

<div>LESER</div> <div>The-Safety-Valve.com</div>	Sizing acc. to API 520 for Gas VALVESTAR® – v.7.3.1.60920	Page:	1 of 6
		Date:	2018-06-21 16:19:09
		Project:	NFRI18 #1 Project_R.1
		Tag No:	300PSV989
		LESER Job №	

Project: NFRI18_#1 Project_R.1	
Client	NFRI
Project site	Deajeon

Sizing - Medium				
1000	Designation	Helium		
1004	Formula	He		
1001	Molar mass	M	4	kg/kmol
1002	Ratio of specific heats	k	5.400	
1003	Compressibility factor	Z	1.000	

Sizing - Service condition				
1100	Maximum allowable working pressure			
1101	Set pressure	p	9	bar-g
1102	Constant superimposed back pressure	paf		
2102	Variable superimposed back pressure			
1103	Built up back pressure	pae		
1104	Backpressure			
1105	Overpressure	dp	10.00	%
1106	Environmental pressure	pu	1.013	bar
1107	Relieving Temperature	T	-263	°C
1111	Operating Temperature		-263	°C
1108	Required massflow	qm,ab	5,643	kg/h
1109	Volume flow to be discharged (working condition)	qvb,ab	109.091	m³/h
1110	Volume flow to be discharged (std condition) [T=60 °F P=14.7 psi]	qvn,ab	19,662.605	SCFM
1120	Rupture disc correction factor	Kc	1.000	

Sizing - Calculation				
1200	Certified massflow	qm,zu	7,842.154	kg/h
1201	Certified volume flow (operating condition)	qvb,zu	151.605	m³/h
1203	Certified volume flow (standard condition)	qvn,zu	46,432.267	m³/h
1204	Maximum mass flow	qm,max	8,713.504	kg/h
1205	Maximum volume flow (working condition)	qvb,max	168.45	m³/h
1206	Maximum volume flow (standard condition)	qvn,max	51,591.408	m³/h
1207	Capacity exceed		38.97	%

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Valve - General			
1500	Article number		4414.5682
1512	Reseller article number		
1513	Quantity of safety valve		1
1501	Certified coefficient of discharge for steam and gases	K,DG	0.699
1502	Certified coefficient of discharge for liquid	K,F	0.521
1453	Orifice		F
1505	Bonnet / Lifting device		Cap H2
1506	Body-/ Inlet base material		1.4408 / SA 351 CF8M
1511	Bonnet		Closed Bonnet
1514	Order code	4414.5682-9 bar_g- H65H79J49J85H03M86N68H01L23L59- 3.1	

Inlet connection		
1303	Connection standard	acc. to ASME B16.5
1304	DN / NPS	1"
1305	PN / PR	#300
1306	Flange facing	RF

Outlet connection		
1353	Connection standard	acc. to ASME B16.5
1354	DN / NPS	2"
1355	PN / PR	#150
1356	Flange facing	RF

Valve - Dimensions				
1400	Discharge area	Ao	415.476	mm <sup>2</sup>
1401	Discharge diameter	do	23	mm
1402	Centre to Face dimensions	a	109	mm
1403	Centre to Face dimensions	b	114	mm
1405	Height	H	339	mm
1406	Weight	M	13	kg
1411	Inlet flange thickness incl. raised face	S1	24	mm

Lift				
1507	Standard		5.6	mm

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1206	Maximum volume flow (standard condition)	qvn,max	51,591.408	m³/h
1207	Capacity exceed		38.97	%
1600	Required actual discharge area	Ao, req	298.965	mm²
1601	Required discharge diameter	do,req	19.51	mm
1617	Back pressure correction factor	Kb	1.000	
1618	Cold differential test pressure	CDTP	9	bar-g
1620	Cold differential test pressure, manually	CDTP		

Valve - Accessories	
J49	Disc: with sealing plate material VESPEL-SP1
J85	Version: oil- and grease-free acc. to LWN 325.03,

