

## Safety overflow valve without auxiliary power, Model T 27 F

The function of upstream pressure regulators (safety overflow valves, pressure retaining valves) is, that the outflow of the medium at a specific pressure, with an existing counter pressure or vacuum having no effect on the set over pressure (retaining pressure).

Overflow pressure > counter pressure

The above listed items are characteristic for an upstream pressure regulator, by comparison to a normal safety valve. The safety valve is only a device to prevent a specific pressure from being exceeded (actuation pressure).

Upstream pressure regulators, our model T27 F, are single-seat valves and are especially suitable for incompressible media, for example water, oil, etc. The valves are fully relieved so that the counter pressure has no effect on the set overflow pressure, only the overflow quantity changes according to the counter pressure. The external seal is generally produced by a bellow. The valves have no stuffing box and are maintenance free.

An additional major factor is the fact, that safety valves tend to chatter with incompressible media. Even where protection against a specific pressure is required for incompressible media, preference should be given to the upstream pressure regulator rather than the safety valve. The control behaviour of the upstream pressure regulator is proportional.

A continuous small amount of the medium, about 10% of the maximum flow rate, should flow through the valve, so as to protect the seat and cone, and raise the sensitivity when the load changes.

Upstream pressure regulators for incompressible media close in the event of a pressure drop within 20 %. Below 3 bar setting pressure, within a pressure drop of 0.6 bar.

The mass flow of overflow valves is listed in the following table, whereby the following must be observed :

Overflow pressure - counter pressure =  
differential pressure  $\Delta p$

In addition, the velocity of the medium in the piping must be checked (the effects of the viscosity must be separately taken into account). Normally, with water the velocity in the piping should not exceed 2 m/s. Decisive for the valve size to be selected is almost always the velocity in the piping, where the use of upstream pressure regulators are concerned (mass flow table line 2 m/s). With small differential pressures, the mass flow quantity is above the 2 m/s line.

Versions :

T27 in grey cast iron,  
- Seat, cone, bellow, spindle  
in high quality steel  
- Central spring, DIN PN 16.

T27 in cast steel or cast alloy steel,  
- Seat, cone, bellow, spindle  
in high quality steel  
- Central spring, DIN PN 40.

The valves can be supplied with classification society acceptance.

Test Report based on DIN EN 10 204 - 2.2

Inspection certificate DIN EN 10 204 - 3.1 B / C

For enquiries and orders we would like the following details :

Note: The cast steel version over DN 50 must be used for hot water systems with initial temperatures exceeding 110°C (DIN 4752).

Overflow pressure, counter pressure, maximum and minimum mass flow, medium, temperature, viscosity, possible present piping diameter

### Spring for T 27 F

#### DN 15 - 40

pressure of response	100	63	40	25	16	10	6.3	4	2.5	1.6	Do = Ø 20
P <sub>1</sub> = kp	363	229	145	91	58	36	23	15	9	6	mean seat-Ø = + 2mm
L = length	71.5	68	59.5	60	59	52.5	51.2	45.6	45	43.2	
f <sub>max.</sub> = mm	24.7	28.0	32.1	41.4	52.7	59.7	for length				Lo = 115mm Di = 29mm
c = $\frac{p}{f_i} = \frac{kp}{mm}$	17.7	12.0	7.64	4.64	2.74	1.83	1.13	0.74	0.45	0.27	
spring-No.	1	2	3	4	5	6	7	8	9	10	

#### DN 50 + 65

pressure of response	40	25	16	10	6.3	4	2.5	1.6	1	0.63	Do = Ø 40
P <sub>1</sub> = kp	554	346	228	139	87	55	35	22	14	9	mean seat-Ø = + 2mm
L = length	115	95	94.5	92	80.5	79	70	67.5	65.2	58	
f <sub>max.</sub> = mm	29.5	33.9	42.2	53.3	61.4	for length				Lo = 145mm Di = 34mm	
c = $\frac{p}{f_i} = \frac{kp}{mm}$	24.0	15.2	9.5	5.73	3.61	2.26	1.49	0.91	0.57		0.37
spring-No.	11	12	13	14	15	16	17	18	19	20	

