tr><th>نسخه</th><th>سریال</th><th>نوع</th><th>رشته</th><th>تهیلات</th><th>صادر کننده</th><th>بسته کاری</th><th>پروژه</th></tr><tr><td>V03</td><td>0004</td><td>DS</td><td>IN</td><td>120</td><td>HY</td><td>GCS</td><td>BK</td></tr></table>	DATASHEET FOR SAFETY VALVES								نسخه	سریال	نوع	رشته	تهیلات	صادر کننده	بسته کاری	پروژه	V03	0004	DS	IN	120	HY	GCS	BK	شماره صفحه: ۲۰ از ۱۲
DATASHEET FOR SAFETY VALVES																										
نسخه	سریال	نوع	رشته	تهیلات	صادر کننده	بسته کاری	پروژه																			
V03	0004	DS	IN	120	HY	GCS	BK																			

		Savasoft V1.0 β - KIASA Safety Valve Sizing Software						
1	VALVE ID					11	CALCULATION NOTES	
2	TAG No.	PSV-2132B/PSV-2133B				12		
3	VALVE MODEL NO.	C1.5G33/1A21705				13		
4	SIZING DATA					14		
5	DESIGN CODE	ASME SECTION VIII	SIZING STD.	API 520	15			
6	FLUID STATE	GAS				16		
7	CALCULATION SUMMARY							
8	DISCHARGE CAPACITY	REQUIRED (kg/h)	8936		18	AREA	REQUIRED (mm²)	224.65
9		RATED (kg/h)	12927.65		19		SELECTED (mm²)	325
10	REACTION FORCE (N)		4261.99		20	NOISE LEVEL (db) @ 30m		109.13
VARIABLE TYPE		VARIABLE NAME			SYMBOL	INPUT VALUE	EQUATION VALUE	
21	FLUID DATA	MOLECULAR WEIGHT			M	24.52		
22		RATIO OF SPECIFIC HEATS			K	1.27		
23		COMPRESSIBILITY			Z	0.93		
24	SIZING DATA	REQUIRED DISCHARGE CAPACITY (kg/h)			W _{req.}	8936		
25		SET PRESSURE (barg)			P _{set}	62		
26		OVER PRESSURE (barg)			P _{over}	6.2		
27		CONSTANT BACK PRESSURE (barg)				1		
28		VARIABLE BACK PRESSURE (barg)				0		
29		BUILT UP BACK PRESSURE (barg)				0		
30		TOTAL BACK PRESSURE (barg)			P _{back}	1		
31		RELIEVING TEMP. (°C)			T	148		
32		RUPTURE DISC COEFFICIENT			K _c	1		
33		DISCHARGE COEFFICIENT			K _d	0.88		
34	BACK PRESSURE CORRECTION FACTOR			K _b	1			
35	OUTLET DIAMETER (mm)			D ₀	76.2			
CALCULATION UPSTREAM RELIEVING PRESSURE, BACK PRESSURE								
36	P ₁ =P _{set} +P _{over} +P _{atm} (kPa)				P ₁		6920	
37	P ₂ =P _{back} +P _{atm} (kPa)				P ₂		200	
38	PR=P ₂ /P ₁				PR		0.03	
CALCULATION GAS CONSTANT								
39	C = 0.03948 × { K × [$\frac{2}{K+1}$] ^{$\frac{K+1}{K-1}$} } ^{0.5}				C		0.03	
CALCULATED RATED DISCHARGE CAPACITY								
40	W _S = [A _S × C × K _d × P ₁ × K _b × K _c] / $\sqrt{\frac{(T + 273.15) \times Z}{M}}$				W _S (kg/h)		12927.65	
CALCULATION REQUIRED ORIFICE AREA								
41	A _{req.} = $\frac{W_{req.}}{C \times K_d \times P_1 \times K_b \times K_c} \times \sqrt{\frac{(T + 273.15) \times Z}{M}}$				A _{req.} (mm²)		224.65	
NOISE CALCULATION ACC. TO API RP 521								
42	L ₃₀ = L + 10log [0.5 × $\frac{W_S}{3600} \times \left(91.2 \times \left(\frac{K \times (T + 273.15)}{M} \right)^{0.5} \right)^2]$				db		109.13	
CALCULATION REACTION FORCE								
43	A ₀ = (π × D ₀ ²)/4				F _{r.} (N)		4261.99	
44	F = 129 × $\left(\frac{W_S}{3600} \right) \times \sqrt{\frac{K \times (T + 273.15)}{(K + 1) \times M} + \frac{(A_0 \times P_0)}{1000}}$							

