



Válvulas de Segurança e Alívio



Aplicação

As válvulas de segurança e alívio são equipamentos desenvolvidos para operarem com líquidos, gases, vapor, R11, R12, R502, NH3, CO2 e AR.

Modelos Fabricados

- **VSA-F-13:** Válvula de segurança simples com entrada de 1/2" ou 3/4" FPS e saída de 1" NPT.
- **VSD-13:** A construção da VSD-13 compreende um registro de três vias de duas posições no qual são montadas duas válvulas de segurança simples modelo VSA-F-13. Esse tipo de construção permite que o processo opere ininterruptamente. Mesmo no caso de necessidade de retirada de uma das válvulas para manutenção (testes).
- **VSA-R-13:** Válvula de segurança simples com entrada de 1/2" NPT e saída de 3/4" NPT.
- **VSA-R-20:** Válvula de segurança simples com entrada de 1" NPT e saída de 1" NPT.
- **VSA-F-26:** Válvula de segurança simples com entrada de 1.1/4" FPS ou 1" FPS e saída de 1.1/4" BSP.
- **VSA-F-32:** Válvula de segurança simples com entrada de 1.1/2" FPS e saída de 1.1/2" BSP.
- **VSA-F-43:** Válvula de segurança simples com entrada de 2" FPS e saída de 2" NPT.



CORPO REGISTRO



VSA-F-13

Instruções de Instalação

- A válvula de segurança e alívio deve ser usada para proteger somente um equipamento.
- As válvulas devem ser instaladas sempre na posição vertical.
- Deverão ser observadas na instalação das válvulas de segurança e alívio as possíveis interferências tais como espaço de montagem e manutenção, entre outros fatores.
- No caso de manutenção as válvulas não devem ser bloqueadas em operação.No caso de manutenção em que seja prevista a retirada da válvula, devem ser empregadas derivações para que apenas umas das válvulas seja bloqueada para manutenção.
- Deve ser posicionado o mais próximo do equipamento.

Fabricamos como válvulas de segurança duplas os modelos: **VSA-F-13, VSA-F-26 e VSA-F-32.**

Conexões

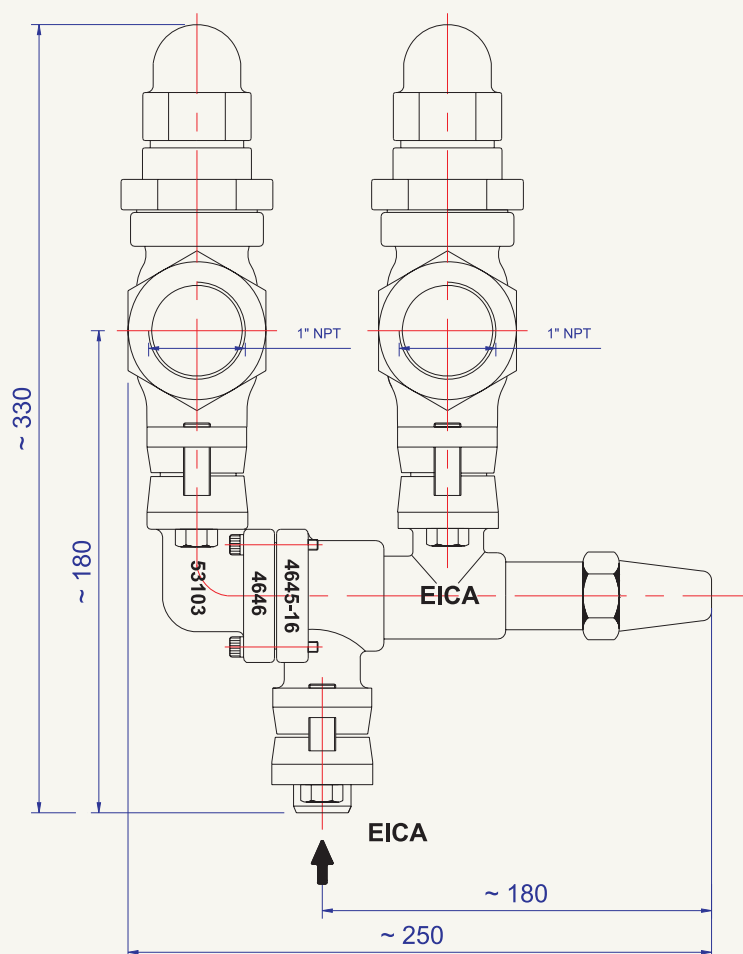
Modelo	Conexões	
	Entrada (Flange p/ solda) FPS	Saída (rosca) NPT
VSA-F-13	1/2" - 3/4"	1"
VSD-13	1/2" - 3/4"	1"

