

## Angle pattern safety valve 1" to 6" (DN 25 to 150)

### ARI-SAFE-ANSI

- ASME Code Section VIII-Division 1.

- UV-stamp NB-stamp



- Type-test approved acc. to TRD and AD2000-A2

Direct loaded with spring:

- TÜV · SV · . . . -663 · D/G **Figure 901-912**
- TÜV · SV · . . . -729 · F **Figure 901/911**
- Further approvals: see inside

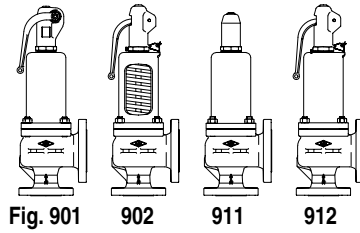


Fig. 901

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911

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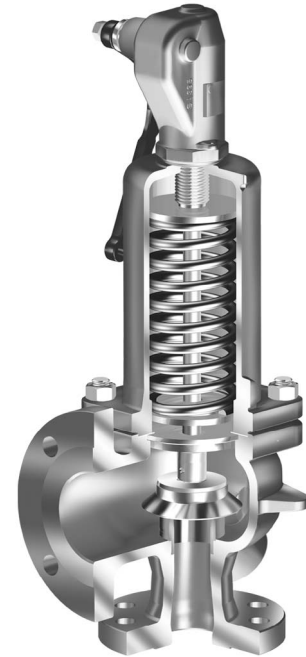
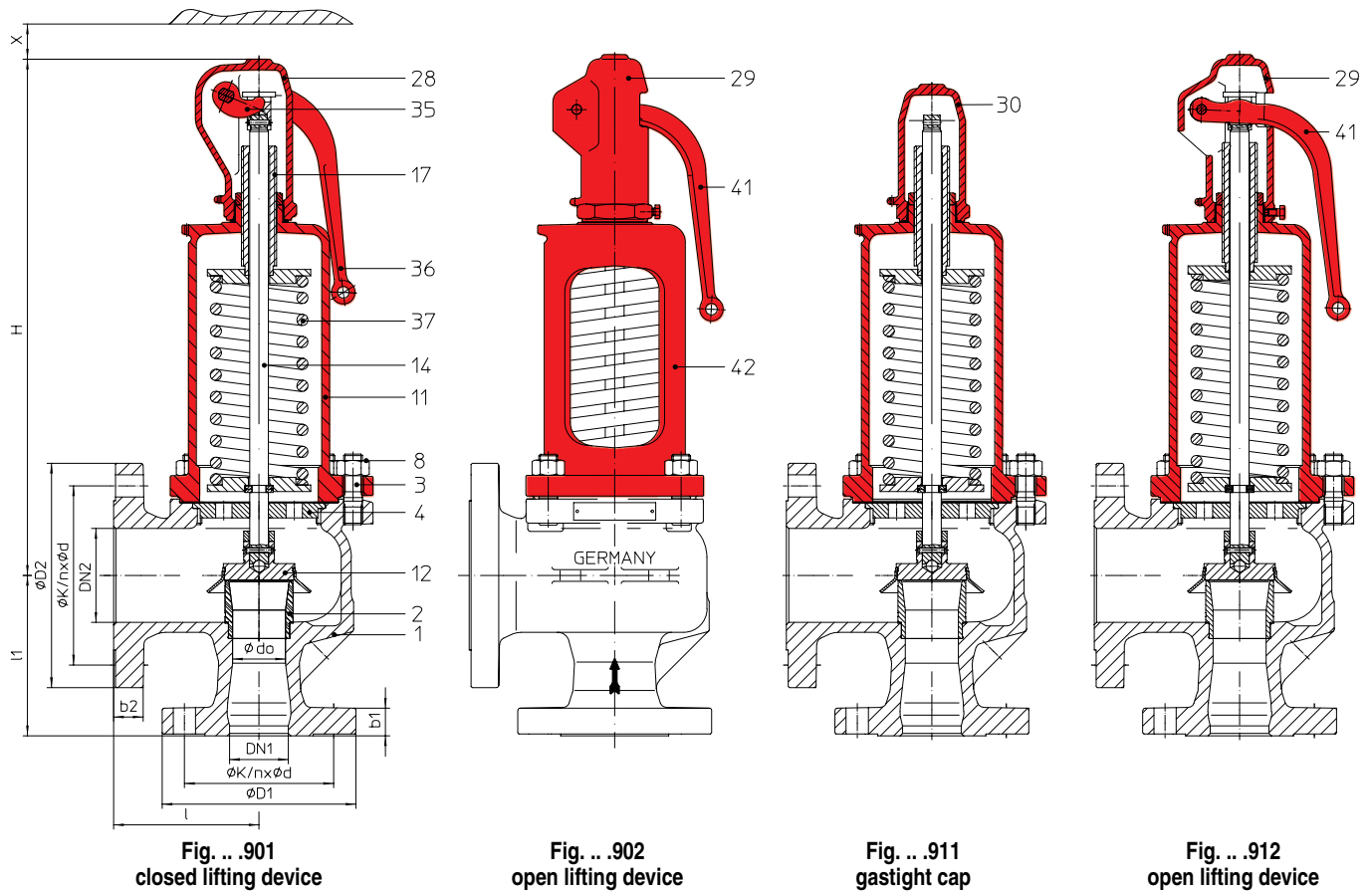


Fig. 900

### Features:

- Direct loaded with spring
- Wear resistant seat/disc
- Precision disc alignment and guide
- Possible with soft seal disc
- Possible with EPDM bellow
- Possible with stainless steel bellow



Registration	Figure	Pressure class	Material	Nominal diameter	Temperature range	Flanges
ASME Code Section VIII-Division 1.	35.901	ANSI 150 / 150 ANSI 300 / 150	SA 216 WCB	1"x2" up to 6"x10"	- 20°F up to +800°F	ASME B16.5
EN ISO 4126-1, VdTÜV-100, AD2000-A2, TRD 421	35.902 35.911 35.912				- 29°C up to +427°C	