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شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	<table><tr><th colspan="8">DATASHEET FOR SAFETY VALVES</th></tr><tr><th>پروژه</th><th>صادر کننده</th><th>بسته کاری</th><th>تهیهات</th><th>رشته</th><th>نوع</th><th>سریال</th><th>نسخه</th></tr><tr><td>BK</td><td>GCS</td><td>HY</td><td>120</td><td>IN</td><td>DS</td><td>0004</td><td>V03</td></tr></table>	DATASHEET FOR SAFETY VALVES								پروژه	صادر کننده	بسته کاری	تهیهات	رشته	نوع	سریال	نسخه	BK	GCS	HY	120	IN	DS	0004	V03	شماره صفحه: ۲۰ از ۱۳
DATASHEET FOR SAFETY VALVES																										
پروژه	صادر کننده	بسته کاری	تهیهات	رشته	نوع	سریال	نسخه																			
BK	GCS	HY	120	IN	DS	0004	V03																			

		Savasoft V1.0 β - KIASA Safety Valve Sizing Software					
1	VALVE ID			11	CALCULATION NOTES		
2	TAG No.	PSV-2122C/PSV-2123C			12		
3	VALVE MODEL NO.	C3J42/1A21705			13		
4	SIZING DATA			14			
5	DESIGN CODE	ASME SECTION VIII	SIZING STD.	API 520	15		
6	FLUID STATE	GAS			16		
7	CALCULATION SUMMARY						
8	DISCHARGE CAPACITY	REQUIRED (kg/h)	8936	18	AREA	REQUIRED (mm²)	562.7
9		RATED (kg/h)	14419.51	19		SELECTED (mm²)	908
10	REACTION FORCE (N)		3536.51	20	NOISE LEVEL (db) @ 30m		109.23
VARIABLE TYPE		VARIABLE NAME		SYMBOL	INPUT VALUE	EQUATION VALUE	
21	FLUID DATA	MOLECULAR WEIGHT		M	24.52		
22		RATIO OF SPECIFIC HEATS		K	1.22		
23		COMPRESSIBILITY		Z	0.97		
24	SIZING DATA	REQUIRED DISCHARGE CAPACITY (kg/h)		Wreq.	8936		
25		SET PRESSURE (barg)		Pset	24.5		
26		OVER PRESSURE (barg)		Pover	2.45		
27		CONSTANT BACK PRESSURE (barg)			1		
28		VARIABLE BACK PRESSURE (barg)			0		
29		BUILT UP BACK PRESSURE (barg)			0		
30		TOTAL BACK PRESSURE (barg)		Pback	1		
31		RELIEVING TEMP. (°C)		T	129		
32		RUPTURE DISC COEFFICIENT		Kc	1		
33		DISCHARGE COEFFICIENT		Kd	0.88		
34		BACK PRESSURE CORRECTION FACTOR		Kb	1		
35		OUTLET DIAMETER (mm)		D0	101.6		
CALCULATION UPSTREAM RELIEVING PRESSURE, BACK PRESSURE							
36	P1=Pset +Pover +Patm (kPa)			P1		2795	
37	P2=Pback +Patm (kPa)			P2		200	
38	PR=P2/P1			PR		0.07	
CALCULATION GAS CONSTANT							
39	$C = 0.03948 \times \left\{ K \times \left[\frac{2}{K+1} \right]^{\frac{K+1}{K-1}} \right\}^{0.5}$			C		0.03	
CALCULATED RATED DISCHARGE CAPACITY							
40	$W_s = [A_s \times C \times K_d \times P_1 \times K_b \times K_c] / \sqrt{\frac{(T + 273.15) \times Z}{M}}$			W _s (kg/h)		14419.51	
CALCULATION REQUIRED ORIFICE AREA							
41	$A_{req} = \frac{W_{req.}}{C \times K_d \times P_1 \times K_b \times K_c} \times \sqrt{\frac{(T + 273.15) \times Z}{M}}$			A _{req.} (mm²)		562.7	
NOISE CALCULATION ACC. TO API RP 521							
42	$L_{30} = L + 10 \log \left[0.5 \times \frac{W_s}{3600} \times \left(91.2 \times \left(\frac{K \times (T + 273.15)}{M} \right)^{0.5} \right)^2 \right]$			db		109.23	
CALCULATION REACTION FORCE							
43	$A_0 = (\pi \times D_0^2) / 4$			F _r (N)		3536.51	
44	$F = 129 \times \left(\frac{W_s}{3600} \right) \times \sqrt{\frac{K \times (T + 273.15)}{(K + 1) \times M}} + \frac{(A_0 \times P_0)}{1000}$						