Para outras conexões consultar fabricante

Tabela de Materiais

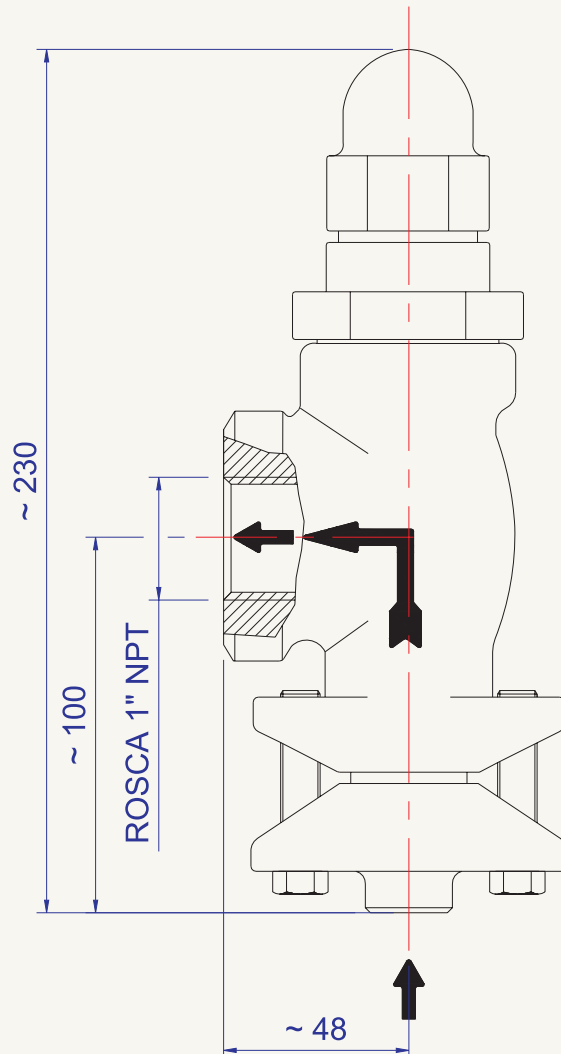
Corpo	ASTM-A-126 GR B
Anelvedação	PTFE
Subconjunto do Pistão	AISI-304 / PTFE
Assento	AISI-304

DESENHO DIMENSIONAL



Desenho dimensional do modelo VSD-F-13 e VSA-F-13.
Para demais dimensionais entrar em contato.

DESENHO DIMENSIONAL



Capacidade de Descarga para Válvula de Segurança

Modelo: VSA-F-13

Do = 13 mm

P = Pressão absoluta

Pr = Pressão relativa

Pa = Máxima pressão montante sem perda de capacidade de descarga

Pr (atm)	P (atm)	Pa (atm)	R 11 (kg/h)	R 12 (kg/h)	R 22 (kg/h)	R 502 (kg/h)	NH ₃ (kg/h)	CO ₂ (kg/h)	AR (kg/h)
3,5	4,5	0,9	497	515	452	503	203		253
4,0	5,0	1,0	551	572	501	558	225		281
4,5	5,5	1,1	606	628	545	613	247		310
5,0	6,0	1,2	660	685	600	669	269		338
6,0	7,0	1,4	769	798	700	779	313	572	394
7,0	8,0	1,6	879	912	799	890	357	652	451
8,0	9,0	1,8	990	1027	899	1002	401	732	507
9,0	10,0	2,0	1100	1142	1000	1115	445	813	563
10,0	11,0	2,2	1212	1258	1102	1229	489	894	620
11,0	12,0	2,4	1325	1376	1204	1343	533	974	678
12,0	13,0	2,6	1438	1494	1308	1471	577	1053	732
13,0	14,0	2,8	1552	1614	1410	1574	621	1135	789
14,0	15,0	3,0	1668	1734	1514	1692	666	1217	843
15,0	16,0	3,2	1784	1857	1619	1810	710	1298	902
16,0	17,0	3,4	1902	1980	1725	1930	755	1379	958
17,0	18,0	3,6	2021	2105	1832	2051	799	1459	1014
18,0	19,0	3,8	2141	2231	1940	2174	844	1542	1071
19,0	20,0	4,0	2263	2360	2048	2297	889	1627	1127
20,0	21,0	4,2	2386	2490	2159	2422	934	1709	1183
21,0	22,0	4,4	2511	2622	2270	2548	979	1793	1240
22,0	23,0	4,6	2637	2757	2383	2677	1024	1879	1298
23,0	24,0	4,8	2766	2893	2497		1070	1964	1353
24,0	25,0	5,0	2896	3031	2612		1116	2050	1409
25,0	26,0	5,2	3030	3173	2729		1662	2134	1465
26,0	27,0	5,4	3164	3318	2847		1208	2219	1522
27,0	28,0	5,6	3302	3467	2967		1254	2305	1578

