

# Pressure Control Valves

## Safety Valves SV 4, 40

Normal and Proportional Valve



### Technical Data

Connection DN	15 - 150
Nominal Pressure PN	16 - 40
Set Pressure	0.5 - 40 bar
Temperature	200 °C
Medium	liquids, gases, steam

### Description

Safety valves are the ultimate protection device for tanks and pipelines. They prevent pressure limits being exceeded once all automatic control and monitoring equipment has failed.

SV and SV 40 are spring-loaded normal and proportional safety valves with tested components and provided with flanged connection. SV 4 features a closed spring cap, SV 40 is provided with an open spring cap for better cooling of the spring.

Normal safety valves initially open proportionally up to a pressure rise of 10 %. This initial phase is followed by the full opening of the valve, allowing a large flow of medium.

Especially in the case of liquids, the wide proportional range results in a continuous operation.

Pressure rise:

above 1 bar set pressure: .....10 % up to required valve lift;  
below 1 bar set pressure: .....0.1 bar.

Proportional safety valves open almost continuously as the pressure rises. They produce the valve lift required for draining the volume within a maximum pressure rise of 10 %. They are used where only small volumes are expected to be drained (e.g. thermal expansion) and where the loss of medium is to be minimised.

Pressure rise:

above 1 bar set pressure:.....10 % up to required valve lift;  
below 1 bar set pressure:.....0.1 bar.

### Options

» special version up to 300 °C

Operating instructions, know how and safety instructions must be observed. All the pressure has always been indicated as overpressure. We reserve the right to alter technical specifications without notice.



**Flow Rate see Sheet no. SV 4/2.1.121.2**

### Available Versions

H2	without lifting device, gastight cap
H3	with lifting device, not gastight
H4	with lifting device, gastight cap

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Materials		
1	Body	GG-25 / GGG-40 / GS-C 25
5	Seat	1.4571 / 1.4404
7	Cone	1.4122
8	Guide	1.4104 / 1.0501 / 0.7040
9	Bonnet	0.7040 (0.7043 / 1.0619)
12	Spindle	1.4021
16	Spring Plate	1.0718 / 1.4404
18	Adjusting Screw	1.4104 with PTFE-bush
54	Spring	up to 200 °C 1.1200 / 1.7102 / 1.8159 / 1.4310 from 200 °C 1.7102 / 1.8159 / 1.4310

Materials Stainless Steel Design		
1	Body	1.4408
5	Seat	1.4571 / 1.4404
7	Cone	1.4404
8	Guide	1.4404
9	Bonnet	1.4408
12	Spindle	1.4404
16	Spring Plate	1.4404
18	Adjusting Screw	1.4404 with PTFE-bush
54	Spring	up to 200 °C 1.4310 from 200 °C 1.4310

Dimensions [mm]												
DN inlet	15	20	25	32	40	50	65	80	100	125	150	
DN outlet	15	20	25	32	40	50	65	80	100	125	150	
do	12	18	18	18	23	29	37	46	60	74	92	
A <sub>1</sub>	90	95	100	105	115	125	145	155	175	200	225	
B <sub>1</sub>	90	95	100	105	115	125	145	155	175	200	225	
C (H2)*	218	218	218	218	218	233	315	360	400	500	600	
C (H3)*	220	220	220	220	220	235	325	370	430	545	645	
C (H4)*	215	215	215	215	215	230	330	375	435	540	640	
E	150	150	150	200	200	250	250	300	350	400	450	

\*H2 = without lifting device, gastight cap  
 \*H3 = with lifting device, not gastight  
 \*H4 = with lifting device, gastight cap

Dimensions for stainless steel design on request.

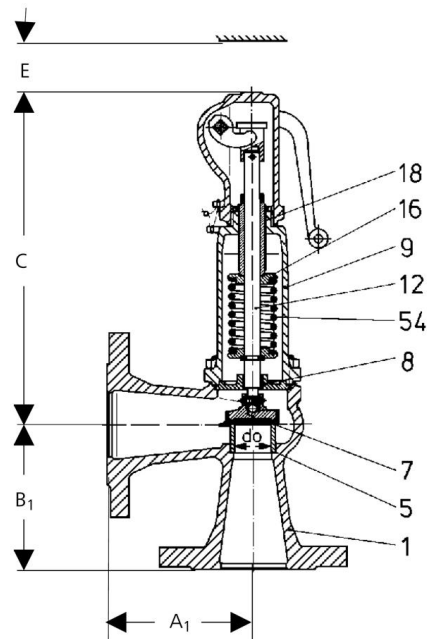
Weights [kg]												
nominal diameter DN												
15	20	25	32	40	50	65	80	100	125	150		
5	6	6	8	9	12	15	20	33	48	65		

Special designs on request.

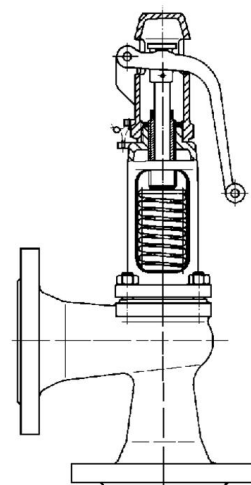
The pressure has always been indicated as overpressure.

Mankenberg reserves the right to alter or improve the designs or specifications of the products described herein without notice.