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DATASHEET FOR SAFETY VALVES																										
پروژه	صادر کننده	بسته کاری	تهیه کننده	رشته	نوع	سریال	نسخه																			
BK	GCS	HY	120	IN	DS	0004	V03																			

		Savasoft V1.0 β - KIASA Safety Valve Sizing Software									
1	VALVE ID					11	CALCULATION NOTES				
2	TAG No.		PSV-2132C/PSV-2133C			12					
3	VALVE MODEL NO.		C1.5G33/1A21705			13					
4	SIZING DATA					14					
5	DESIGN CODE		ASME SECTION VIII		SIZING STD.	API 520					
6	FLUID STATE		GAS			16					
7	CALCULATION SUMMARY										
8	DISCHARGE CAPACITY		REQUIRED (kg/h)		8936		18	AREA	REQUIRED (mm²)		224.65
9			RATED (kg/h)		12927.65		19		SELECTED (mm²)		325
10	REACTION FORCE (N)		4261.99			20	NOISE LEVEL (db) @ 30m		109.13		
VARIABLE TYPE		VARIABLE NAME			SYMBOL	INPUT VALUE		EQUATION VALUE			
21	FLUID DATA	MOLECULAR WEIGHT			M	24.52					
22		RATIO OF SPECIFIC HEATS			K	1.27					
23		COMPRESSIBILITY			Z	0.93					
24	SIZING DATA	REQUIRED DISCHARGE CAPACITY (kg/h)			Wreq.	8936					
25		SET PRESSURE (barg)			Pset	62					
26		OVER PRESSURE (barg)			Pover	6.2					
27		CONSTANT BACK PRESSURE (barg)				1					
28		VARIABLE BACK PRESSURE (barg)				0					
29		BUILT UP BACK PRESSURE (barg)				0					
30		TOTAL BACK PRESSURE (barg)			Pback	1					
31		RELIEVING TEMP. (°C)			T	148					
32		RUPTURE DISC COEFFICIENT			Kc	1					
33		DISCHARGE COEFFICIENT			Kd	0.88					
34		BACK PRESSURE CORRECTION FACTOR			Kb	1					
35		OUTLET DIAMETER (mm)			D0	76.2					
CALCULATION UPSTREAM RELIEVING PRESSURE, BACK PRESSURE											
36	P1=Pset +Pover +Patm (kPa)				P1			6920			
37	P2=Pback +Patm (kPa)				P2			200			
38	PR=P2/P1				PR			0.03			
CALCULATION GAS CONSTANT											
39	$C = 0.03948 \times \left\{ K \times \left[\frac{2}{K+1} \right]^{\frac{K+1}{K-1}} \right\}^{0.5}$				C			0.03			
CALCULATED RATED DISCHARGE CAPACITY											
40	$W_s = [A_s \times C \times K_d \times P_1 \times K_b \times K_c] / \sqrt{\frac{(T + 273.15) \times Z}{M}}$				W _s (kg/h)			12927.65			
CALCULATION REQUIRED ORIFICE AREA											
41	$A_{req} = \frac{W_{req.}}{C \times K_d \times P_1 \times K_b \times K_c} \times \sqrt{\frac{(T + 273.15) \times Z}{M}}$				A _{req.} (mm²)			224.65			
NOISE CALCULATION ACC. TO API RP 521											
42	$L_{30} = L + 10 \log \left[0.5 \times \frac{W_s}{3600} \times \left(91.2 \times \left(\frac{K \times (T + 273.15)}{M} \right)^{0.5} \right)^2 \right]$				db			109.13			
CALCULATION REACTION FORCE											
43	$A_0 = (\pi \times D_0^2) / 4$				F _r (N)			4261.99			
44	$F = 129 \times \left(\frac{W_s}{3600} \right) \times \sqrt{\frac{K \times (T + 273.15)}{(K + 1) \times M}} + \frac{(A_0 \times P_0)}{1000}$										

