

Type T27F

Suitable for Liquids <
 Suitable for Gases <
 Suitable for Steam <

Overflow / relief 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 suitable for incompressible media, for example water, oil, etc. and compressible media, for example air, steam, 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 10 %. Below 3 bar setting pressure, within a pressure drop of 0.3 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 Δp

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 :

0.7040* / EN-JS1030	DIN PN16
1.0619* / GP240GH	DIN PN40
1.4408* / GX5CrNiMo19-11-2	DIN PN40

* Cone, bellow and spindle in stainless steel

The valves can be supplied with classification society acceptance.

Works test report acc. to DIN EN 10 204 - 2.2

Inspection certificate acc. to DIN EN 10 204 - 3.1

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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 21
P ₁ = 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 _{max.} = 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.	2 + d4	3 + d5	4 + d4	5 + d4	6 + d3	7 + d3	8 + d3	10 + d3	10 + d2.5	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 ₁ = 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 _{max.} = 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 ₁ = 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 _{max.} = 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	

DN 125

Pressure of response	35	25	16	10	6.3	4	2.5	1.6	1	0.63	Do = Ø 98
P ₁ = kp	2270	1765	1060	705	443	283	177	106	65	50	mean seat-Ø = + 2 mm
L = length	102	207	200	175	169	149	145	149	132	102	
f _{max.} = mm	99.6	79.6	96.5	107.6	129.5	144.4	for length				Lo = 300 mm Di = 60 mm * Di = 72 mm
$c = \frac{p}{f_i} = \frac{kp}{mm}$	36.4	23.3	14.2	9.03	5.57	3.56	2.33	1.38	0.90	0.64	
Spring-No.	41*	42	43	44	45	46	47	48	49	50	

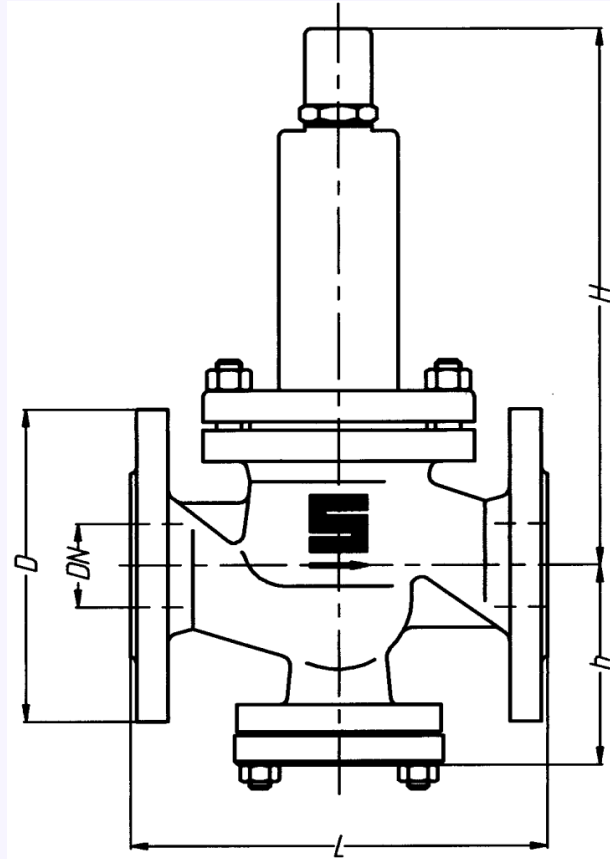
Overflow pressure, counter pressure, maximum and minimum mass flow, medium, temperature, viscosity, possible present piping diameter

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

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Model T27 F



DN	Flanges PN16				Flanges PN40				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 EN 558-1

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

Weights ~ kg/piece

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Mass flow table for water quantity in t/h for 20°C

	Δp [bar]	DN											
		15	20	25	32	40	50	65	80	100	125	150	200
Kv >	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
2 m/s	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				

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Mass flow table for gas quantity in Nm³/h for 0°C

