

Relief / overflow valve, angle type Article 151-V4A

diameter G 3/8" up to G 2"

Relief / overflow valve with proportional opening and closing characteristic are used for example in pumping circuits and pipeline systems, in which a constant pressure condition must be ensured.

The relief valves serve as protection of:

- pumps against overloading in closed circuits for neutral / non-neutral, non-sticky liquids

For regulation in:

- pressure systems for neutral / not neutral gases and steams
- depending on the sealing- also for water vapour

The medium can circulate in the bypass line of a pump or pipeline. The preset overflow valves can be adjusted within the spring range.

Connections:

inlet: external thread BSP DIN EN ISO 228-1 / ASME B1.20.1

outlet: female thread BSP DIN EN ISO 228-1 / ASME B1.20.1

The appropriate valve design and sealing must be used according to the application.



	ambient -10°C ... +80°C
	medium -10°C ... +280°C (depends on the sealing)

Approvals:

pressure equipment directive:
DGR 2014/68/EU
declaration of conformity



possible versions of valves heads



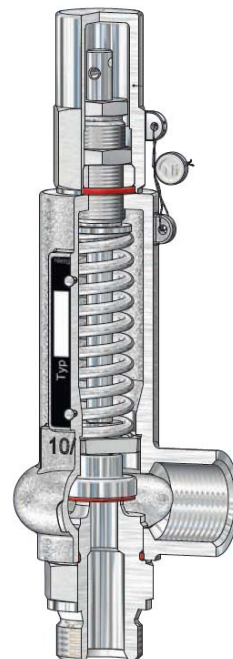
lifting lever
head A



gastight cap
head C



hand wheel
head F

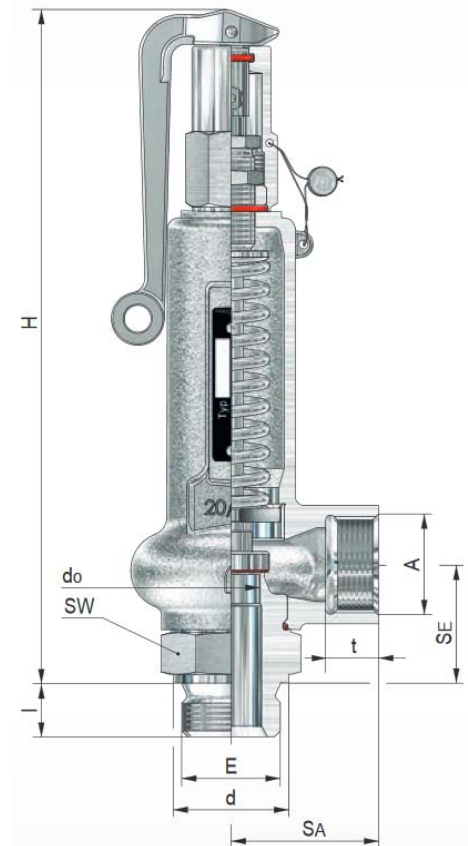


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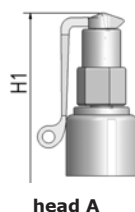
description	material
inlet body	stainless steel 1.4571
outlet body/bonnet	stainless steel 1.4581
spring	stainless steel 1.4310, 1.4581
disc	stainless steel 1.4571
disc sealing (optionally)	metal sealing; EPDM; FPM; NBR; PTFE

	article number:		
diameter	head A lifting lever	head F hand wheel	head C cap
G 3/8"	33.1621.6.62-I	33.1660.6.62-I	33.1622.6.62-I
G 1/2"	33.1621.6.63-I	33.1660.6.63-I	33.1622.6.63-I
G 3/4"	33.1621.6.65-I	33.1660.6.65-I	33.1622.6.65-I



size BG	inlet				outlet			dimensions				set pressure		weight (kg)
	E	SE (mm)	d (mm)	l (mm)	A	SA (mm)	t (mm)	H1 (mm)	H3 (mm)	SW (mm)	do (mm)	p min	p max	
I	3/8"	34	22	12	1/2" oder 3/4"	40	14 oder 17	200	185	32	10	0,15	160	1,0
											8	0,20	200	
											12,5	0,12	155	1,0
	1/2"	34	26	14		40		200	185	32	10	0,15	160	
											8	0,20	200	
											16	0,07	70	
	3/4"	34	32	16		40		200	185	32	12,5	0,12	155	1,0
											10	0,15	160	
											8	0,20	200	