Requirement	ASME Code Section VIII-Division 1.	EN ISO 4126-1, VdTÜV-leaflet 100, AD2000-A2, TRD 421
Marking	UV-stamp NB-stamp	BKZ TÜV · SV · . . . -663 · D/G TÜV · SV · . . . -729 · F
Application	neutral gases, vapours and liquids	steam, neutral gases, vapours and liquids
Construction	Safety valve, spring loaded, direct loaded	
Sizing	Calculation acc. to ASME	Calculation acc. to EN ISO 4126-1, AD2000-A2, TRD 421
Medium gasform:	Mass flow (lb/h), SCFM, molar mass (kg/kmol), temperature (°F), set gauge pressure (psig), back gauge pressure (psig)	Mass flow (kg/h), molar mass (kg/kmol), temperature (°C), set gauge pressure (bar), back gauge pressure (bar)
Medium liquid:	Volume flow (gal/min), density, viscosity, temperature (°F), set gauge pressure (psig), back gauge pressure (psig)	Mass flow (kg/h), density (kg/m <sup>3</sup> ), viscosity, temperature (°C), set gauge pressure (bar), back gauge pressure (bar)
Order data:	ARI-SAFE-ANSI-safety valve - Figure ....., Nominal diameter ....., Class ....., Material ....., set gauge pressure .... psig	ARI-SAFE-ANSI-safety valve - Figure ....., DN ... / ..., PN .. / .., Material ....., set gauge pressure .... bar

Nominal diameter	1" x 2"	1 1/2" x 2"	1 1/2 x 2 1/2	1 1/2" x 3"	2" x 3"	3" x 4"	4" x 6"	4" x 6"	6" x 8"	6" x 10"
Orifice letter	(D) E	F	G	H	(H) J	(K) L	(L) M	(N) P	Q	R
Weight (lbs)	26	40	40	51	66	103	176	180	308	374
Weight (kg)	12	18	18	23	30	47	80	82	140	170
Weight, bellow design (lbs)	30	44	44	56	75	119	198	202	--	--
Weight, bellow design (kg)	13,5	20	20	25,5	34	54	90	92	--	--

	without metal bellow	with metal bellow
static back pressure	no backpressure allowed	on request
dynamic back pressure	max. 10% from set pressure (gauge) (higher on request)	on request

Set gauge-pressure		I Saturated steam lb/hr (pounds per hour)										II Air scfm (60°F; 14,7 psia) (standard cubic feet per minute)								
psig	1" x 2"	1 1/2" x 2"		1 1/2 x 2 1/2		1 1/2" x 3"		2" x 3"		3" x 4"		4" x 6"		4" x 6"		6" x 8"		6" x 10"		
orifice letter	(D) E	F		G		H		(H) J		(K) L		(L) M		(N) P		Q		R		
	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II
15	Pressure ranges 15 - 30 psi available. Performances on request.																			
20																				
25																				
30	1238	441	2055	732	2055	732	3167	1127	4947	1761	8361	2976	19791	7044	19791	7044	27452	9771	38177	13589
35	1381	492	2292	816	2292	816	3532	1257	5518	1964	9325	3319	22073	7857	22073	7857	30617	10898	42579	15156
40	1524	542	2529	900	2529	900	3897	1387	6088	2167	10289	3662	24355	8669	24355	8669	33782	12025	46981	16723
45	1667	593	2766	985	2766	985	4263	1517	6659	2370	11253	4006	26637	9481	26637	9481	36948	13151	51383	18289
50	1809	644	3003	1069	3003	1069	4628	1647	7229	2573	12217	4349	28919	10293	28919	10293	40113	14278	55785	19856
55	1952	695	3240	1153	3240	1153	4993	1777	7799	2776	13182	4692	31201	11106	31201	11106	43278	15405	60187	21423
60	2095	746	3477	1238	3477	1238	5358	1907	8370	2979	14146	5035	33483	11918	33483	11918	46444	16531	64589	22990
65	2238	797	3714	1322	3714	1322	5723	2037	8940	3182	15110	5378	35765	12730	35765	12730	49609	17658	68991	24557
70	2381	847	3951	1406	3951	1406	6088	2167	9511	3385	16074	5721	38047	13542	38047	13542	52774	18785	73393	26124
75	2523	898	4188	1491	4188	1491	6454	2297	10081	3588	17038	6064	40329	14355	40329	14355	55939	19911	77795	27690
80	2666	949	4425	1575	4425	1575	6819	2427	10652	3791	18002	6408	42611	15167	42611	15167	59105	21038	82197	29257
85	2809	1000	4662	1659	4662	1659	7184	2557	11222	3994	18966	6751	44893	15979	44893	15979	62270	22165	86599	30824
90	2952	1051	4899	1744	4899	1744	7549	2687	11793	4197	19930	7094	47175	16792	47175	16792	65435	23291	91001	32391
95	3095	1101	5136	1828	5136	1828	7914	2817	12363	4400	20894	7437	49457	17604	49457	17604	68601	24418	95403	33958
100	3237	1152	5373	1912	5373	1912	8279	2947	12933	4604	21858	7780	51739	18416	51739	18416	71766	25544	99805	35525
125	3951	1406	6558	2334	6558	2334	10105	3597	15786	5619	26679	9496	63149	22477	63149	22477	87592	31178	121815	43359
150	4665	1661	7742	2756	7742	2756	11931	4247	18638	6634	31499	11212	74559	26539	74559	26539	103419	36811	143825	51193
175	5379	1915	8927	3178	8927	3178	13757	4897	21490	7649	36319	12928	85969	30600	85969	30600	119245	42444	165835	59027
200	6093	2169	10112	3599	10112	3599	15583	5547	24342	8664	41140	14643	97379	34661	97379	34661	135072	48078	187845	66862
225	6807	2423	11297	4021	11297	4021	17409	6197	27194	9680	45960	16359	108788	38722	108788	38722	150898	53711	209854	74696
250	7521	2677	12482	4443	12482	4443	19235	6846	30047	10695	50781	18075	120198	42784	120198	42784	166725	59344	231864	82530
275	8235	2931	13667	4865	13667	4865	21061	7496	32899	11710	55601	19791	131608	46845	131608	46845	182551	64978	253874	90364
300	8949	3185	14852	5286	14852	5286	22886	8146	35751	12725	60421	21506					198378	70611	275884	98199
325	9663	3439	16036	5708	16036	5708	24712	8796	38603	13740	65242	23222					214204	76244		
350	10376	3693	17221	6130	17221	6130	26538	9446	41455	14756	70062	24938					230031	81878		
375	11090	3948	18406	6551	18406	6551	28364	10096	44308	15771	74882	26654					245857	87511		
400	11804	4202	19591	6973	19591	6973	30190	10746	47160	16786	79703	28370								
425	12518	4456	20776	7395	20776	7395	32016	11396	50012	17801										
450	13232	4710	21961	7817	21961	7817	33842	12046	52864	18817										
475	13946	4964	23145	8238	23145	8238	35667	12696	55716	19832										
493	14460	5147	23999	8542	23999	8542	36982	13163	57770	20563										

<sup>1)</sup> Capacities below 30 psig set pressure are calculated at 3 psig overpressure.