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۰۵۳ - ۰۷۳ - ۹۱۸۴	<table><tr><th colspan="8">DATASHEET FOR SAFETY VALVES</th></tr><tr><th>پروژه</th><th>کار</th><th>پسته</th><th>صادر کننده</th><th>تهیهات</th><th>رشته</th><th>نوع</th><th>سریال</th><th>نسخه</th></tr><tr><td>BK</td><td>GCS</td><td>HY</td><td>120</td><td>IN</td><td>DS</td><td>0004</td><td>V03</td><td></td></tr></table>	DATASHEET FOR SAFETY VALVES								پروژه	کار	پسته	صادر کننده	تهیهات	رشته	نوع	سریال	نسخه	BK	GCS	HY	120	IN	DS	0004	V03		شماره صفحه: ۲۰ از ۱۵
DATASHEET FOR SAFETY VALVES																												
پروژه	کار	پسته	صادر کننده	تهیهات	رشته	نوع	سریال	نسخه																				
BK	GCS	HY	120	IN	DS	0004	V03																					

		Savasoft V1.0 β - KIASA Safety Valve Sizing Software			
1	VALVE ID			11	CALCULATION NOTES
2	TAG No.	PSV-2203A			12
3	VALVE MODEL NO.	C2638302 1705			13
4	SIZING DATA				14
5	DESIGN CODE	ASME SECTION VIII	SIZING STD.	API 520	15
6	FLUID STATE	GAS			16
7	CALCULATION SUMMARY				
8	DISCHARGE CAPACITY	REQUIRED (kg/h)	3.75	18	AREA
9		RATED (kg/h)	79	19	REQUIRED (mm²)
10	REACTION FORCE (N)	11	20	NOISE LEVEL (db) @ 30m	86
21	VARIABLE TYPE	VARIABLE NAME	SYMBOL	INPUT VALUE	EQUATION VALUE
22	FLUID DATA	MOLECULAR WEIGHT	M	28.01	
23		RATIO OF SPECIFIC HEATS	K	1.4	
24		COMPRESSIBILITY	Z	1	
25	SIZING DATA	REQUIRED DISCHARGE CAPACITY (kg/h)	Wreq.	3.75	
26		SET PRESSURE (barg)	Pset	2.8	
27		OVER PRESSURE (barg)	Pover	0.28	
28		CONSTANT BACK PRESSURE (barg)		0	
29		VARIABLE BACK PRESSURE (barg)		0	
30		BUILT UP BACK PRESSURE (barg)		0	
31		TOTAL BACK PRESSURE (barg)	Pback	0	
32		RELIEVING TEMP. (°C)	T	60	
33		RUPTURE DISC COEFFICIENT	Kc	1	
34		DISCHARGE COEFFICIENT	Kd	0.88	
35	BACK PRESSURE CORRECTION FACTOR	Kb	1		
36	OUTLET DIAMETER (mm)	D0	12.7		
CALCULATION UPSTREAM RELIEVING PRESSURE, BACK PRESSURE					
37	P1=Pset +Pover +Patm (kPa)	P1		408	
38	P2=Pback +Patm (kPa)	P2		100	
39	PR=P2/P1	PR		0.25	
CALCULATION GAS CONSTANT					
40	$C = 0.03948 \times \left\{ K \times \left[\frac{2}{K+1} \right]^{\frac{K+1}{K-1}} \right\}^{0.5}$		C		0.03
CALCULATED RATED DISCHARGE CAPACITY					
41	$W_s = [A_s \times C \times K_d \times P_1 \times K_b \times K_c] / \sqrt{\frac{(T + 273.15) \times Z}{M}}$		W _s (kg/h)		79
CALCULATION REQUIRED ORIFICE AREA					
42	$A_{req} = \frac{W_{req.}}{C \times K_d \times P_1 \times K_b \times K_c} \times \sqrt{\frac{(T + 273.15) \times Z}{M}}$		A _{req.} (mm²)		1.33
NOISE CALCULATION ACC. TO API RP 521					
43	$L_{30} = L + 10 \log \left[0.5 \times \frac{W_s}{3600} \times \left(91.2 \times \left(\frac{K \times (T + 273.15)}{M} \right)^{0.5} \right)^2 \right]$		db		86
CALCULATION REACTION FORCE					
44	$A_0 = (\pi \times D_0^2) / 4$		F _r (N)		11
45	$F = 129 \times \left(\frac{W_s}{3600} \right) \times \sqrt{\frac{K \times (T + 273.15)}{(K + 1) \times M}} + \frac{(A_0 \times P_0)}{1000}$				