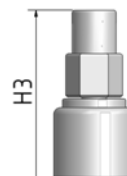
set pressure adjustable within the
respective spring range



head A



head F



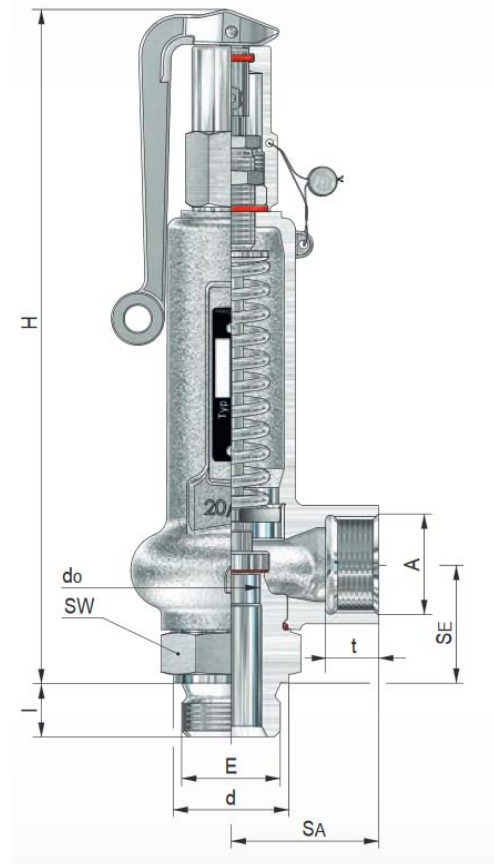
head C

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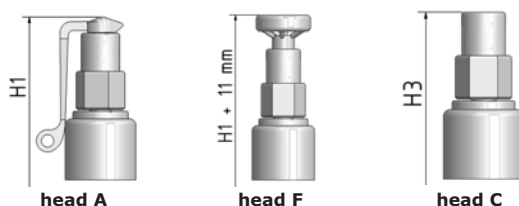
diameter G 3/8" up to G 2"

description	material
inlet body	stainless steel 1.4571
outlet body/bonnet	stainless steel 1.4581
spring	stainless steel 1.4310, 1.4581
disc	stainless steel 1.4571
disc sealing (optionally)	metal sealing; EPDM; FPM; NBR; PTFE

article number:			
diameter	head A lifting lever	head F hand wheel	head C cap
G 1/2"	33.1621.6.63-II	33.1660.6.63-II	33.1622.6.63-II
G 3/4"	33.1621.6.65-II	33.1660.6.65-II	33.1622.6.65-II
G 1"	33.1621.6.67-II	33.1660.6.67-II	33.1622.6.67-II
G 1 1/4"	33.1621.6.68-II	33.1660.6.68-II	33.1622.6.68-II
G 1 1/2"	33.1621.6.69-II	33.1660.6.69-II	33.1622.6.69-II
G 2"	33.1621.6.71-II	33.1660.6.71-II	33.1622.6.71-II



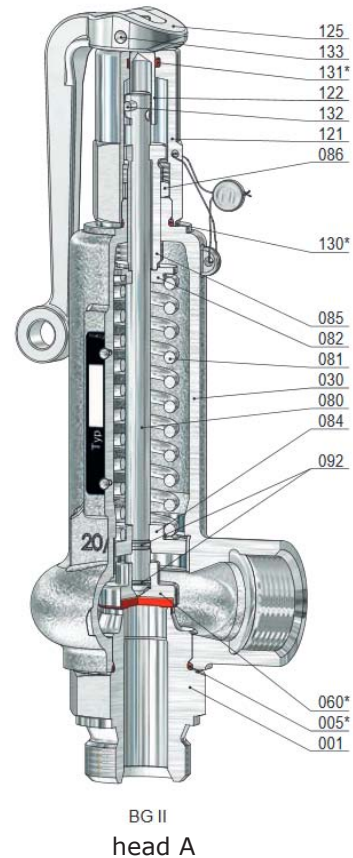
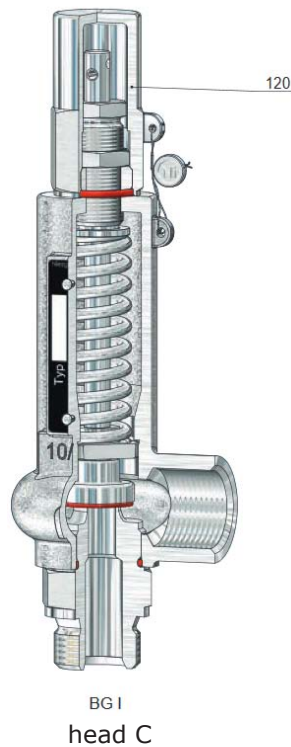
size BG	inlet				outlet			dimensions				set pressure		weight (kg)
	E	SE (mm)	d (mm)	l (mm)	A	SA (mm)	t (mm)	H1 (mm)	H3 (mm)	SW (mm)	do (mm)	p min	p max	
II	1/2"	40	26	14	1"	50	18	230	215	41	12,5	0,18	190	1,6
											8	0,30	200	
	3/4"	40	32	16	1"	50	18	230	215	41	16	0,10	130	1,6
											12,5	0,18	190	
	1"	40	39	18	1"	50	18	230	215	41	8	0,30	200	1,6
											20	0,10	100	
	1 1/4"	40	49	20	1"	50	18	230	215	50	16	0,10	130	1,8
											12,5	0,18	190	
	1 1/2"	40	55	20	1"	50	18	230	215	55	8	0,30	200	1,8
											22	0,07	75	
	2"	40	60	20	1"	50	18	230	215	60	20	0,10	100	1,8
											16	0,10	130	
	2"	40	60	20	1"	50	18	230	215	60	27	0,05	45	1,8
											27	0,05	45	