Δp [bar]	DN												
	15	20	25	32	40	50	65	80	100	125	150	200	
0,5	5	9	15	75	117	183	309	469	732	1142	1644	2929	
1,0	7	13	20	100	156	244	412	625	977	1523	2192	3906	
1,5	9	16	25	125	195	305	515	781	1221	1904	2740	4882	
2,0	10	19	30	150	234	366	619	938	1465	2285	3288	5859	
2,5	12	22	35	175	273	427	722	1094	1709	2666	3836	6835	
3,0	14	26	40	200	312	488	825	1250	1954	3047	4385	7812	
3,5	16	29	45	225	351	549	928	1407	2198	3428	4933	8788	
4,0	18	32	50	250	390	610	1031	1563	2442	3809	5481	9765	
4,5	20	35	55	275	430	671	1135	1719	2686	4190	6029	10741	
5,0	21	39	60	300	469	732	1238	1876	2931	4571	6577	11718	
6,0	25	45	71	350	547	855	1444	2188	3419	5333	7673	13671	
7,0	29	52	81	400	625	977	1651	2501	3908	6095	8770	15624	
8,0	32	58	91	450	703	1099	1857	2814	4396	6857	9866	17577	
9,0	36	65	101	500	781	1221	2063	3126	4885	7619	10962	19530	
10,0	40	71	111	550	860	1343	2270	3439	5373	8381	12059	21483	
11,0	43	78	121	600	938	1465	2476	3752	5862	9143	13155	-	
12,0	47	84	132	650	1016	1588	2682	4064	6350	9905	14251	-	
13,0	51	91	142	700	1094	1710	2889	4377	6839	10667	15347	-	
14,0	54	97	152	750	1172	1832	3095	4690	7327	11429	16444	-	
15,0	58	104	162	800	1250	1954	3302	5002	7816	12191	17540	-	
16,0	62	110	172	850	1329	2076	3508	5315	8304	12953	18636	-	
17,0	66	117	182	900	1407	2198	3714	5628	8793	13715	19732	-	
18,0	69	123	193	950	1485	2321	3921	5940	9281	14477	-	-	
19,0	73	130	203	1000	1563	2443	4127	6253	9770	15239	-	-	
20,0	77	136	213	1050	1641	2565	4333	6566	10258	16000	-	-	
22,0	84	149	234	1150	1798	2809	4746	7191	11235	17524	-	-	
24,0	91	162	254	1250	1954	3054	5159	7816	12212	19048	-	-	
26,0	99	175	274	1350	2111	3298	5572	8442	13190	-	-	-	
28,0	106	188	294	1450	2267	3542	5985	9067	14167	-	-	-	
30,0	113	201	315	1550	2423	3786	6397	9693	15144	-	-	-	
35,0	131	234	365	1800	2814	4397	7429	11256	17586	-	-	-	
40,0	150	266	406	2050	3205	5008	8461	12819	-	-	-	-	

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Mass flow table for saturated steam quantity in kg/h

Δp [bar]	DN											
	15	20	25	32	40	50	65	80	100	125	150	200
0.2	33	36	40	44	48	76	123	190	323	492	760	1351
0.5	51	53	61	80	100	159	259	401	682	1030	1600	2845
1.0	73	76	96	126	156	249	405	625	1060	1610	2500	4440
2.0	115	120	160	210	261	415	676	1040	1770	2700	4180	7430
3.0	155	166	216	284	353	562	914	1410	2400	3650	5650	10050
4.0	193	210	275	362	449	714	1160	1790	3050	4640	7180	12760
5.0	231	251	329	434	538	855	1390	2150	3650	5560	8600	15200
6.0	269	293	383	505	626	995	1620	2500	4260	6480	10000	17700
7.0	307	334	437	576	714	1130	1840	2850	4860	7390	11400	20200
8.0	345	375	491	647	802	1270	2070	3200	5450	8300	12800	22700
9.0	383	416	545	717	890	1410	2300	3550	6050	9210	14200	25300
10.0	420	457	599	789	978	1550	2530	3910	6650	10100	15600	27700
12.0	496	539	706	928	1150	1830	2980	4610	7840	11900	18400	32700
14.0	571	621	814	1067	1320	2110	3430	5310	9040	13700	21200	37700
16.0	646	703	921	1211	1500	2390	3890	6010	10200	15500	24000	42700
18.0	722	785	1020	1345	1670	2670	4340	6710	11400	17300	26900	47800
20.0	798	867	1130	1490	1850	2950	4800	7420	12600	19200	29700	52800
22.0	874	950	1240	1635	2030	3230	5260	8130	13800	21000	32500	
24.0	950	1030	1350	1775	2200	3510	5710	8830	15000	22800	35400	
26.0	1020	1110	1460	1920	2380	3790	6170	9540	16200	24600	38200	
28.0	1100	1190	1570	2065	2560	4070	6630	10200	17400	26400	41000	
30.0	1170	1280	1680	2210	2740	4360	7100	10900	18600	28300	43900	
32.0	1250	1360	1790	2355	2920	4640	7560	11600	19800	30100	46700	