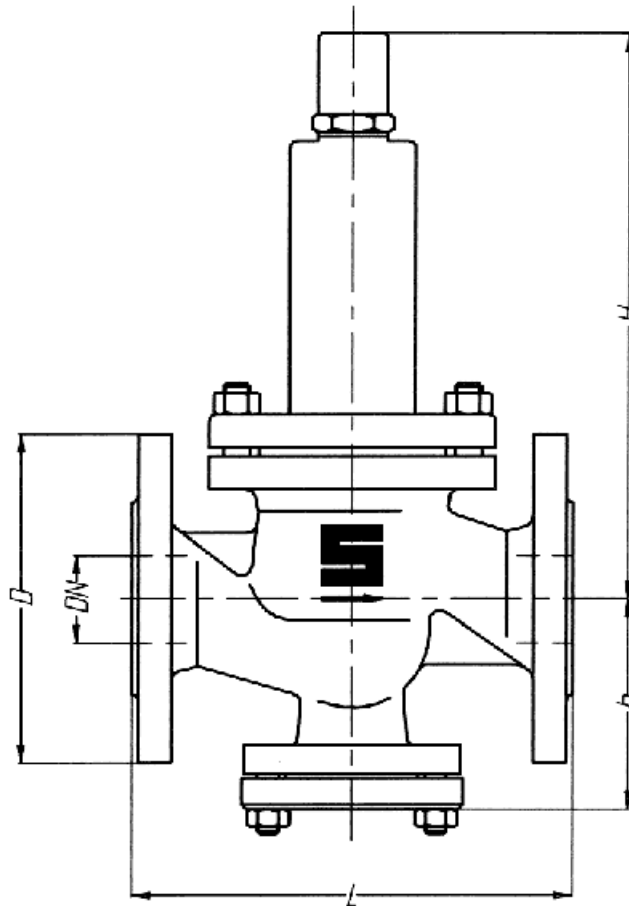
#### DN 80 + 100

pressure of response	25	16	10	6.3	4	2.5	1.6	1	0.63	0.4	Do = Ø 65
P <sub>1</sub> = kp	881	564	353	222	141	88	56	35	22	14	mean seat-Ø = + 2mm
L = length	143	124	138	138	119	115	132	116	110	104	
f <sub>max.</sub> = mm	39.4	46.0	for length								Lo = 195mm Di = 47mm
c = $\frac{p}{f_i} = \frac{kp}{mm}$	27.5	17.1	10.5	7.1	4.25	2.63	1.7	1.05	0.66	0.41	
spring-No.	21	22	23	24	25	26	27	28	29	30	

This brochure contains only a part of our product range. Technical progress results in on-going changes. We must reserve the right to include these changes in the product.

The illustrations are not binding for production.

### Model T27 F



DN	Flanges PN16 GG20				Flanges PN25/40 GS-C25				L	H	h
	D	k	z	i	D	k	z	i			
15	95	65	4	14	95	65	4	14	130	275	95
20	105	75	4	14	105	75	4	14	150	275	95
25	115	85	4	14	115	85	4	14	160	275	95
32	140	100	4	18	140	100	4	18	180	275	95
40	150	110	4	18	150	110	4	18	200	275	95
50	165	125	4	18	165	125	4	18	230	360	120
65	185	145	4	18	185	145	8	18	290	360	155
80	200	160	8	18	200	160	8	18	310	495	190
100	220	180	8	18	235	190	8	23	350	495	200
125	250	210	8	18	270	220	8	26	400	660	210
150	285	240	8	22	300	250	8	26	480	680	235
200	340	295	12	22	375	320	12	29	600	740	285

Dimensions in mm

Installation lengths to DIN 3202 part 1 - Tab. 4.1 / F1

DN	15	20	25	32	40	50	65	80	100
GG	8.0	8.0	9.0	11.0	13.0	23.0	31.0	48.0	69.0
GS	8.5	8.5	10.0	12.0	14.0	24.0	33.0	50.0	72.0