set pressure adjustable within the
respective spring range

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diameter G 3/8" up to G 2"



Pos.	piece	description	Pos.	piece	description
001	1	inlet body	120	1	cap
005*	1	o-ring	121	1	lifting cap
030	1	spring bonnet	122	1	coupling
060*	1	disc, complete	125	1	lifting lever
560	1	disc	130*	1	o-ring
062	1	disc sealing	131*	1	o-ring
080	1	spindle	132	1	groove pin
081	1	spring	133	1	groove pin
082	1	springplate, upper			
084	1	springplate, lower			
085	1	adjusting screw			
086	1	lock nut			
092	2	lock ring			

* expendable parts

Relief / overflow valve, angle type

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diameter G 3/8" up to G 2"

Discharge capacities										
Water at 20°C (kg/h)										
	Size I				Size II					
inlet	3/8", 1/2", 3/4"	3/8"	1/2", 3/4"	3/4"	1/2", 3/4", 1"	1/2", 3/4", 1"	3/4", 1", 1 1/4"	1", 1 1/4"	1 1/4"	1 1/2", 2"
d _o [mm]	8	10	12,5	16	8	12,5	16	20	22	27
α d, max	0,05									
pe [bar(g)]										
0,05								145	216	325
0,1		63	99	161		99	161	204	305	460
0,4		126	197	323		197	323	409	611	921
0,5		141	220	361		220	361	457	683	1030
1,0		200	312	511		312	511	647	966	1450
1,5		244	382	626		382	626	792	1180	1780
2		282	441	723		441	723	915	1370	2060
3		346	540	885		540	885	1120	1670	2520
4		399	624	1020		624	1020	1290	1930	2910
6		489	764	1250		764	1250	1580	2370	3560
8		565	882	1440		882	1440	1830	2730	4120
10		631	987	1610		987	1610	2040	3050	4600
15		773	1210	1980		1210	1980	2500	3740	5640
20		893	1390	2280		1390	2280	2890	4320	6510
25		998	1560	2550		1560	2550	3230	4830	7280
30		1090	1710	2800		1710	2800	3540	5290	7970
35		1180	1840	3020		1840	3020	3830	5720	8610
40		1260	1970	3230		1970	3230	4090	6110	9210
45		1340	2090	3430		2090	3430	4340	6480	9770
50	904	1410	2200	3610	904	2200	3610	4570	6830	
60	990	1550	2420		990	2420	3960	5010	7490	
70	1070	1670	2610		1070	2610	4280	5410		
80	1140	1780	2790		1140	2790	4570			
90	1210	1890	2960		1210	2960	4850			
100	1280	2000	3120		1280	3120				
110	1340	2090	3270		1340	3270				
120	1400	2190			1400	3420				
130	1460	2280			1460	3560				
140	1510	2360			1510	3690				
150	1560	2440			1560					
160	1610				1610					
170	1660				1660					
180	1710				1710					
190	1760				1760					
200	1810				1810					

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diameter G 3/8" up to G 2"