Capacidade de Descarga para Válvula de Segurança

Modelo: VSA-R-16

Do = 16 mm

Pa = Máxima pressão montante sem perda de capacidade de descarga

Pr (atm)	P (atm)	Pa (atm)	R 11 (kg/h)	R 12 (kg/h)	R 22 (kg/h)	R 502 (kg/h)	NH ₃ (kg/h)	CO ₂ (kg/h)	AR (kg/h)
3,5	4,5	0,9	739	766	672	748	302		377
4,0	5,0	1,0	820	850	745	830	335		418
4,5	5,5	1,1	901	934	811	912	367		460
5,0	6,0	1,2	981	1018	892	994	400		502
6,0	7,0	1,4	1144	1186	1040	1158	466	851	586
7,0	8,0	1,6	1307	1356	1188	1324	531	970	670
8,0	9,0	1,8	1471	1526	1337	1490	596	1089	754
9,0	10,0	2,0	1636	1698	1487	1658	662	1208	837
10,0	11,0	2,2	1802	1870	1638	1826	727	1330	921
11,0	12,0	2,4	1969	2045	1789	1996	793	1448	1005
12,0	13,0	2,6	2138	2221	1942	2186	858	1566	1089
13,0	14,0	2,8	2307	2399	2096	2340	924	1681	1173
14,0	15,0	3,0	2479	2578	2251	2515	990	1809	1256
15,0	16,0	3,2	2652	2670	2407	2691	1056	1930	1340
16,0	17,0	3,4	2828	2943	2564	2869	1122	2050	1424
17,0	18,0	3,6	3004	3129	2723	3049	1189	2168	1508
18,0	19,0	3,8	3163	3317	2884	3231	1255	2292	1592
19,0	20,0	4,0	3363	3508	3045	3414	1322	2418	1675
20,0	21,0	4,2	3547	3701	3209	3601	1388	2541	1759
21,0	22,0	4,4	3732	3897	3375	3788	1455	2665	1843
22,0	23,0	4,6	3920	4098	3542	3979	1522	2793	1927
23,0	24,0	4,8	4112	4300	3712		1590	2919	2011
24,0	25,0	5,0	4305	4506	3883		1659	3047	2094
25,0	26,0	5,2	4503	4717	4056		1727	3172	2178
26,0	27,0	5,4	4703	4933	4232		1796	3299	2262
27,0	28,0	5,6	4909	5153	4410		1864	3427	2346
28,0	29,0	5,8	5116	5379	4592		1933	3557	2429
29,0	30,0	6,0	5331	5611	4776		2001	3688	2513
30,0	31,0	6,2	5549	5847	4963		2070	3820	2597
31,0	32,0	6,4	5770	6093	5156		2141	3953	2681
32,0	33,0	6,6	6004	6347	5350		2212	4087	2765
33,0	34,0	6,8	6238	6611	5548			4220	2848
34,0	35,0	7,0	6487	6888	5754			4357	2932
35,0	36,0	7,2	6741	7189	5960			4492	3016
36,0	37,0	7,4	7007	7506	6177			4633	3100
37,0	38,0	7,6	7286	7850	6398			4771	3184
38,0	39,0	7,8	7587	8232	6625			4911	3267
39,0	40,0	8,0	7916	8696	6860			5053	3351
40,0	41,0	8,2	8276	9854	7110			5192	3435

Capacidade de Descarga para Válvula de Segurança

Modelo: VSA-R-20
Do = 20 mm
Pa = Máxima pressão montante sem perda de capacidade de descarga