SV 4



SV 40



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Normal and Proportional Valve



Flow Rate													
type	medium	set pressure [bar]	flange connection - nominal diameter DN										
			15	20	25	32	40	50	65	80	100	125	150
4 40	saturated steam [kg/h]	0.5	51.2	28.4	61.4	61.4	100	159	259	401	682	1030	1600
		1	73.3	64.4	95.8	95.8	156	249	405	625	1060	1610	2500
		2	115	120	160	160	261	415	676	1040	1770	2700	4180
		3	155	166	216	216	353	562	914	1410	2400	3650	5650
		4	193	210	275	275	449	714	1160	1790	3050	4640	7180
		5	231	251	329	329	538	855	1390	2150	3650	5560	8600
		6	269	293	383	383	626	995	1620	2500	4260	6480	10000
		7	307	334	437	437	714	1130	1840	2850	4860	7390	11400
		8	345	375	491	491	802	1270	2070	3200	5450	8300	12800
		9	383	416	545	545	890	1410	2300	3550	6050	9210	14200
		10	420	457	599	599	978	1550	2530	3910	6650	10100	15600
		12	496	539	706	706	1150	1830	2980	4610	7840	11900	18400
		14	571	621	814	814	1320	2110	3430	5310	9040	13700	21200
		16	646	703	921	921	1500	2390	3890	6010	10200	15500	24000
		18	722	785	1020	1020	1670	2670	4340	6710	11400	17300	26900
		24	950	1030	1350	1350	2200	3510	5710	8830	15000	22800	-
	28	1100	1190	1570	1570	2560	4070	6630	10200	17400	-	-	
	32	1250	1360	1790	1790	2920	4640	7560	11600	19800	-	-	
	air [Nm³/h]	0.5	62.8	34.8	75.2	75.2	123	195	318	491	836	1270	1960
		1	92.0	80.9	120	120	196	312	508	786	1330	2030	3140
		2	147	153	204	204	333	529	861	1330	2260	3440	5320
		3	199	213	278	278	454	722	1170	1810	3080	4690	7260
		4	250	271	356	356	581	923	1500	2320	3950	6000	9280
		5	300	327	428	428	699	1110	1800	2790	4750	7230	11100
		6	351	382	500	500	817	1290	2110	3260	5560	8450	13000
		7	402	437	573	573	935	1480	2420	3740	6360	9680	14900
		8	453	492	645	645	1050	1670	2720	4210	7170	10900	16800
		9	504	548	718	718	1170	1860	3030	4680	7970	12100	18700
		10	555	603	790	790	1290	2050	3330	5160	8770	13300	20600
		12	656	714	935	935	1520	2420	3950	6100	10300	15800	24400
		14	758	824	1070	1070	1760	2800	4560	7050	11900	18200	28200
		16	859	935	1220	1220	1990	3170	5170	7990	13600	20700	31900
18		961	1040	1360	1360	2230	3550	5780	8940	15200	23100	36200	
22		1160	1260	1650	1650	2700	4300	7010	10800	18400	28000	-	
24	1260	1370	1800	1800	2940	4680	7620	11700	20000	30400	-		
32	1670	1810	2380	2380	3890	6180	10000	15500	26400	-	-		
36	1870	2040	2670	2670	4360	6930	-	17700	30100	-	-		
40	2070	2260	2960	2960	4830	7690	-	19600	-	-	-		
4	water [m³/h]	0.5	2.14	1.9	2.51	2.51	4.09	6.51	10.6	16.4	27.8	42.4	65.5
		1	2.9	2.58	3.39	3.39	5.54	8.81	14.3	22.2	37.7	57.4	88.7
		2	4.1	3.65	4.8	4.8	7.84	12.5	20.3	31.3	53.3	81.1	125
		3	5.02	4.47	5.88	5.88	9.6	15.3	24.8	38.4	65.3	99.3	154
		4	5.79	5.16	6.79	6.79	11.1	17.6	28.7	44.3	75.4	115	177
		5	5.48	5.77	7.59	7.59	12.4	19.7	32.1	49.6	84.3	128	198
		6	7.09	6.32	8.31	8.31	13.6	21.6	35.1	54.3	92.4	140	217
		7	7.66	6.82	8.98	8.98	14.7	23.3	37.9	58.6	99.8	152	235
		8	8.19	7.3	9.6	9.6	15.7	24.9	40.6	62.7	107	162	251
		9	8.69	7.74	10.2	10.2	16.6	26.4	43.0	66.5	113	172	266
		10	9.16	8.16	10.7	10.7	17.5	27.9	45.3	70.1	119	181	280
		12	10.0	8.93	11.8	11.8	19.2	30.5	49.7	76.8	131	199	307
		14	10.8	9.65	12.7	12.7	20.7	33.0	53.7	82.9	141	215	332
		16	11.6	10.3	13.6	13.6	22.2	35.2	57.4	88.7	151	229	355
		22	13.6	12.1	15.9	15.9	26.0	41.3	67.3	104	177	269	-
		28	15.3	13.6	18.0	18.0	29.3	46.6	75.9	117	200	-	-
32	16.4	14.6	19.2	19.2	31.3	49.8	81.1	125	213	-	-		
36	17.4	15.5	20.4	20.4	33.2	52.9	-	133	226	-	-		
40	18.3	16.3	21.5	21.5	35.0	55.7	-	140	-	-	-		

Special designs on request.

The pressure has always been indicated as overpressure.

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