

# SAMSON CALCULATION SHEET



1	Customer			Tag No.	<b>35 - 550 m3/h;</b>		
2	Project No.			Item	5	Qty.	1
3	Unit			Status		Revision	0
4	PID			Quot. No.		Date	10.02.2025
5	Line No.			Order No.			
6	<b>PROCESS DATA</b>						
7	Service			Medium	Water		
8	Phase	liquid		Medium Cust.			
9			<b>Unit</b>	<b>Case 1</b>	<b>Case 2</b>	<b>Case 3</b>	
10	Flow Rate	Q	m <sup>3</sup> /h	550	400	50	
11	Inlet Pressure	p1	bar(g)	4,3	4,3	4,3	
12	Outlet Pressure	p2	bar(g)	2,2	2,2	2,2	
13	Inlet Temperature	T1	°C	120	120	120	
14	Inlet Density	rho1	kg/m <sup>3</sup>	962	962	962	
15	Vapor Pressure	pv	bar(a)	0,846	0,846	0,846	
16	Critical Pressure	pc	bar(a)	221	221	221	
17	Ratio of Specific Heats	γ	-				
18	Compressibility	Z	-				
19	Inlet Viscosity	η	mPas	0,297	0,297	0,297	
20	Outlet Vapor Content	xd2	%				
21	Outlet Vapor Density	pv2	m <sup>3</sup> /kg				
22	Flow Conditions	-	-				
23	<b>RESULTS AND FACTORS</b>						
24	Min Required Size	d	mm	255	217	76,8	
25	Outlet Velocity	w	m/s	2,16	1,57	0,196	
26	Valve Coeff. Calculated	Kv	-	372	271	33,8	
27	Safety Factor	SF	1	<b>3,36</b>	<b>4,62</b>	<b>36,9</b>	
28	SPL(SAMSON Standard values)	LA	dB (A)	<b>61</b>	<b>59</b>	<b>46</b>	
29	Differential Pressure Ratio	xF x	-	0,47	0,47	0,47	
30	FL Value	FL	-	0,94	0,95	0,98	
31	xFmr/xT Value	xFmr xT	-	0,70	0,70	0,70	
32	Valve Style Factor	Fd	-	0,41	0,40	0,11	
33	xFz Value at Load	xFz	-	0,49	0,54	0,67	
34	Level Exponent	F1 G1	-	-8,54	-8,60	-8,55	
35	Slope Exponent	F2 G2	-	0,30	0,30	0,30	
36	Correction Term	DLf	dB	0,00	0,00	0,00	
37	<b>DESIGN</b>			77	<b>LINE</b>		
38	Shut-Off Pressure Min	1,01 bar(a)	Max 7 bar(a)	78	Size / Rating / Pipe Class		
39	t1max		Max 120 °C	79	In DN 300 / /		
40	Supply Pressure Min	bar(g)	Max bar(g)	80	Out DN 300 / /		
41	Pressure Min	bar(a)	Max 16 bar(g)	81	Pipe Inner Dia. / Wallthickness 307,9 mm / 8 mm		
42	Temperature Min	°C	Max 120 °C	82	Insu. none		
43	Ambient Temp. Min	°C	Max °C	83	<b>ACTUATOR</b>		
44	<b>VALVE BODY / BONNET</b>			84	Manufacturer / Type SAMSON / 2422		
45	Manufacturer / Type	SAMSON / 2422		85	Size cm <sup>2</sup>		
46	Style	Self-operated regulator flange Globe va		86	Fail Action		
47	Nominal Size	DN 300		87	Bench/Oper. Range / bar		
48	Rating	PN 16		88	Actuator Body Mat.		
49	Body Material	EN-GJL-250		89	Actuator Style		
50	Connection In/Out	flanges		90	Stroke Limit.		
51	Connection In/Out	B, DIN EN 1092		91	Membrane Material		
52	Bonnet Type			92	Handwheel		
53	Bellow Material			93	Set Point / -Range /		
54	Packing Material			94	<b>ACTUATOR RESULTS</b>		
55	Packing Type			95	Safety Factor	Open	Close
56	Body Gasket	-		96	Req. Act. Force	kN	
57	Flow Direction	FTO		97	Max. Act. Force	Fmax	kN
58	NACE	-		98	Max. dp	Dpmax	bar
59	<b>TRIM</b>			99	Min. Press. Act.	ps0req	bar
60	Valve Coefficient	Kvs 1250		100	Req. Dp	Dps	bar
61	Rated Travel	50 mm		101	Req. Dp	Dpst100-0	bar
62	Seat Bore	276 mm		102	Actuator Force	Fa	kN
63	Stem Ø	mm		103	Min. required Supply	bar(g)	
64	Characteristic	Modified linear		104	Max. allowable Supply	bar(g)	
65	Noise Reduction	-		105	<b>ATTENUATION PLATES</b>		
66	Balanced	Diaphragm		106	Type		
67	Plug Facing	EPDM soft seal		107	Size In / Out		
68	Plug Material	1.4301		108	Rating		
69	Stem Material			109	Plates Material		Qty.
70	Seat Facing	Metallic		110	<b>REMARKS</b>		
71	Seat Material	1.4301		111			
72	Cage Material			112			
73	Flow Divider Mat.			113			
74	Leakage Class	IV		114			
75	Rev.	Date	Description	Prpd.			
76	0	10.02.2025		nurzh			116