Valve - Inspections	
H03	LESER CGA: Inspection certificate 3.1 acc. to DIN EN 10204, Declaration of conformity acc. to PED 97/23/EC
M86	Seat tightness test with helium, leakage detection in vacuum - Inspection certificate 3.1 included
N68	UV Stamp

Valve - Material certificates	
H01	Material test certificate for body acc. to DIN EN 10204-3.1
L23	Material test certificate for disc acc. to DIN EN 10204-3.1
L59	Inspection certificate seat/nozzle: EN 10204-3.1.B

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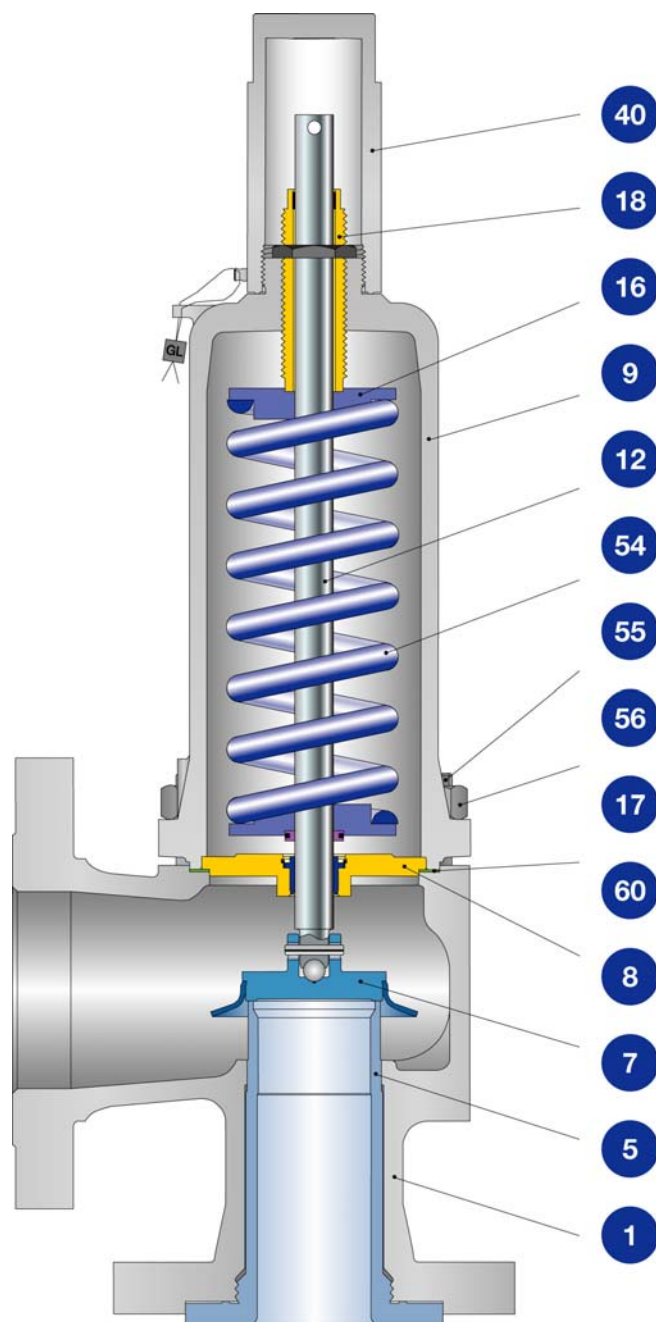
Valve - Part list					
	PosNo	Denomination	Q	Material ASME	Material DIN
12010	1	Body	1	SA 351 CF8M	1.4408
12050	5	Seat	1	316L	1.4404
12070	7	Soft seal disc, with sealing plate	1	316L / SP	1.4404 / SP
12080	8	Guide	1	316L	1.4404
12090	9	Bonnet	1	SA 351 CF8M	1.4408
12120	12	Spindle	1	316L	1.4404
12140	14	Split ring	2	316L	1.4404
12160	16	Spring plate	1	316L	1.4404
12170	17	Spring plate	1	316L	1.4404
12180	18	Adjusting screw	1	316L	1.4404
12190	19	Lock nut	1	316L	1.4404
12400	40	Cap H2	1	316L	1.4404
12540	54	Spring	1	Stainless steel	1.4310
12550	55	Bolt	4	B8M	1.4401
12560	56	Nut	4	2H	1.0501
12570	57	Pin	1	Stainless steel	1.4310
12600	60	Gasket	1	Graphite/1.4401	Reingraphit + 1.4401
12610	61	Ball washer	1	Hardened Stainless steel/316	1.3541/1.4401
12870	87	Plug	1	B8M	1.4401
12880	88	Spacer	1	316Ti	1.4571

LESER is free to upgrade materials without further notice.