Spring ranges in psig							
1" x 2"	1 1/2" x 2" 1 1/2 x 2 1/2	1 1/2" x 3"	2" x 3"	3" x 4"	4" x 6"	6" x 8"	6" x 10"
15 - 22	15 - 22	15 - 22	15 - 22	15 - 22	15 - 22	15 - 16	15 - 22
23 - 29	23 - 29	23 - 29	23 - 29	23 - 29	23 - 29	17 - 22	23 - 27
30 - 39	30 - 39	30 - 39	30 - 39	30 - 39	30 - 36	23 - 27	28 - 33
40 - 53	40 - 53	40 - 53	40 - 53	40 - 53	37 - 44	28 - 36	34 - 39
54 - 73	54 - 73	54 - 73	54 - 73	54 - 73	45 - 53	37 - 43	40 - 48
74 - 131	74 - 131	74 - 131	74 - 131	74 - 131	54 - 73	44 - 58	49 - 59
132 - 232	132 - 232	132 - 232	132 - 232	132 - 232	74 - 131	59 - 83	60 - 80
233 - 319	233 - 319	233 - 319	233 - 319	233 - 319	132 - 203	84 - 119	81 - 107
320 - 406	320 - 406	320 - 406	320 - 406	320 - 406	204 - 276	120 - 174	108 - 160
407 - 493	407 - 493	407 - 493	407 - 493	407 - 493		175 - 246	161 - 232
						247 - 348	233 - 305
						349 - 392	

Set gauge-pressure		Water gal/min (U.S. Gallons per minute)								
psig	1" x 2"	1 1/2" x 2"	1 1/2" x 2 1/2"	1 1/2" x 3"	2" x 3"	3" x 4"	4" x 6"	4" x 6"	6" x 8"	6" x 10"
orifice letter	(D) E	F	G	H	(H) J	(K) L	(L) M	(N) P	Q	R
15	61	90	90	139	217	366	866	866	1202	1671
20	69	102	102	157	245	414	979	979	1358	1889
25	76	112	112	173	270	457	1081	1081	1499	2085
30	83	122	122	188	293	496	1173	1173	1627	2263
35	89	132	132	203	317	535	1267	1267	1758	2444
40	96	141	141	217	339	572	1355	1355	1879	2613
45	101	149	149	230	359	607	1437	1437	1993	2772
50	107	157	157	242	379	640	1514	1514	2101	2921
55	112	165	165	254	397	671	1588	1588	2203	3064
60	117	172	172	265	415	701	1659	1659	2301	3200
65	122	179	179	276	432	730	1727	1727	2395	3331
70	126	186	186	287	448	757	1792	1792	2486	3457
75	131	193	193	297	464	784	1855	1855	2573	3578
80	135	199	199	307	479	809	1916	1916	2657	3695
85	139	205	205	316	494	834	1975	1975	2739	3809
90	143	211	211	325	508	858	2032	2032	2818	3920
95	147	217	217	334	522	882	2088	2088	2896	4027
100	151	222	222	343	535	905	2142	2142	2971	4132
125	169	249	249	383	599	1012	2395	2395	3322	4619
150	185	272	272	420	656	1108	2623	2623	3639	5060
175	200	294	294	453	708	1197	2833	2833	3930	5466
200	214	315	315	485	757	1280	3029	3029	4201	5843
225	227	334	334	514	803	1357	3213	3213	4456	6197
250	239	352	352	542	847	1431	3387	3387	4697	6533
275	251	369	369	568	888	1501	3552	3552	4927	6852
300	262	385	385	594	927	1567			5146	7156
325	272	401	401	618	965	1631			5356	
350	283	416	416	641	1002	1693			5558	
375	293	431	431	664	1037	1752			5753	
400	302	445	445	685	1071	1810				
425	312	459	459	707	1104					
450	321	472	472	727	1136					
475	329	485	485	747	1167					
493	336	494	494	761	1189					

<sup>1)</sup> Capacities below 30 psig set pressure are calculated at 3 psig overpressure.

Stainless steel-bellow: Spring ranges in psig					
1" x 2"	1 1/2" x 2" 1 1/2" x 2 1/2"	1 1/2" x 3"	2" x 3"	3" x 4"	4" x 6"
36 - 48	36 - 46	38 - 52	40 - 49	36 - 53	36 - 50
49 - 67	47 - 58	53 - 65	50 - 65	54 - 66	51 - 61
68 - 78	59 - 80	66 - 81	66 - 121	67 - 85	62 - 71
79 - 100	81 - 93	82 - 108	122 - 145	86 - 116	72 - 81
101 - 130	94 - 115	109 - 145	146 - 167	117 - 145	82 - 101
131 - 170	116 - 167	146 - 181	168 - 232	146 - 261	102 - 116
171 - 232	168 - 268	182 - 232	233 - 268		117 - 135
233 - 319	269 - 362	233 - 319	269 - 333		136 - 167
320 - 435					168 - 188

Design with bellow as standard valve (only Fig. 901/911)

