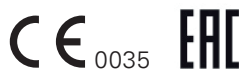


→ Series 451bG

451bG

Safety valves made of stainless steel, angle-type with threaded connections



■ MATERIAL



■ SPECIFICATION



1/2" – 2"



– 60°C to + 400°C
depending on version



0,5 – 70 bar

■ SUITABLE FOR

Air, gases and vapours	neutral and non-neutral	
Steam		
Solar heating systems		

■ EXAMPLES OF USE

For the protection of:

- pressure tanks/-systems for neutral / non-neutral vapours and gases
- boilers
- closed-circuit solar systems with temperatures > 120°C and for all static heights.
- district heating systems with temperatures >120°C
- district heating systems primary side
- solar plants in building and industrial technology
- steam- and industrial boiler plants

Safety valves are set and sealed at the factory.

■ APPROVALS

TÜV Type test approval 666	D/G
EU type examination	S/G
TR ZU 032/2013 - TR ZU 010/2011	D/G (S/G)
Requirements	
AD 2000 Data sheet A2	DIN EN 12976
TRD 421	DIN EN 12977
AGFW 505	DIN EN ISO 4126-1
DIN 4747 Part 1	PED 2014/68/EU
DIN 4757 Part 1 and Part 2	
Classification society	
DNV	DNV
Lloyd's Register EMEA	LR EMEA
American Bureau of Shipping	ABS
Bureau Veritas	BV
Russian Maritime Register of Shipping	RS

■ MATERIALS

Component	Material	DIN EN	ASME
Inlet body	Stainless steel	1.4404	316 L
Outlet body	Stainless steel	1.4408	CF8M
Internal parts	Stainless steel	1.4404	316 L
Spring	Stainless steel	1.4310	302
Bellows	Stainless steel	1.4571	316 Ti

b	with bellows	for neutral and non-neutral media and/or counter pressure up to 4 bar. Spring, moving parts and the environment are protected from being affected by the medium.
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■ MEDIUM

G	gaseous	Air, vapours, gases and steam
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■ TYPE OF LIFTING MECHANISM

K	Standard with twist-type lifting mechanism	
L	Lifting lever	

■ AVAILABLE NOMINAL DIAMETERS AND CONNECTION SIZES

Nominal diameter DN		15	20	25	32	
Inlet		1/2" (15)	3/4" (20)	1" (25)	1 1/4" (32)	1 1/2" (40) 2" (50)
Outlet	1/2" (15)					
	3/4" (20)					
	1" (25)	■				
	1 1/4" (32)		■			
	1 1/2" (40)			■		
	2" (50)				■	■

■ TYPE OF CONNECTION INLET / OUTLET THREADED CONNECTIONS

f / f	Standard	Female thread BSP-P / Female thread BSP-P	DIN EN ISO 228-1 / DIN EN ISO 228-1
m / f	On request	Male thread BSP-P / Female thread BSP-P	DIN EN ISO 228-1 / DIN EN ISO 228-1
Against surcharge			
BSP-Tm / f		Male thread BSP-T / Female thread BSP-P	DIN EN 10226, ISO 7-1 / DIN EN ISO 228-1
Further connection types available on request.			

■ SEALS

EPDM	Ethylene propylene diene	Elastomere moulded seal with metallic support up to 25 bar	−40°C to +170°C
PTFE	Polytetrafluoroethylene	Flat seal up to 25 bar	−60°C to +225°C
PTFE+Kohle	Polytetrafluoroethylene + carbon	Flat seal from 25 bar	−60°C to +225°C
Against surcharge			
FFKM	Perfluorinated rubber	Elastomere moulded seal with metallic support up to 25 bar	−10°C to +260°C
MD	Metal-to-metal sealing	Flat seal	−60°C to +400°C

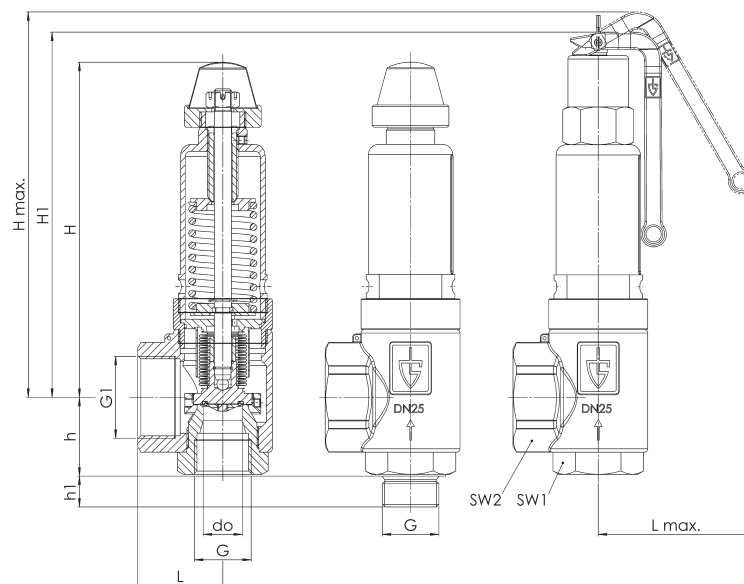
■ OPTIONS

Special versions on request.