# SAMSON VALVE SPECIFICATION



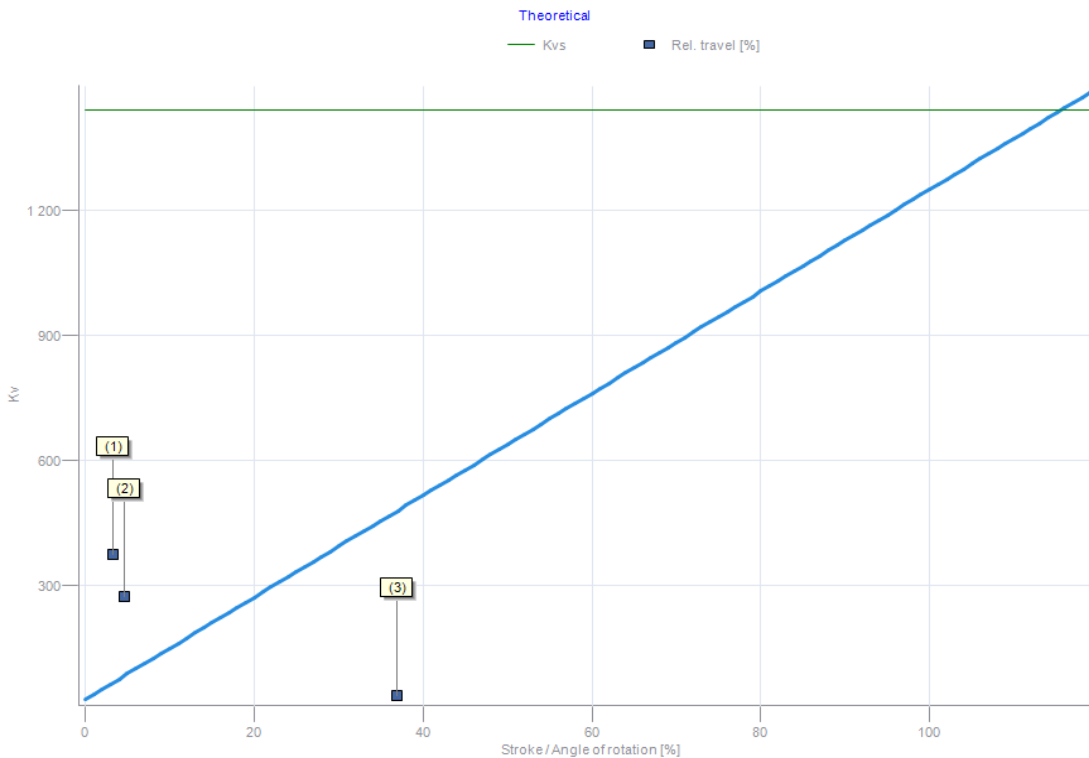
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2	Project No.					Item	5	Qty.	1	Status	
3	Unit					Quot. No.					
4	PID					Order No.					
5	Line No.					Revision	0				
6	<b>PROCESS DATA</b>										
7	Service					Medium	Water				
8	Phase	liquid				Medium Cust.					
9			<b>Unit</b>		<b>Case 1</b>	<b>Case 2</b>	<b>Case 3</b>				
10	Flow Rate	Q	m <sup>3</sup> /h		550	400	50				
11	Inlet Pressure	p1	bar(g)		4,3	4,3	4,3				
12	Outlet Pressure	p2	bar(g)		2,2	2,2	2,2				
13	Inlet Temperature	T1	°C		120	120	120				
14	Inlet Density	rho1	kg/m <sup>3</sup>		962	962	962				
15	Vapor Pressure	pv	bar(a)		0,846	0,846	0,846				
16	Critical Pressure	pc	bar(a)		221	221	221				
17	Ratio of Specific Heats	γ	-								
18	Compressibility	Z	-								
19	Inlet Viscosity	η	mPas		0,297	0,297	0,297				
20	Outlet Velocity	w	m/s		2,16	1,57	0,196				
21	Valve Coeff. Calculated	Kv	-		372	271	33,8				
22	Safety Factor	SF	1		3,36	4,62	36,9				
23	SPL(SAMSON Standard values)	LA	dB (A)		61	59	46				
24	<b>DESIGN</b>					77	<b>LINE</b>				
25	Shut-Off Pressure Min	1,01 bar(a)	Max	7 bar(a)	78	Size / Rating / Pipe Class					
26	t1max		Max	120 °C	79	In DN 300 / /					
27	Supply Pressure Min	bar(g)	Max	bar(g)	80	Out DN 300 / /					
28	Pressure Min	bar(a)	Max	16 bar(g)	81	Pipe Inner Dia. / Wallthickness 307,9 mm / 8 mm					
29	Temperature Min	°C	Max	120 °C	82	Insu. none					
30	Ambient Temp. Min	°C	Max	°C	83	<b>POSITIONER</b>					
31	<b>VALVE BODY / BONNET</b>					84	Manufacturer / Type /				
32	Manufacturer / Type	SAMSON / 2422			85	Device Type					
33	Style	Self-operated regulator flange			86	Quantity					
34	Nominal Size	DN 300			87	Material					
35	Rating	PN 16			88	Elec. / Pneu. Conn. /					
36	Body Material	EN-GJL-250			89	Input Sig. / Commu. /					
37	Connection In/Out	flanges			90	Ex Approval / Cert. /					
38	Connection In/Out	B, DIN EN 1092			91	<b>AIR SET</b>					
39	Bonnet Type				92	Manufacturer / Type /					
40	Bellow Material				93	Device Type					
41	Packing Material				94	Quantity					
42	Packing Type				95	Mat. / Pneu. Conn. /					
43	Body Gasket	-			96	Gauges / Filter /					
44	Flow Direction	FTO			97	<b>SOLENOID VALVE</b>					
45	NACE	-			98	Manufacturer / Type /					
46	<b>TRIM</b>					99	Device Type				
47	Valve Coefficient	Kvs 1250			100	Qty. / Switch. Func. /					
48	Rated Travel	50 mm			101	Material					
49	Seat Bore	276 mm			102	Elec. / Pneu. Conn. /					
50	Stem Ø	mm			103	Power Supply					
51	Characteristic	Modified linear			104	Ex Approval / Cert. /					
52	Noise Reduction	-			105	<b>LIMIT SWITCH</b>					
53	Balanced	Diaphragm			106	Manufacturer / Type /					
54	Plug Facing	EPDM soft seal			107	Device Type					
55	Plug Material	1.4301			108	Quantity					
56	Stem Material				109	Material					
57	Seat Facing	Metallic			110	Elec. Conn.					
58	Seat Material	1.4301			111	Ex Approval / Cert. /					
59	Cage Material				112	Contacts					
60	Flow Divider Mat.				113	Function					
61	Leakage Class	IV			114	<b>BOOSTER</b>					
62	<b>ACTUATOR</b>					115	Manufacturer / Type /				
63	Manufacturer / Type	SAMSON / 2422			116	Device Type					
64	Size	cm <sup>2</sup>			117	Quantity					
65	Fail Action				118	Mat. / Pneu. Conn. /					
66	Bench/Oper. Range	/ bar			119	<b>ATTENUATION PLATES</b>					
67	Actuator Body Mat.				120	Type					
68	Actuator Style				121	Size In / Out					
69	Stroke Limit.				122	Rating					
70	Membrane Material				123	Plates Material				Qty.	
71	Handwheel				124	<b>REMARKS</b>					
72	Set Point / -Range	/			125						
73						126					
74						127					
75	<b>Rev.</b>	<b>Date</b>	<b>Description</b>	<b>Prpd.</b>	<b>Chd.</b>	<b>App.</b>					
76	0	10.02.2025		nurzh							