Set gauge-pressure		I Saturated steam kg/h										II Air in Nm <sup>3</sup> /h (16°C; 1,013 bara)								
bar	1" x 2"	1 1/2" x 2"		1 1/2 x 2 1/2		1 1/2" x 3"		2" x 3"		3" x 4"		4" x 6"		4" x 6"		6" x 8"		6" x 10"		
orifice letter	(D) E	F		G		H		(H) J		(K) L		(L) M		(N) P		Q		R		
	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II
1	Pressure ranges 1 - 2 bar available.																			
1,5	Performances on request.																			
2	549	732	911	1214	911	1214	1403	1871	2192	2923	3705	4940	8770	11693	8770	11693	12165	16219	16918	22555
2,5	643	857	1067	1422	1067	1422	1644	2191	2567	3423	4339	5785	10271	13694	10271	13694	14247	18994	19813	26415
3	737	982	1222	1630	1222	1630	1884	2512	2943	3923	4973	6631	11772	15695	11772	15695	16328	21770	22708	30275
3,5	830	1107	1378	1838	1378	1838	2124	2832	3318	4423	5607	7476	13273	17696	13273	17696	18410	24545	25603	34135
4	924	1232	1534	2045	1534	2045	2364	3152	3693	4924	6241	8321	14774	19697	14774	19697	20492	27321	28498	37995
4,5	1018	1358	1690	2253	1690	2253	2604	3472	4068	5424	6876	9167	16274	21698	16274	21698	22574	30097	31394	41855
5	1112	1483	1846	2461	1846	2461	2844	3792	4443	5924	7510	10012	17775	23699	17775	23699	24656	32872	34289	45715
6	1300	1733	2158	2877	2158	2877	3325	4433	5194	6925	8778	11703	20777	27701	20777	27701	28820	38423	40079	53435
7	1488	1984	2469	3292	2469	3292	3805	5073	5944	7925	10046	13394	23779	31703	23779	31703	32983	43975	45870	61156
8	1676	2234	2781	3708	2781	3708	4286	5714	6694	8925	11314	15084	26781	35705	26781	35705	37147	49526	51660	68876
9	1863	2484	3093	4123	3093	4123	4766	6354	7445	9926	12582	16775	29782	39707	29782	39707	41311	55077	57451	76596
10	2051	2735	3404	4539	3404	4539	5246	6995	8195	10926	13850	18466	32784	43709	32784	43709	45474	60628	63241	84316
11	2239	2985	3716	4955	3716	4955	5727	7635	8946	11927	15119	20157	35786	47711	35786	47711	49638	66179	69032	92036
12	2427	3236	4028	5370	4028	5370	6207	8275	9696	12927	16387	21847	38788	51713	38788	51713	53802	71731	74822	99756
13	2615	3486	4340	5786	4340	5786	6687	8916	10446	13927	17655	23538	41789	55716	41789	55716	57965	77282	80612	107476
14	2803	3737	4651	6201	4651	6201	7168	9556	11197	14928	18923	25229	44791	59718	44791	59718	62129	82833	86403	115196
15	2990	3987	4963	6617	4963	6617	7648	10197	11947	15928	20191	26920	47793	63720	47793	63720	66293	88384	92193	122916
16	3178	4237	5275	7032	5275	7032	8128	10837	12697	16929	21459	28611	50795	67722	50795	67722	70456	93936	97984	130636
17	3366	4488	5586	7448	5586	7448	8609	11478	13448	17929	22728	30301	53797	71724	53797	71724	74620	99487	103774	138356
18	3554	4738	5898	7864	5898	7864	9089	12118	14198	18930	23996	31992	56798	75726	56798	75726	78784	105038	109565	146076
19	3742	4989	6210	8279	6210	8279	9569	12758	14948	19930	25264	33683	59800	79728	59800	79728	82947	110589	115355	153796
20	3929	5239	6522	8695	6522	8695	10050	13399	15699	20930	26532	35374					87111	116140	121146	161516
21	4117	5489	6833	9110	6833	9110	10530	14039	16449	21931	27800	37064					91275	121692	126936	169237
22	4305	5740	7145	9526	7145	9526	11011	14680	17200	22931	29068	38755					95439	127243		
24	4681	6241	7768	10357	7768	10357	11971	15961	18700	24932	31605	42137					103766	138345		
26	5056	6741	8392	11188	8392	11188	12932	17241	20201	26933	34141	45518					112093	149448		
27	5244	6992	8704	11604	8704	11604	13412	17882	20951	27933	35409	47209					116257	154999		
28	5432	7242	9015	12020	9015	12020	13893	18522	21702	28934	36677	48900								
30	5808	7743	9639	12851	9639	12851	14853	19803	23203	30935										
32	6183	8244	10262	13682	10262	13682	15814	21084	24703	32935										
34	6559	8745	10886	14513	10886	14513	16775	22365	26204	34936										

Set gauge-pressure		Water in m <sup>3</sup> /h								
bar	1" x 2"	1 1/2" x 2"	1 1/2" x 2 1/2"	1 1/2" x 3"	2" x 3"	3" x 4"	4" x 6"	4" x 6"	6" x 8"	6" x 10"
orifice letter	(D) E	F	G	H	(H) J	(K) L	(L) M	(N) P	Q	R
1	14	20	20	31	49	82	194	194	269	374
1,5	16	24	24	37	58	97	231	231	320	445
2	18	27	27	42	65	111	262	262	363	505
2,5	21	30	30	47	73	124	293	293	406	565
3	23	33	33	51	80	136	321	321	445	619
3,5	24	36	36	55	87	146	347	347	481	669
4	26	38	38	59	93	157	370	370	514	715
4,5	28	41	41	63	98	166	393	393	545	758
5	29	43	43	66	104	175	414	414	575	799
6	32	47	47	73	113	192	454	454	629	875
7	35	51	51	78	123	207	490	490	680	945
8	37	54	54	84	131	221	524	524	727	1011
9	39	58	58	89	139	235	556	556	771	1072
10	41	61	61	94	146	247	586	586	813	1130
11	43	64	64	98	154	260	614	614	852	1185
12	45	67	67	103	160	271	642	642	890	1238
13	47	69	69	107	167	282	668	668	926	1288
14	49	72	72	111	173	293	693	693	961	1337
15	51	75	75	115	179	303	717	717	995	1384
16	52	77	77	119	185	313	741	741	1028	1429
17	54	79	79	122	191	323	764	764	1059	1473
18	55	82	82	126	196	332	786	786	1090	1516
19	57	84	84	129	202	341	807	807	1120	1558
20	58	86	86	133	207	350			1149	1598
21	60	88	88	136	212	359			1177	1637
22	61	90	90	139	217	367			1205	
24	64	94	94	145	227	383			1259	
26	67	98	98	151	236	399			1310	
27	68	100	100	154	241	407			1335	
28	69	102	102	157	245	414				
30	72	105	105	162	254					
32	74	109	109	168	262					
34	76	112	112	173	270					