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	شماره صفحه: ۲۰ از ۱۷		شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	

DATASHEET FOR SAFETY VALVES						
نسخه	سریال	نوع	رشته	تهیهات	صادر کننده	پروژه
V03	0004	DS	IN	120	HY	GCS
						BK

		Savasoft V1.0 β - KIASA Safety Valve Sizing Software			
1	VALVE ID		11	CALCULATION NOTES	
2	TAG No.	PSV-2203B	12		
3	VALVE MODEL NO.	C2638302 1705	13		
4	SIZING DATA		14		
5	DESIGN CODE	ASME SECTION VIII	SIZING STD.	API 520	15
6	FLUID STATE	GAS			16
7	CALCULATION SUMMARY				
8	DISCHARGE CAPACITY	REQUIRED (kg/h)	3.75	18	AREA
9		RATED (kg/h)	79	19	REQUIRED (mm²)
10	REACTION FORCE (N)	11	20	NOISE LEVEL (db) @ 30m	86
21	VARIABLE TYPE	VARIABLE NAME	SYMBOL	INPUT VALUE	EQUATION VALUE
22	FLUID DATA	MOLECULAR WEIGHT	M	28.01	
23		RATIO OF SPECIFIC HEATS	K	1.4	
24		COMPRESSIBILITY	Z	1	
25	SIZING DATA	REQUIRED DISCHARGE CAPACITY (kg/h)	Wreq.	3.75	
26		SET PRESSURE (barg)	Pset	2.8	
27		OVER PRESSURE (barg)	Pover	0.28	
28		CONSTANT BACK PRESSURE (barg)		0	
29		VARIABLE BACK PRESSURE (barg)		0	
30		BUILT UP BACK PRESSURE (barg)		0	
31		TOTAL BACK PRESSURE (barg)	Pback	0	
32		RELIEVING TEMP. (°C)	T	60	
33		RUPTURE DISC COEFFICIENT	Kc	1	
34		DISCHARGE COEFFICIENT	Kd	0.88	
35	BACK PRESSURE CORRECTION FACTOR	Kb	1		
36	OUTLET DIAMETER (mm)	D0	12.7		
CALCULATION UPSTREAM RELIEVING PRESSURE, BACK PRESSURE					
37	P1=Pset +Pover +Patm (kPa)	P1			408
38	P2=Pback +Patm (kPa)	P2			100
39	PR=P2/P1	PR			0.25
CALCULATION GAS CONSTANT					
40	C = 0.03948 × { K × [2 / (K + 1)] ^{k+1 / k-1} } ^{0.5}		C		0.03
CALCULATED RATED DISCHARGE CAPACITY					
41	Ws = [As × C × Kd × P1 × Kb × Kc] / √((T + 273.15) × Z / M)		Ws (kg/h)		79
CALCULATION REQUIRED ORIFICE AREA					
42	Areq = Wreq. / (C × Kd × P1 × Kb × Kc) × √((T + 273.15) × Z / M)		Areq. (mm²)		1.33
NOISE CALCULATION ACC. TO API RP 521					
43	L30 = L + 10log [0.5 × Ws / 3600 × (91.2 × (K × (T + 273.15) / M) ^{0.5}) ²]		db		86
CALCULATION REACTION FORCE					
44	A0 = (π × D0²) / 4		Fr. (N)		11
45	F = 129 × (Ws / 3600) × √(K × (T + 273.15) / ((K + 1) × M) + (A0 × P0) / 1000)				

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 NISOC شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض خرید پکیج های کمپرسور گاز (رفت و برگشتی) بینک (قرارداد ۰۳_۰۰۸_۰۰۰-GCS-BK-HD)		 HAVAYAR INDUSTRIAL GROUP					
	DATASHEET FOR SAFETY VALVES		شماره صفحه: ۲۰ از ۱۹					
	پروژه BK	بسته کاری GCS	صادر کننده HY	تهیلات 120	رشته IN	نوع DS	سریال 0004	نسخه V03