Pr (atm)	P (atm)	Pa (atm)	R 11 (kg/h)	R 12 (kg/h)	R 22 (kg/h)	R 502 (kg/h)	NH ₃ (kg/h)	CO ₂ (kg/h)	AR (kg/h)
3,5	4,5	0,9	965	1001	877	977	395		492
4,0	5,0	1,0	1071	1110	973	1084	438		547
4,5	5,5	1,1	1176	1219	1059	1191	479		601
5,0	6,0	1,2	1282	1329	1165	1298	523		656
6,0	7,0	1,4	1494	1549	1358	1513	608	1111	766
7,0	8,0	1,6	1707	1771	1552	1729	694	1267	873
8,0	9,0	1,8	1921	1993	1746	1946	779	1422	985
9,0	10,0	2,0	2136	2218	1942	2165	865	1578	1094
10,0	11,0	2,2	2353	2443	2139	2385	950	1737	1203
11,0	12,0	2,4	2572	2671	2337	2607	1036	1891	1313
12,0	13,0	2,6	2792	2901	2536	2856	1121	2045	1422
13,0	14,0	2,8	3014	3134	2737	3057	1207	2203	1532
14,0	15,0	3,0	3238	3367	2940	3284	1293	2363	1641
15,0	16,0	3,2	3464	3605	3134	3515	1380	2521	1751
16,0	17,0	3,4	3693	3844	3349	3747	1466	2670	1860
17,0	18,0	3,6	3923	4087	3557	3983	1552	2832	1970
18,0	19,0	3,8	4157	4332	3767	4220	1639	2994	2079
19,0	20,0	4,0	4393	4582	3977	4460	1727	3159	2189
20,0	21,0	4,2	4633	4833	4191	4703	1814	3319	2298
21,0	22,0	4,4	4874	5090	4408	4947	1901	3481	2407
22,0	23,0	4,6	5120	5352	4626	5197	1988	3647	2517
23,0	24,0	4,8	5371	5616	4848		2077	3813	2626
24,0	25,0	5,0	5623	5885	5072		2167	3980	2736
25,0	26,0	5,2	5882	6160	5298		2255	4143	2845
26,0	27,0	5,4	6142	6443	5527		2345	4308	2955
27,0	28,0	5,6	6411	6730	5760		2435	4476	3064

Capacidade de Descarga para Válvula de Segurança

Modelo: VSA-F-26
Do = 25,6 mm
Pa = Máxima pressão montante sem perda de capacidade de descarga

Pr (atm)	P (atm)	Pa (atm)	R 11 (kg/h)	R 12 (kg/h)	R 22 (kg/h)	R 502 (kg/h)	NH ₃ (kg/h)	CO ₂ (kg/h)	AR (kg/h)
3,5	4,5	0,9	1361	1411	1237	1378	557		694
4,0	5,0	1,0	1510	1565	1372	1529	617		771
4,5	5,5	1,1	1659	1720	1494	1680	676		848
5,0	6,0	1,2	1808	1875	1644	1831	738		925
6,0	7,0	1,4	2107	2185	1916	2134	858	1567	1080
7,0	8,0	1,6	2407	2497	2188	2438	978	1787	1234
8,0	9,0	1,8	2709	2811	2463	2744	1099	2006	1388
9,0	10,0	2,0	3012	3127	2739	3053	1219	2225	1543
10,0	11,0	2,2	3319	3445	3016	3364	1339	2449	1697
11,0	12,0	2,4	3626	3766	3295	3676	1460	2668	1851
12,0	13,0	2,6	3937	4091	3576	4027	1581	2884	2006
13,0	14,0	2,8	4250	4419	3859	4310	1702	3107	2160
14,0	15,0	3,0	4566	4748	4145	4631	1823	3332	2314
15,0	16,0	3,2	4885	5084	4433	4956	1945	3555	2468
16,0	17,0	3,4	5208	5421	4723	5284	2067	3776	2623
17,0	18,0	3,6	5532	5763	5015	5616	2189	3993	2777
18,0	19,0	3,8	5862	6108	5312	5950	2311	4221	2931
19,0	20,0	4,0	6194	6460	5608	6288	2435	4454	3086
20,0	21,0	4,2	6533	6816	5910	6632	2557	4680	3240
21,0	22,0	4,4	6873	7178	6216	6976	2680	4908	3394
22,0	23,0	4,6	7720	7547	6523	7328	2803	5143	3549
23,0	24,0	4,8	7573	7919	6836		2928	5376	3703
24,0	25,0	5,0	7929	8298	7152		3055	5612	3857
25,0	26,0	5,2	8294	8687	7471		3180	5842	4012
26,0	27,0	5,4	8661	9085	7794		3307	6075	4166
27,0	28,0	5,6	9040	9490	8122		3434	6311	4320

Capacidade de Descarga para Válvula de Segurança

Modelo: VSA-F-32
Do = 32 mm
Pa = Máxima pressão montante sem perda de capacidade de descarga