Set gauge-pressure			I Saturated steam kg/h										II Air in Nm <sup>3</sup> /h (0°C; 1,013 bara)							
bar	1" x 2"		1 1/2" x 2"		1 1/2 x 2 1/2		1 1/2" x 3"		2" x 3"		3" x 4"		4" x 6"		4" x 6"		6" x 8"		6" x 10"	
orifice letter	(D) E		F		G		H		(H) J		(K) L		(L) M		(N) P		Q		R	
	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II
0,2	126	148	210	246	210	246	324	380	506	594	855	1003	2024	2375	2024	2375	2510	2945	3490	4100
0,4	185	223	307	370	307	370	473	570	739	891	1250	1505	2960	3565	2960	3565	3630	4380	5050	6090
0,5	207	252	344	419	344	419	529	646	827	1009	1400	1705	3310	4035	3310	4035	4070	4970	5660	6910
0,6	230	284	383	472	383	472	590	728	923	1135	1560	1920	3690	4545	3690	4545	4470	5520	6220	7675
0,8	272	341	453	567	453	567	698	873	1090	1365	1840	2305	4360	5460	4360	5460	5240	6555	7280	9115
1	317	398	526	661	526	661	811	1019	1270	1590	2140	2690	5070	6370	5070	6370	6030	7575	8385	10530
1,5	425	538	707	894	707	894	1090	1378	1700	2150	2875	3640	6800	8610	6800	8610	8050	10195	11200	14180
2	477	607	792	1008	792	1008	1220	1550	1900	2425	3220	4100	7625	9700	7625	9700	10125	12890	14080	17920
2,5	572	731	950	1215	950	1215	1460	1870	2285	2925	3865	4945	9145	11700	9145	11700	11990	15330	16660	21300
3	662	850	1100	1410	1100	1410	1695	2175	2645	3400	4475	5750	10600	13600	10600	13600	13880	17840	19300	24800
4	837	1080	1390	1800	1390	1800	2140	2770	3350	4330	5650	7310	13400	17300	13400	17300	17550	22725	24400	31600
5	1000	1300	1665	2160	1665	2160	2565	3330	4000	5210	6770	8800	16000	20840	16000	20840	21000	27350	29250	38000
6	1165	1520	1940	2530	1940	2530	2990	3900	4665	6090	7890	10300	18650	24370	18650	24370	24500	31900	34050	44400
7	1330	1745	2210	2900	2210	2900	3400	4465	5320	6970	9000	11790	21300	27900	21300	27900	27900	36600	38800	50900
8	1495	1965	2485	3260	2485	3260	3820	5030	5980	7860	10100	13280	23900	31430	23900	31430	31350	41200	43600	57300
9	1660	2185	2755	3630	2755	3630	4245	5590	6630	8740	11200	14770	26500	34960	26500	34960	34800	45800	48400	63800
10	1820	2400	3025	3990	3025	3990	4665	6150	7290	9610	12300	16250	29150	38500	29150	38500	38250	50500	53200	70200
11	1985	2625	3300	4360	3300	4360	5080	6720	7940	10500	13400	17750	31750	42000	31750	42000	41600	55100	58000	76600
12	2150	2845	3570	4730	3570	4730	5500	7290	8590	11380	14500	19240	34350	45500	34350	45500	45100	59700	62700	83100
13	2310	3070	3840	5090	3840	5090	5920	7850	9250	12270	15600	20730	37000	49000	37000	49000	48500	64400	67500	89500
14	2475	3290	4110	5460	4110	5460	6340	8400	9900	13150	16700	22200	39600	52600	39600	52600	52000	69000	72300	96000
15	2640	3500	4385	5830	4385	5830	6760	8980	10550	14030	17800	23700	42200	56100	42200	56100	55400	73600	77000	102400
16	2800	3725	4655	6190	4655	6190	7170	9540	11200	14900	18950	25200	44800	59600	44800	59600	58800	78200	81800	108800
17	2965	3950	4930	6560	4930	6560	7590	10100	11850	15800	20050	26700	47400	63100	47400	63100	62200	82900	86600	115300
18	3130	4170	5200	6920	5200	6920	8010	10670	12500	16650	21150	28100	50100	66700	50100	66700	65700	87500	91400	121700
19	3295	4390	5470	7300	5470	7300	8430	11240	13150	17550	22250	29600	52700	70200	52700	70200	69100	92100	96200	128100
20	3460	4610	5750	7660	5750	7660	8850	11800	13800	18400	23350	31150	55300	73700	55300	73700	72600	96800	101000	134600
21	3620	4830	6020	8020	6020	8020	9250	12370	14500	19300	24500	32650	57900	77300	57900	77300	76000	101400	105800	141000
22	3790	5050	6290	8390	6290	8390	9700	12930	15150	20200	25600	34150	60600	80800	60600	80800	79500	106000	110900	147500
24	4120	5490	6840	9120	6840	9120	10500	14060	16450	21970	27850	37100	65900	87900	65900	87900	86500	115300	120600	160400
25	4280	5710	7120	9490	7120	9490	10950	14620	17100	22850	28950	38600					90200	120000	125500	166900
26	4450	5930	7390	9850	7390	9850	11350	15190	17800	23730	30050	40100					93700	124600	130300	173300
28	4780	6370	7950	10600	7950	10600	12250	16320	19100	25500	32300	43100								
30	5120	6810	8500	11320	8500	11320	13100	17450	20450	27250										
32	5450	7250	9060	12050	9060	12050	13950	18570	21800	29000										
34	5800	7700	9650	12790	9650	12790	14850	19700	23250	30800										
40																				

TÜV · SV · ... · 663 · D/G

Spring ranges in bar (gauge)							
1" x 2"	1 1/2" x 2" 1 1/2 x 2 1/2	1 1/2" x 3"	2" x 3"	3" x 4"	4" x 6"	6" x 8"	6" x 10"
0,2 - 0,5	0,2 - 0,5	0,2 - 0,5	0,2 - 0,5	0,2 - 0,5	0,2 - 0,5	0,2 - 0,4	0,2 - 0,5
0,52 - 1	0,52 - 1	0,52 - 1	0,52 - 1	0,52 - 1	0,52 - 1	0,42 - 0,75	0,52 - 1
1,05 - 1,5	1,05 - 1,5	1,05 - 1,5	1,05 - 1,5	1,05 - 1,5	1,05 - 1,5	0,77 - 1,1	1,05 - 1,5
1,55 - 2	1,55 - 2	1,55 - 2	1,55 - 2	1,55 - 2	1,55 - 2	1,15 - 1,5	1,55 - 1,9
2,05 - 2,7	2,05 - 2,7	2,05 - 2,7	2,05 - 2,7	2,05 - 2,7	2,05 - 2,7	1,55 - 1,9	1,95 - 2,3
2,75 - 3,6	2,75 - 3,6	2,75 - 3,6	2,75 - 3,6	2,75 - 3,6	2,75 - 3,6	1,95 - 2,5	2,35 - 2,7
3,7 - 5	3,7 - 5	3,7 - 5	3,7 - 5	3,7 - 5	3,05 - 3,6	2,55 - 2,95	2,75 - 3,3
5,1 - 9	5,1 - 9	5,1 - 9	5,1 - 9	5,1 - 9	3,7 - 5	3 - 4	3,35 - 4,1
9,1 - 16	9,1 - 16	9,1 - 16	9,1 - 16	9,1 - 16	5,1 - 9	4,1 - 5,7	4,2 - 5,5
16,1 - 22	16,1 - 22	16,1 - 22	16,1 - 22	16,1 - 22	9,1 - 14	5,8 - 8,2	5,6 - 7,4
22,1 - 28	22,1 - 28	22,1 - 28	22,1 - 28	22,1 - 28	14,1 - 19	8,3 - 12	7,5 - 11
28,1 - 34	28,1 - 34	28,1 - 34	28,1 - 34		19,1 - 24	12,1 - 17	11,1 - 16
						17,1 - 24	16,1 - 21
						24,1 - 27	21,1 - 26