					Savasoft V1.0 β - KIASA Safety Valve Sizing Software				
1	VALVE ID				11	CALCULATION NOTES			
2	TAG No.		PSV-2203C		12				
3	VALVE MODEL NO.		C2638302 1705		13				
4	SIZING DATA				14				
5	DESIGN CODE		ASME SECTION VIII		15				
6	FLUID STATE		GAS		16				
7	CALCULATION SUMMARY								
8	DISCHARGE CAPACITY		REQUIRED (kg/h)		18	AREA		REQUIRED (mm ²)	1.33
9			RATED (kg/h)		19			SELECTED (mm ²)	28.26
10	REACTION FORCE (N)		11		20	NOISE LEVEL (db) @ 30m		86	
VARIABLE TYPE		VARIABLE NAME			SYMBOL	INPUT VALUE		EQUATION VALUE	
21	FLUID DATA	MOLECULAR WEIGHT			M	28.01			
22		RATIO OF SPECIFIC HEATS			K	1.4			
23		COMPRESSIBILITY			Z	1			
24	SIZING DATA	REQUIRED DISCHARGE CAPACITY (kg/h)			W _{req.}	3.79			
25		SET PRESSURE (barg)			P _{set}	2.8			
26		OVER PRESSURE (barg)			P _{over}	0.28			
27		CONSTANT BACK PRESSURE (barg)				0			
28		VARIABLE BACK PRESSURE (barg)				0			
29		BUILT UP BACK PRESSURE (barg)				0			
30		TOTAL BACK PRESSURE (barg)			P _{back}	0			
31		RELIEVING TEMP. (°C)			T	60			
32		RUPTURE DISC COEFFICIENT			K _c	1			
33		DISCHARGE COEFFICIENT			K _d	0.88			
34		BACK PRESSURE CORRECTION FACTOR			K _b	1			
35	OUTLET DIAMETER (mm)			D _O	12.7				
CALCULATION UPSTREAM RELIEVING PRESSURE, BACK PRESSURE									
36	P ₁ =P _{set} +P _{over} +P _{atm} (kPa)				P ₁			408	
37	P ₂ =P _{back} +P _{atm} (kPa)				P ₂			100	
38	PR=P ₂ /P ₁				PR			0.25	
CALCULATION GAS CONSTANT									
39	$C = 0.03948 \times \left\{ K \times \left[\frac{2}{K+1} \right]^{\frac{K+1}{K-1}} \right\}^{0.5}$				C			0.03	
CALCULATED RATED DISCHARGE CAPACITY									
40	$W_s = [A_s \times C \times K_d \times P_1 \times K_b \times K_c] / \sqrt{\frac{(T + 273.15) \times Z}{M}}$				W _s (kg/h)			79	
CALCULATION REQUIRED ORIFICE AREA									
41	$A_{req} = \frac{W_{req.}}{C \times K_d \times P_1 \times K_b \times K_c} \times \sqrt{\frac{(T + 273.15) \times Z}{M}}$				A _{req.} (mm ²)			1.33	
NOISE CALCULATION ACC. TO API RP 521									
42	$L_{30} = L + 10 \log \left[0.5 \times \frac{W_s}{3600} \times \left(91.2 \times \left(\frac{K \times (T + 273.15)}{M} \right)^{0.5} \right)^2 \right]$				db			86	
CALCULATION REACTION FORCE									
43	A ₀ = (π × D ₀ ²)/4				F _r (N)			11	
44	$F = 129 \times \left(\frac{W_s}{3600} \right) \times \sqrt{\frac{K \times (T + 273.15)}{(K + 1) \times M}} + \frac{(A_0 \times P_0)}{1000}$								