Weights ~ kg/piece

### Mass flow table for safety overflow valves model T 27 F water quantity in t/h for 20°C

Kv > 2 m/s →	Δp	DN											
	[bar]	15	20	25	32	40	50	65	80	100	125	150	200
	0.5	0.57	1.02	1.59	2.60	4.07	6.36	10.74	16.27	25.42	39.72	57.20	101.69
	1.0	0.81	1.44	2.25	3.68	5.75	8.99	15.19	23.01	35.95	56.18	80.89	143.81
	1.5	0.99	1.76	2.75	4.51	7.05	11.01	18.60	28.18	44.03	68.80	99.08	176.13
	2.0	1.14	2.03	3.18	5.21	8.14	12.71	21.48	32.54	50.85	79.45	114.40	203.38
	2.5	1.28	2.27	3.55	5.82	9.10	14.21	24.02	36.38	56.85	88.82	127.91	227.39
	3.0	1.40	2.49	3.89	6.38	9.96	15.57	26.31	39.85	62.27	97.30	140.11	249.10
	3.5	1.51	2.69	4.20	6.89	10.76	16.82	28.42	43.05	67.63	105.10	151.34	269.05
	4.0	1.62	2.88	4.49	7.36	11.50	17.98	30.38	46.02	71.91	112.35	161.79	287.62
	4.5	1.72	3.05	4.77	7.81	12.20	19.07	32.22	48.81	76.27	119.17	171.60	305.07
	5.0	1.81	3.22	5.02	8.23	12.86	20.10	33.97	51.45	80.39	125.61	180.89	321.57
	6.0	1.98	3.52	5.50	9.02	14.09	22.02	37.21	56.36	88.07	137.60	198.15	352.27
	7.0	2.14	3.80	5.95	9.74	15.22	23.78	40.19	60.88	95.12	148.63	214.03	380.49
	8.0	2.29	4.07	6.36	10.41	16.27	25.42	42.96	65.06	101.69	158.89	228.80	406.76
	9.0	2.46	4.31	6.74	11.04	17.26	26.97	45.57	69.03	107.86	168.53	242.68	431.44
	10.0	2.56	4.55	7.11	11.64	18.19	28.42	48.04	72.76	113.69	177.65	255.81	454.77
	11.0	2.68	4.77	7.45	12.21	19.08	29.81	50.38	76.32	119.24	186.32	268.30	
	12.0	2.80	4.98	7.78	12.75	19.93	31.14	52.62	79.71	124.55	194.60	280.23	
	13.0	2.92	5.19	8.10	13.47	20.74	32.41	54.77	82.96	129.63	202.55	291.67	
	14.0	3.03	5.38	8.41	13.78	21.52	33.63	56.84	86.10	134.52	210.19	302.68	
	15.0	3.13	5.57	8.70	14.26	22.28	34.81	58.83	89.12	139.25	217.57	313.30	
	16.0	3.24	5.75	8.99	14.73	23.01	35.95	60.76	92.04	143.81	224.71	323.58	
	17.0	3.34	5.93	9.26	15.18	23.72	37.06	62.63	94.87	148.24	231.62		
	18.0	3.43	6.10	9.53	15.62	24.41	38.13	64.45	97.62	152.54	238.34		
	19.0	3.53	6.27	9.79	16.05	25.07	39.18	66.21	100.30	156.72	244.87		
	20.0	3.62	6.43	10.05	16.46	25.73	40.20	67.93	102.90	160.79	251.23		
	22.0	3.79	6.75	10.54	17.27	26.98	42.16	71.25	107.93	168.63	263.49		
	24.0	3.96	7.05	11.01	18.04	28.18	44.03	74.42	112.73	176.13	275.21		
	26.0	4.12	7.33	11.46	18.77	29.33	45.83	77.46	117.33	183.33			
	28.0	4.28	7.61	11.89	19.48	30.44	47.56	80.38	121.76	190.25			
	30.0	4.43	7.88	12.31	20.16	31.51	49.23	83.20	126.03	196.92			
	32.0	4.58	8.14	12.71	20.83	32.54	50.85	85.93	130.16	203.38			
	34.0	4.72	8.39	13.10	21.47	33.54	52.41	88.57	134.17	209.64			
	36.0	4.85	8.63	13.48	22.09	34.51	53.93	91.14	138.06	215.72			
	38.0	4.99	8.87	13.85	22.69	35.46	55.41	93.64	141.84	221.63			
	40.0	5.12	9.10	14.21	23.28	36.38	56.85	96.07	145.53	227.39			