Set gauge-pressure		Water in m <sup>3</sup> /h (20° C)								
bar	1" x 2"	1 1/2" x 2"	1 1/2" x 2 1/2"	1 1/2" x 3"	2" x 3"	3" x 4"	4" x 6"	4" x 6"	6" x 8"	6" x 10"
orifice letter	(D) E	F	G	H	(H) J	(K) L	(L) M	(N) P	Q	R
0,2	5,13	8,53	8,53	13,1	20,5	30,8	73,0	73,0	94,9	132,0
0,5	8,12	13,5	13,5	20,8	32,5	48,8	115,0	115,0	150,0	209,0
1	11,5	19,1	19,1	29,4	45,9	69,0	163,0	163,0	212,0	295,0
2	16,2	27,0	27,0	41,6	64,9	97,5	231,0	231,0	300,0	417,0
3	19,9	33,0	33,0	50,9	79,5	119,0	283,0	283,0	368,0	511,0
4	22,9	38,1	38,1	58,7	91,8	138,0	326,0	326,0	424,0	590,0
5	25,7	42,6	42,6	65,5	102,0	154,0	365,0	365,0	474,0	660,0
6	28,1	46,7	46,7	72,0	112,0	169,0	400,0	400,0	520,0	723,0
7	30,4	50,4	50,4	77,7	121,0	182,0	432,0	432,0	562,0	781,0
8	32,5	53,9	53,9	83,1	130,0	195,0	461,0	461,0	600,0	835,0
9	34,4	57,2	57,2	88,1	138,0	207,0	490,0	490,0	637,0	885,0
10	36,3	60,3	60,3	92,9	145,0	218,0	516,0	516,0	671,0	933,0
11	38,0	63,2	63,2	97,4	152,0	229,0	540,0	540,0	703,0	977,0
12	39,7	66,0	66,0	102,0	159,0	239,0	565,0	565,0	735,0	1022,0
13	41,4	68,7	68,7	106,0	165,0	249,0	587,0	587,0	764,0	1062,0
14	42,9	71,3	71,3	110,0	172,0	258,0	611,0	611,0	794,0	1104,0
16	45,9	76,3	76,3	117,0	184,0	276,0	653,0	653,0	849,0	1181,0
18	48,7	80,9	80,9	125,0	195,0	293,0	692,0	692,0	900,0	1252,0
19	49,9	82,9	82,9	128,0	200,0	300,0	710,0	710,0	923,0	1284,0
20	51,3	85,3	85,3	131,0	205,0	308,0	730,0	730,0	949,0	1320,0
21	52,6	87,4	87,4	135,0	210,0	316,0	748,0	748,0	973,0	1350,0
24	56,2	93,4	93,4	144,0	225,0	338,0	800,0	800,0	1040,0	1443,0
25	57,4	95,3	95,3	147,0	229,0	345,0			1059,0	1473,0
26	58,5	97,2	97,2	150,0	234,0	352,0			1080,0	1502,0
27	59,6	99,0	99,0	153,0	238,0	358,0			1100,0	
28	60,7	101,0	101,0	155,0	243,0	365,0				
30	62,9	104,0	104,0	161,0	251,0					
32	64,8	108,0	108,0	166,0	259,0					
34	66,9	111,0	111,0	171,0	268,0					

Stainless steel-bellow: Spring ranges in bar (gauge)					
1" x 2"	1 1/2" x 2" 1 1/2" x 2 1/2"	1 1/2" x 3"	2" x 3"	3" x 4"	4" x 6"
2,5 - 3,3	2,5 - 3,2	2,6 - 3,6	2,8 - 3,4	2,5 - 3,7	2,5 - 3,5
3,4 - 4,6	3,3 - 4,0	3,7 - 4,5	3,5 - 4,5	3,8 - 4,6	3,6 - 4,2
4,7 - 5,4	4,1 - 5,5	4,6 - 5,6	4,6 - 8,4	4,7 - 5,9	4,3 - 4,9
5,5 - 7,0	5,6 - 6,4	5,7 - 7,5	8,5 - 10,0	6,0 - 8,0	5,0 - 5,6
7,1 - 9,0	6,5 - 7,9	7,6 - 10,0	10,1 - 11,5	8,1 - 10,0	5,7 - 7,0
9,1 - 11,7	8,0 - 11,5	10,1 - 12,5	11,6 - 16,0	10,1 - 18,0	7,1 - 8,0
11,8 - 16,0	11,6 - 18,5	12,6 - 16,0	16,1 - 18,5		8,1 - 9,3
16,1 - 22,0	18,6 - 25,0	16,1 - 22,0	18,6 - 23,0		9,4 - 11,5
22,1 - 30,0					11,6 - 13,0

Design with bellow as standard valve (only Fig. 901/911)







Safety valve-approvals	SAFE BR 900
	Fig. 901-912
ASME Code Section VIII-Division 1 UV-stamp NB-stamp USA	X
Canada Registration - CRN (only version with UV-stamp)	X
VdTÜV - Germany (only version without UV-stamp)	X
Pressure Equipment Directive 97/23/EG (PED)	X

Seat-tightness acc. to manufacturers standard better than API 527.