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## Drawing

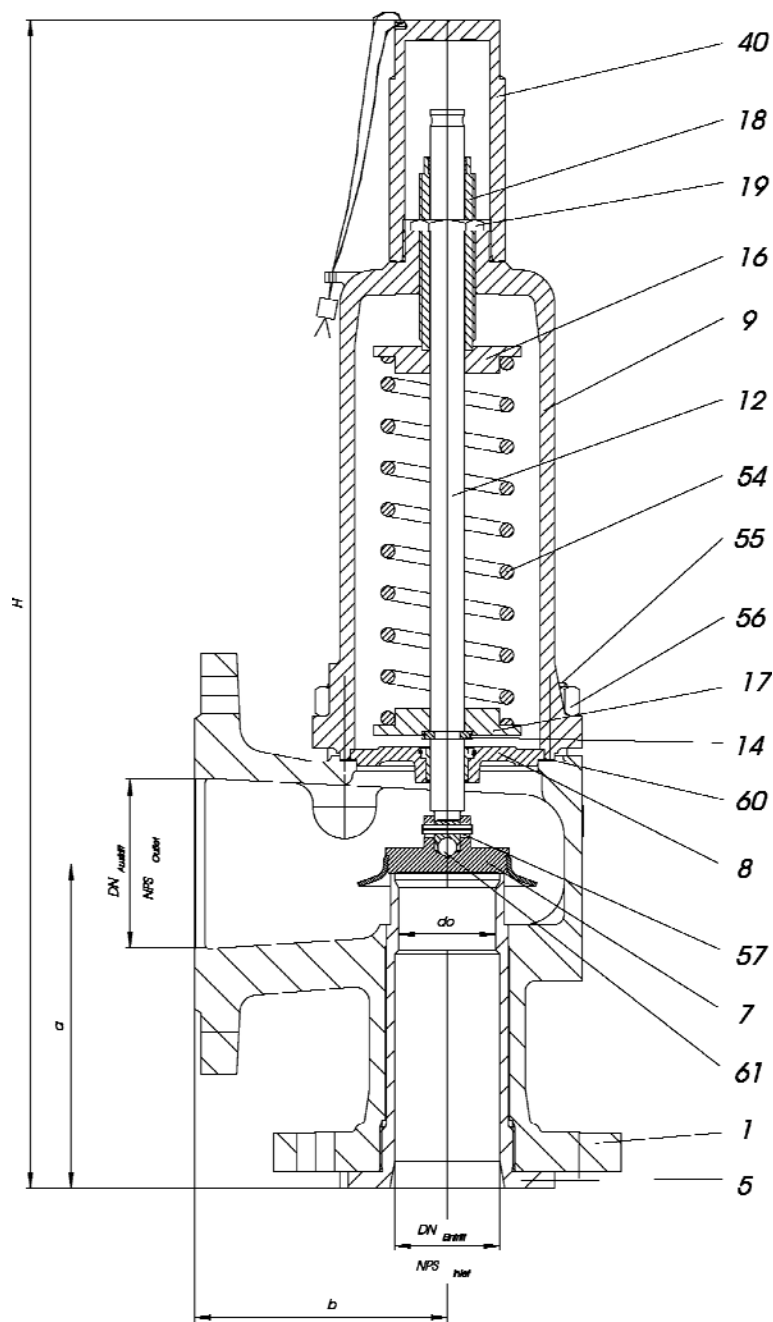


Drawing is a view; the effective geometry could deviate from this view.

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