■ NOMINAL DIAMETERS, CONNECTIONS, INSTALLATION DIMENSIONS

Series 451bG: Connection, installation dimensions, ranges of adjustment								
Nominal diameter	DN	15	20	25	32			
Connection DIN EN ISO 228	G	1/2" (15)	3/4" (20)	1" (25)	1 1/4" (32)	1 1/2" (40)	2" (50)	
Outlet DIN EN ISO 228	G1	1" (25)	1" (25)	1 1/4" (32)	1 1/2" (40)	2" (50)	2" (50)	2" (50)
Installation dimensions in mm	L	40	40	43	50	61	61	61
	Lmax	65	65	91	92	92	92	92
	H	77	131	152	196	263	263	263
	H1	91	149	174	210	286	286	286
	Hmax	103	164	184	225	299	299	299
	h	30	30	39	45	55	69	74
	h1	15	15	16	18	20	23	25
	SW1	30	30	36	46	55	55	70
	SW2	40	40	50	58	70	70	70
	do	15,8	15,8	18	23	30,3	30,3	30,3
Weight	kg	0,4	0,8	1,0	1,8	4,0	4,0	4,0
Range of adjustment	bar	1-25	25,1-70	0,5-70	0,5-70	0,5-70	0,5-70	0,5-70

■ MAIN DIMENSIONS, INSTALLATION DIMENSIONS



■ INDIVIDUAL SELECTION / VALVE CONFIGURATION

Series	Valve version	Medium	Lifting device	Nominal diameter DN	Connection type		Connection size		Seal	Options	Set pressure	Quantity
					Inlet	Outlet	Inlet	Outlet				
451	b	G	L	25	f	f	25	40	PTFE		16,0	5
451	b	G	K	32	m	f	40	50	MD		8,5	3
451	b	G										
451	b	G										

Series 451bG: Blowing-off rates at 10% above set pressure									
Nominal diameter DN		15		20		25		32	
Set pressure bar		I	II	I	II	I	II	I	II
Air I Nm³/h	0,5	56**	42**	127	96	199	150	353	266
	1	87	70	189	151	291	232	515	411
	1,5	113	90	252	200	390	309	683	542
Steam II kg/h	2	141	111	316	249	489	385	832	656
	2,5	165	129	383	300	583	457	1012	793
	3	189	148	447	349	681	532	1182	924
	3,5	214	166	504	392	768	597	1333	1036
	4	238	184	561	435	855	663	1484	1151
	4,5	262	203	618	478	942	729	1635	1265
	5	286	221	675	521	1029	794	1786	1378
	5,5	310	239	732	564	1116	860	1937	1492
	6	335	257	790	608	1203	926	2088	1607
	6,5	359	275	847	650	1290	990	2239	1719
	7	383	293	904	692	1377	1054	2390	1830
	7,5	407	311	961	735	1464	1119	2542	1943
	8	431	329	1018	777	1552	1184	2693	2056
	8,5	456	347	1075	820	1639	1249	2844	2168
	9	480	365	1132	862	1726	1314	2995	2281
	9,5	504	383	1190	905	1813	1379	3146	2392
	10	528	401	1247	947	1900	1443	3297	2504
	11	577	437	1361	1031	2074	1571	3599	2727
	12	625	472	1475	1115	2248	1699	3902	2948
	13	674	508	1590	1199	2422	1827	4204	3172
	14	722	544	1704	1284	2596	1957	4506	3396
	15	770	580	1818	1368	2771	2085	4808	3618
	16	819	616	1932	1453	2945	2214	5111	3842
	17	867	650	2047	1535	3119	2339	5413	4059
	18	916	686	2161	1619	3293	2467	5715	4281
	19	964	721	2275	1703	3467	2594	6017	4503
	20	1013	757	2390	1787	3641	2723	6320	4726
	21	1061	793	2504	1872	3816	2852	6622	4950
	22	1109	829	2618	1956	3990	2981	6924	5173
	23	1158	865	2732	2040	4164	3109	7226	5396
	24	1206	900	2847	2125	4338	3238	7529	5619
	25	1255	936	2961	2209	4512	3366	7831	5842
	26	1303	972*	3075	2294*	4686	3496*	8133	6067*
	27	1352	1008*	3190	2379*	4860	3626*	8435	6293*
	28	1400	1044*	3304	2465*	5035	3756*	8738	6518*
	29	1449	1081*	3418	2550*	5209	3886*	9040	6744*
	30	1497	1114*	3532	2628*	5383	4005*	9342	6951*
	32	1594	1186*	3761	2799*	5731	4265*	9947	7401*
	34	1691	1258*	3990	2969*	6080	4524*	10551	7851*
	36	1788	1330*	4218	3139*	6428	4783*	11156	8301*
	38	1884	1402*	4447	3309*	6776	5042*	11760	8751*
	40	1981	1474*	4675	3479*	7124	5301*	12365	9200*
	42	2078	1547*	4904	3650*	7473	5562*	12969	9653*
	44	2175	1619*	5132	3821*	7821	5823*	13574	10105*
	46	2272	1692*	5361	3992*	8169	6083*	14178	10558*
	48	2369	1764*	5589	4163*	8518	6344*	14783	11011*
	50	2466	1837*	5818	4335*	8866	6606*	15387	11464*
	52	2562	1910*	6047	4506*	9214	6867*	15992	11917*
	54	2659	1984*	6275	4681*	9563	7134*	16596	12380*
	56	2756	2061*	6504	4868*	9911	7412*	17200	12864*
	58	2853	2136*	6732	5040*	10259	7681*	17805	13330*
	60	2950	2209*	6961	5213*	10608	7943*	18409	13786*
	62	3047	2282*	7189	5385*	10956	8206*	19014	14242*
	64	3144	2355*	7418	5558*	11304	8469*	19618	14699*
	66	3240	2428*	7647	5730*	11652	8732*	20223	15155*
	68	3337	2502*	7875	5905*	12001	8998*	20827	15616*
	70	3434	2578*	8104	6082*	12349	9269*	21432	16086*

*) only possible with metal-to-metal sealing
 **) Version with bellows only available from 1 bar