Certified coefficient of discharge K	UV-/NB-stamp							
K	1" x 2"	1 1/2" x 2" 1 1/2 x 2 1/2	1 1/2" x 3"	2" x 3"	3" x 4"	4" x 6"	6" x 8"	6" x 10"
Steam / Gas	> 30 psig: 0,817							
Liquid	> 15 psig: 0,615 (Slope)	> 15 psig: 0,545						

Certified coefficient of discharge Kdr	VdTÜV (without UV-/NB-stamp) (Valuees for D/G variable: 1" - 4" < 3,5 bar, 6" < 4,0 bar)							
Kdr	1" x 2"	1 1/2" x 2" 1 1/2 x 2 1/2	1 1/2" x 3"	2" x 3"	3" x 4"	4" x 6"	6" x 8"	6" x 10"
Steam / Gas	0,74						0,70	
Liquid	0,54			0,48		0,45		

Pos.	Description	Material, Material-No.
1	Body	SA 216 WCB
2	Seat	SA 479 Gr.316 Ti
3	Stud	SA 193 B7
4	Spindle guide	DN ≤ 2": AISI 420 DN > 2": SA 395 / AISI 440
8	Hexagon nut	SA 194 2H
11	Bonnet, closed	SA 395
12	Disc unit	AISI 440
14	Spindle	AISI 420
17	Adjusting screw	AISI 420
28	Cap, closed	SA 395
29	Cap, open	SA 395
30	Cap, gastight	SA 395
35	Lift fork	SA 395
36	Lifting lever, closed	SA 395
37	Spring	AISI 9254, AISI 6150
41	Lever, open	SA 395
42	Bonnet, open	SA 395
43	Bellow	EPDM
55	Bellow unit	SA 240 Gr. 316 Ti / SA 479 Gr. 316 Ti
70	Balanced piston	SA 240 Gr. 316 Ti

### Pressure-temperature-ratings

<b>ANSI 150</b>	Temperature	°F	-20 up to 100	200	300	400	500	600	650	700	750	800
	Operating press.	psig	285	260	230	200	170	140	125	110	95	80
	Temperature	°C	-29 up to 38	93	149	204	260	315	343	371	399	427
	Operating press.	bar	19,6	17,9	15,8	13,8	11,7	9,6	8,6	7,6	6,6	5,5

<b>ANSI 300</b>	Temperature	°F	-20 up to 100	200	300	400	500	600	650	700	750	800
	Operating press.	psig	740	675	655	635	600	570	550	530	505	410
	Temperature	°C	-29 up to 38	93	149	204	260	315	343	371	399	427
	Operating press.	bar	51,1	46,6	45,2	43,6	41,4	39,2	37,9	36,6	34,8	28,8

Intermediate values for max. permissible operational pressures can be determined by linear interpolation of the given temperature / pressure chart.

#### Information / Restrictions of technical rules to be observed!

A production allowance acc. to TRB 801 No. 45 exists.

The engineer, designing a system or a plant, is responsible for the selection of the correct valve.

**SAFE-ANSI Figure 901 - 912**

Nominal diameter		1" x 2"		1 1/2" x 2"	1 1/2" x 2 1/2"	1 1/2" x 3"	2" x 3"		3" x 4"		4" x 6"		4" x 6"		6" x 8"		6" x 10"	
inch	API-orifice letter	(D)	E	F	G	H	(H)	J	(K)	L	(L)	M	(N)	P	Q	R		
	do	0,88	1,14	1,14	1,42	1,77	2,30	3,54	3,54	4,17	4,92							
	D1	ANSI 150	4,25	5	5	5	6	7,5	9	11	11							
		ANSI 300	4,88	6,12	6,12	6,12	6,5	8,25	10	12,5	12,5							
	D2	ANSI 150	6	6	7	7,5	7,5	9	11	13,5	16							
	b1	ANSI 300/150	0,69	0,81	0,81	0,81	0,88	1,12	1,25	1,44	1,44							
	b2	ANSI 150	0,75	0,75	0,88	0,94	0,94	0,94	1	1,12	1,19							
	I	4 1/2	4 3/4	4 3/4	4 7/8	4 7/8	6 1/2	7 1/4	9	9 1/2	10 1/2							
	I1	4 1/8	4 7/8	4 7/8	5 1/8	5 3/8	6 1/8	7	7 1/8	9 7/16	9 7/16							
	H	11	13	13	15,4	17	21,5	27	27	33,3	35							
H bellow design	13,2	15,4	15,4	17,5	19,7	24,4	30,3	30,3	36,2	37								
X	6	8	8	10	12	14	20	20	20	20								

Center to face dimensions acc. to API 526  
Flange dimensions acc. to ASME / ANSI B16.5

Nominal diameter		1" x 2"		1 1/2" x 2"	1 1/2" x 2 1/2"	1 1/2" x 3"	2" x 3"		3" x 4"		4" x 6"		4" x 6"		6" x 8"		6" x 10"	
inch	API-orifice letter	(D)	E	F	G	H	(H)	J	(K)	L	(L)	M	(N)	P	Q	R		
	do	0,886	1,142	1,142	1,417	1,772	2,303	3,543	3,543	4,173	4,921							
	Ao (inch <sup>2</sup> )	0,617	1,024	1,024	1,578	2,465	4,166	9,861	9,861	13,678	19,022							

**Flange dimension**

Nominal diameter		1"	1 1/2"	2"	2 1/2"	3"	4"	6"	8"	10"
ANSI 150	∅ K (inch)	3,12	3,88	4,75	5,5	6	7,5	9,5	11,75	14,25
	n x ∅ d (inch)	4 x 0,62	4 x 0,62	4 x 0,75	4 x 0,75	4 x 0,75	8 x 0,75	8 x 0,88	8 x 0,88	12 x 1
ANSI 300	∅ K (inch)	3,5	4,5	5,0	--	6,62	7,88	10,62	--	--
	n x ∅ d (inch)	4 x 0,75	4 x 0,88	8 x 0,75	--	8 x 0,88	8 x 0,88	12 x 0,88	--	--

Nominal diameter		1" x 2"		1 1/2" x 2"	1 1/2" x 2 1/2"	1 1/2" x 3"	2" x 3"		3" x 4"		4" x 6"		4" x 6"		6" x 8"		6" x 10"	
mm	API-orifice letter	(D)	E	F	G	H	(H)	J	(K)	L	(L)	M	(N)	P	Q	R		
	do	22,5	29	29	36	45	58,5	90	90	106	125							
	D1	ANSI 150	108	127	127	127	153	191	229	280	280							
		ANSI 300	124	156	156	156	165	210	254	318	318							
	D2	ANSI 150	153	153	178	191	191	229	280	343	407							
	b1	ANSI 300/150	17,5	20,6	20,6	20,6	22,3	28,6	31,8	36,5	36,5							
	b2	ANSI 150	19,1	19,1	22,3	23,8	23,8	23,8	25,4	28,6	30,2							
	I	114,3	120,7	120,7	123,8	123,8	165,1	184,2	228,6	241,3	266,7							
	I1	104,8	123,8	123,8	130,2	136,5	155,6	177,8	181	239,7	239,7							
	H	280	330	330	390	435	545	690	690	845	890							
H bellow design	335	390	390	445	500	620	770	770	920	940								
X	150	200	200	250	300	350	500	500	500	500								