Discharge capacities										
saturated steam (kg/h)										
	Size I				Size II					
inlet	3/8", 1/2", 3/4"	3/8"	1/2", 3/4"	3/4"	1/2", 3/4", 1"	1/2", 3/4", 1"	3/4", 1", 1 1/4"	1", 1 1/4"	1 1/4"	1 1/2", 2"
d ₀ [mm]	8	10	12,5	16	8	12,5	16	20	22	27
α d, max	0,08									
p _e [bar(g)]										
0,4		3,3	5,2	8,4		5,2	8,3	10,2	16,0	24,1
0,6		4,1	6,6	10,6		6,5	10,4	12,7	20,1	30,3
0,8		4,9	7,7	12,5		7,7	12,3	14,9	23,7	35,7
1		5,6	8,9	14,4		8,8	14,1	17,1	27,3	41,1
2		9,4	14,5	24,1		14,4	23,7	29,3	45,6	68,7
3		13,3	20,7	34,0		20,7	34,0	43,0	64,3	96,8
4		16,5	25,7	42,2		25,7	42,2	53,4	79,8	120
5		19,7	30,7	50,3		30,7	50,3	63,7	95,2	143
6		22,8	35,7	58,5		35,7	58,5	74,0	110	166
7		26,0	40,6	66,6		40,6	66,6	84,3	126	189
8		29,2	45,6	74,7		45,6	74,7	94,5	141	212
9		32,3	50,5	82,7		50,5	82,7	105	156	235
10		35,4	55,4	90,8		55,4	90,8	115	171	258
15		51,1	79,9	131		79,9	131	166	247	373
20		66,8	104	171		104	171	216	323	487
25		82,5	129	211		129	211	267	399	601
30		98,2	153	251		153	251	318	475	716
35		114	178	292		178	292	369	551	831
40		130	203	332		203	332	420	628	946
45		146	228	373		228	373	472	705	1060
50	103	162	253	414	103	253	414	524	783	
60	124	194	303		124	303	497	630	940	
70	147	229	358		147	358	587	743		
80	167	261	408		167	408	668			
90	189	295	462		189	462	756			
100	212	331	517		212	517				
110	235	367	573		235	573				
120	259	404			259	632				
130	284	443			284	693				
140	309	484			309	756				
150	337	527			337	824				
160	367				367	896				
170	399				399	974				
180	434				434					
190	472				472					
200	517				517					

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Discharge capacities										
air at 0°C (m _n ³ /h)										
	Size I				Size II					
inlet	3/8", 1/2", 3/4"	3/8"	1/2", 3/4"	3/4"	1/2", 3/4", 1"	1/2", 3/4", 1"	3/4", 1", 1 1/4"	1", 1 1/4"	1 1/4"	1 1/2", 2"
d _o [mm]	8	10	12,5	16	8	12,5	16	20	22	27
α d, max	0,08									
p _e [bar(g)]										
0,05								4,0	6,1	9,2
0,1		1,8	2,9	4,6		2,9	4,6	5,8	8,8	13,3
0,4		4,0	6,3	10,2		6,3	10,1	12,3	19,4	29,2
0,5		4,6	7,3	11,7		7,2	11,6	14,1	22,2	33,4
1,0		7,1	11,2	18,3		11,1	17,9	21,7	34,6	52,1
1,5		9,6	14,9	24,6		14,8	24,1	29,4	46,5	70,0
2		12,1	18,6	31,0		18,5	30,4	37,6	58,5	88,2
3		17,2	26,9	44,0		26,9	44,0	55,7	83,2	125
4		21,5	33,6	55,0		33,6	55,0	69,6	104	156
6		30,1	47,0	77,0		47,0	77,0	97,4	145	219
8		38,7	60,4	99,0		60,4	99,0	125	187	282
10		47,3	73,9	121		73,9	121	153	229	344
15		68,8	107	176		107	176	223	333	502
20		90,4	141	231		141	231	293	437	659
25		112	175	287		175	287	363	542	817
30		134	209	342		209	342	433	647	975
35		155	243	398		243	398	503	752	1130
40		177	277	453		277	453	574	857	1290
45		199	311	509		311	509	644	963	1450
50	141	221	345	565	141	345	565	715	1070	
60	169	264	413		169	413	676	856	1280	
70	197	308	81		197	481	788	997		
80	225	351	549		225	549	899			
90	252	395	617		252	617	1010			
100	280	438	684		280	684				
110	308	481	752		308	752				
120	335	524			335	819				
130	362	566			362	885				
140	390	609			390	951				
150	416	651			416	1020				
160	443				443	1080				
170	470				470	1140				
180	496				496					
190	522				522					
200	547				547					

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Table of soft sealings

BSA - short sign	ISO - short sign	ASTM - short sign	material - type	Range of pressure boundary		Range of application
				flat sealing	o-ring	
Elastomers						
EPDM ¹⁾	EPDM	EPDM	APTK® Ethylene-propylene-Diene-Kautschuk	≤ 16 bar -40°C to +120°C	< 120 bar -40°C to +140°C	Good resistance against a lot of chemicals, hot water, steam, alkaline solution, acids, alcohol. Average mechanical characteristics. Ozone resistant, not oil resistant.
FPM ¹⁾	FPM	FKM	Viton® Fluor-Kautschuk	≤ 25 bar -20°C to +200°C	< 200 bar -20° C to +200° C	Good resistance against a lot of chemicals, mineral oil, hot air, acid. Average to good mechanical characteristics.
NBR ¹⁾	NBR	NBR	Acrylnitrile-Butadiene-Kautschuk	-	-20° C to +120° C	Good mechanical properties and higher abrasion resistance compared to other elastomers.
Thermoplasts						
PTFE ¹⁾	PTFE	PTFE	Teflon® Polytetrafluorethylene	≤ 15/25 bar -200°C to +260°C		Good resistance against chemicals, acid, alkaline solution, solvent, oil. Good thermal and average mechanical characteristics.

¹⁾ standard soft sealing