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 NISOC	تنگداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض خرید پکیج های کمپرسور گاز (رفت و برگشتی) بینک (قرارداد ۰۳_۰۰۰۰۸-GCS-BK-HD)	 HAVAYAR INDUSTRIAL GROUP																								
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	<table><tr><th colspan="8">DATASHEET FOR SAFETY VALVES</th></tr><tr><th>نسخه</th><th>سریال</th><th>نوع</th><th>رشته</th><th>تهیلات</th><th>صادر کننده</th><th>پسته کاری</th><th>پروژه</th></tr><tr><td>V03</td><td>0004</td><td>DS</td><td>IN</td><td>120</td><td>HY</td><td>GCS</td><td>BK</td></tr></table>	DATASHEET FOR SAFETY VALVES								نسخه	سریال	نوع	رشته	تهیلات	صادر کننده	پسته کاری	پروژه	V03	0004	DS	IN	120	HY	GCS	BK	شماره صفحه: ۲۰ از ۲۰
DATASHEET FOR SAFETY VALVES																										
نسخه	سریال	نوع	رشته	تهیلات	صادر کننده	پسته کاری	پروژه																			
V03	0004	DS	IN	120	HY	GCS	BK																			

		Savasoft V1.0 β - KIASA Safety Valve Sizing Software						
1	VALVE ID					11	CALCULATION NOTES	
2	TAG No.	PSV-2204C				12		
3	VALVE MODEL NO.	C2638302 1705				13		
4	SIZING DATA					14		
5	DESIGN CODE	ASME SECTION VIII		SIZING STD.	API 520	15		
6	FLUID STATE	GAS				16		
7	CALCULATION SUMMARY							
8	DISCHARGE CAPACITY	REQUIRED (kg/h)	3.75		18	AREA	REQUIRED (mm²)	1.33
9		RATED (kg/h)	79		19		SELECTED (mm²)	28/26
10	REACTION FORCE (N)	11		20	NOISE LEVEL (db) @ 30m	86		
VARIABLE TYPE		VARIABLE NAME			SYMBOL	INPUT VALUE	EQUATION VALUE	
21	FLUID DATA	MOLECULAR WEIGHT			M	28.01		
22		RATIO OF SPECIFIC HEATS			K	1.4		
23		COMPRESSIBILITY			Z	1		
24	SIZING DATA	REQUIRED DISCHARGE CAPACITY (kg/h)			Wreq.	3.75		
25		SET PRESSURE (barg)			Pset	2.8		
26		OVER PRESSURE (barg)			Pover	0.28		
27		CONSTANT BACK PRESSURE (barg)				0		
28		VARIABLE BACK PRESSURE (barg)				0		
29		BUILT UP BACK PRESSURE (barg)				0		
30		TOTAL BACK PRESSURE (barg)			Pback	0		
31		RELIEVING TEMP. (°C)			T	60		
32		RUPTURE DISC COEFFICIENT			Kc	1		
33		DISCHARGE COEFFICIENT			Kd	0.88		
34		BACK PRESSURE CORRECTION FACTOR			Kb	1		
35		OUTLET DIAMETER (mm)			D0	12.7		
CALCULATION UPSTREAM RELIEVING PRESSURE, BACK PRESSURE								
36	P1=Pset +Pover +Patm (kPa)				P1		408	
37	P2=Pback +Patm (kPa)				P2		100	
38	PR=P2/P1				PR		0.25	
CALCULATION GAS CONSTANT								
39	$C = 0.03948 \times \left\{ K \times \left[\frac{2}{K+1} \right]^{\frac{k+1}{k-1}} \right\}^{0.5}$				C		0.03	
CALCULATED RATED DISCHARGE CAPACITY								
40	$W_s = [A_s \times C \times K_d \times P_1 \times K_b \times K_c] / \sqrt{\frac{(T + 273.15) \times Z}{M}}$				W _s (kg/h)		79	
CALCULATION REQUIRED ORIFICE AREA								
41	$A_{req} = \frac{W_{req.}}{C \times K_d \times P_1 \times K_b \times K_c} \times \sqrt{\frac{(T + 273.15) \times Z}{M}}$				A _{req.} (mm²)		1.33	
NOISE CALCULATION ACC. TO API RP 521								
42	$L_{30} = L + 10 \log \left[0.5 \times \frac{W_s}{3600} \times \left(91.2 \times \left(\frac{K \times (T + 273.15)}{M} \right)^{0.5} \right)^2 \right]$				db		86	
CALCULATION REACTION FORCE								
43	$A_0 = (\pi \times D_0^2) / 4$				F _r (N)		11	
44	$F = 129 \times \left(\frac{W_s}{3600} \right) \times \sqrt{\frac{K \times (T + 273.15)}{(K + 1) \times M}} + \frac{(A_0 \times P_0)}{1000}$							

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