# SAMSON CHARACTERISTIC SHEET



1	Customer		Tag No.	<b>35 - 550 m3/h;</b>		
2	Project No.		Item	5	Qty.	1
3	Unit		Quot. No.		Status	
4	PID		Order No.		Revision	0
5	Line No.				Date	10.02.2025

## CHARACTERISTIC



## PROCESS DATA

42	Service		Medium	Water		
43	Phase	liquid	Medium Cust.			
44			Unit	Case 1	Case 2	Case 3
45	Flow Rate	Q	m³/h	550	400	50
46	Inlet Pressure	p1	bar(g)	4,3	4,3	4,3
47	Outlet Pressure	p2	bar(g)	2,2	2,2	2,2
48	Inlet Temperature	T1	°C	120	120	120
49	Inlet Density	rho1	kg/m³	962	962	962
50	Vapor Pressure	pv	bar(a)	0,846	0,846	0,846
51	Critical Pressure	pc	bar(a)	221	221	221
52	Ratio of Specific Heats	γ	-			
53	Compressibility	Z	-			
54	Inlet Viscosity	η	mPas	0,297	0,297	0,297
55	Outlet Vapor Content	xd2	%			
56	Outlet Vapor Density	ρv2	m³/kg			
57	Flow Conditions	-	-			

## RESULTS AND FACTORS

59	Min Required Size	d	mm	255	217	76,8
60	Outlet Velocity	w	m/s	2,16	1,57	0,196
61	Valve Coeff. Calculated	Kv	-	372	271	33,8
62	Safety Factor	SF	1	<b>3,36</b>	<b>4,62</b>	<b>36,9</b>

## VALVE BODY / BONNET

64	Manufacturer / Type	SAMSON / 2422				
65	Style	Self-operated regulator flange Globe valve				
66	Nominal Size	DN 300				
67	Rating	PN 16				
68	Bonnet Type					

## TRIM

70	Valve Coefficient	Kvs 1250				
71	Rated Travel	50 mm				
72	Characteristic	Modified linear				
73	Noise Reduction	-				

75	Rev.	Date	Description	Prpd.	Chd.	App.
76	0	10.02.2025		nurzh		