Center to face dimensions acc. to API 526  
Flange dimensions acc. to ASME / ANSI B16.5

Nominal diameter		1" x 2"		1 1/2" x 2"	1 1/2" x 2 1/2"	1 1/2" x 3"	2" x 3"		3" x 4"		4" x 6"		4" x 6"		6" x 8"		6" x 10"	
mm	API-orifice letter	(D)	E	F	G	H	(H)	J	(K)	L	(L)	M	(N)	P	Q	R		
	do	22,5	29	29	36	45	58,5	90	90	106	125							
	Ao (mm <sup>2</sup> )	398	661	661	1018	1590	2688	6362	6362	8825	12272							

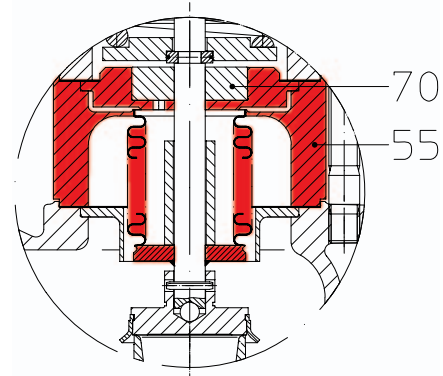
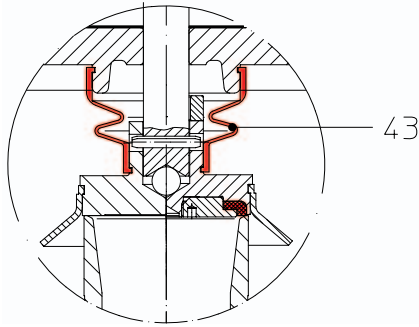
**Flange dimension**

Nominal diameter		1"	1 1/2"	2"	2 1/2"	3"	4"	6"	8"	10"
ANSI 150	∅ K (mm)	79	98	120,5	140	152,5	190,5	241,5	298,5	362
	n x ∅ d (mm)	4 x 16	4 x 16	4 x 19	4 x 19	4 x 19	8 x 19	8 x 22	8 x 22	12 x 25
ANSI 300	∅ K (mm)	89	114,5	127	--	168	200	270	--	--
	n x ∅ d (mm)	4 x 19	4 x 22	8 x 19	--	8 x 22	8 x 22	12 x 22	--	--

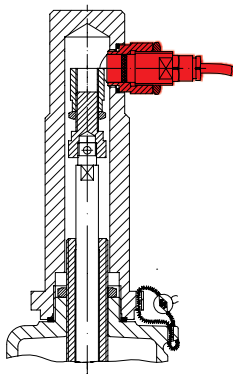
**EPDM** -31 °F up to +302 °F / -35 °C up to +150 °C Abbreviation **E**  
**Viton (FPM)** -13 °F up to +356 °F / -25 °C up to +180 °C Abbreviation **V**  
**Neoprene (CR)** -22 °F up to +257 °F / -30 °C up to +125 °C Abbreviation **N**

**Bellow** - stainless steel

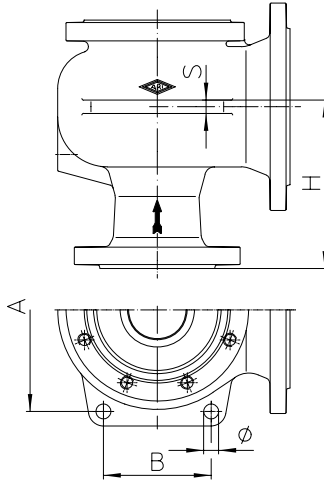
**EPDM bellow**  
(max. +248 °F / +120 °C)  
**Metal seal**  
**Soft sealing disc**



Balanced stainless steel-bellow with balanced piston  
(Only for closed version!)

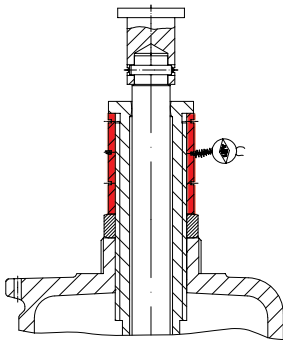


Proximity switch

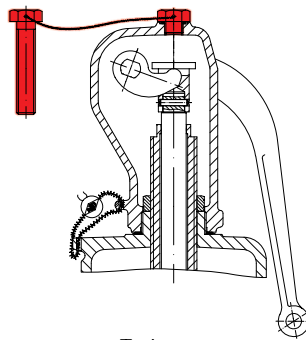


Support tongues

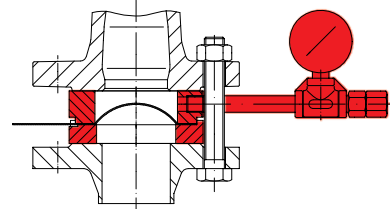
Body material	Nominal diameter	A	B	∅	S	H
SA 216 WCB	2" x 3"	7	2 3/4	9/16	7/16	5 5/8
	3" x 4"	8 3/8	3 1/2	3/4	9/16	6 3/8
	4" x 6"	11 5/8	6 1/2	7/8	5/8	7 5/16
	6" x 8"	12 1/2	7 1/4	7/8	13/16	9 3/4
	6" x 10"	14 1/8	7 7/8	7/8	13/16	9 7/8



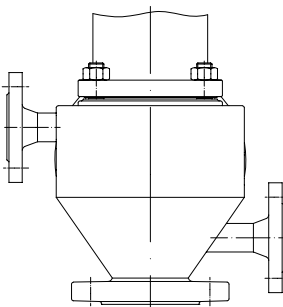
Lock bushing



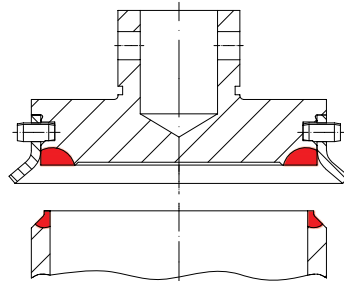
Test gag



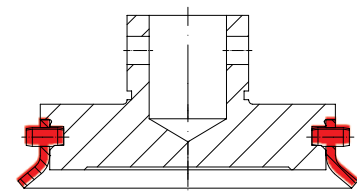
Rupture disc



Heating jacket



Seat SA 479 Gr.316 Ti / Stellite No. 21  
 Disc SA 479 Gr.316 Ti / Stellite No. 6  
 and removable lifting aid



Removable lifting aid  
 Chemical-version SA 479 Gr.316 Ti



**Technology for the future.**  
 GERMAN QUALITY VALVES