Pr (atm)	P (atm)	Pa (atm)	R 11 (kg/h)	R 12 (kg/h)	R 22 (kg/h)	R 502 (kg/h)	NH ₃ (kg/h)	CO ₂ (kg/h)	AR (kg/h)
3,5	4,5	0,9	2230	2313	2027	2259	913		1137
4,0	5,0	1,0	2474	2565	2249	2506	1012		1264
4,5	5,5	1,1	2718	2818	2448	2753	1108		1390
5,0	6,0	1,2	2962	3072	2693	3000	1209		1516
6,0	7,0	1,4	3452	3580	3139	3496	1406	2567	1769
7,0	8,0	1,6	3944	4091	3586	3995	1603	2928	2022
8,0	9,0	1,8	4439	4605	4035	4497	1801	3286	2275
9,0	10,0	2,0	4936	5124	4487	5002	1998	3646	2528
10,0	11,0	2,2	5438	5645	4943	5511	2194	4013	2781
11,0	12,0	2,4	5942	6171	5399	6024	2393	4369	3033
12,0	13,0	2,6	6451	6703	6324	6598	2591	4726	3266
13,0	14,0	2,8	6963	7241	6792	7062	2788	5090	3539
14,0	15,0	3,0	7481	7779	7263	7588	2987	5459	3792
15,0	16,0	3,2	8004	8330	7738	8121	3188	5825	4045
16,0	17,0	3,4	8532	8882	8218	8658	3387	6186	4297
17,0	18,0	3,6	9064	9442	8703	9202	3587	6543	4550
18,0	19,0	3,8	9604	10008	9188	9749	3787	6917	4803
19,0	20,0	4,0	10149	10585	9683	10303	3989	7298	5056
20,0	21,0	4,2	10705	11167	10184	10866	4190	7668	5309
21,0	22,0	4,4	11261	11760	10687	11430	4391	8042	5562
22,0	23,0	4,6	11830	12365	11201	12006	4593	8427	5814
23,0	24,0	4,8	12408	12975	11717		4798	8809	6067
24,0	25,0	5,0	12991	13596	12241		5006	9196	6320
25,0	26,0	5,2	13589	14233	12770		5211	9572	6573
26,0	27,0	5,4	14191	14884	13307		5419	9954	6826
27,0	28,0	5,6	14811	15549			5626	10341	7079

Capacidade de Descarga para Válvula de Segurança

Modelo: VSA-F-43
Do = 43 mm
Pa = Máxima pressão montante sem perda de capacidade de descarga

Pr (atm)	P (atm)	Pa (atm)	R 11 (kg/h)	R 12 (kg/h)	R 22 (kg/h)	R 502 (kg/h)	NH ₃ (kg/h)	CO ₂ (kg/h)	AR (kg/h)
3,5	4,5	0,9	3109	3223	2825	3148	1272		1585
4,0	5,0	1,0	3448	3574	3134	3492	1410		1761
4,5	5,5	1,1	3788	3927	3411	3836	1544		1937
5,0	6,0	1,2	4128	4281	3753	4181	1685		2113
6,0	7,0	1,4	4811	4990	4374	4872	1960	3578	2466
7,0	8,0	1,6	5497	5702	4997	5568	2234	4080	2818
8,0	9,0	1,8	6187	6418	5624	6267	2509	4580	3170
9,0	10,0	2,0	6879	7141	6253	6971	2785	5081	3523
10,0	11,0	2,2	7578	7867	6888	7681	3058	5592	3875
11,0	12,0	2,4	8281	8600	7525	8395	3335	6089	4227
12,0	13,0	2,6	8990	9341	8166	9195	3611	6586	4580
13,0	14,0	2,8	9704	10090	8813	9842	3886	7094	4932
14,0	15,0	3,0	10426	10842	9466	10575	4163	7608	5284
15,0	16,0	3,2	11154	11608	10122	11317	4442	8118	5637
16,0	17,0	3,4	11891	12378	10784	12065	4720	8623	5989
17,0	18,0	3,6	12632	13159	11452	12824	4999	9118	6341
18,0	19,0	3,8	13385	13947	12129	13587	5278	9639	6694
19,0	20,0	4,0	14144	14751	12805	14359	5560	10171	7046
20,0	21,0	4,2	14918	15562	13495	15142	5840	10686	7398
21,0	22,0	4,4	15694	16389	14192	15929	6120	11208	7751
22,0	23,0	4,6	16486	17232	14893	16732	6401	11744	8103
23,0	24,0	4,8	17292	18082	15610		6687	12276	8455
24,0	25,0	5,0	18105	18948	16329		6977	12815	8808
25,0	26,0	5,2	18937	19835	17058		7262	13340	9160
26,0	27,0	5,4	19777	20743	17797		7551	13872	9512
27,0	28,0	5,6	20641	21670	18545		7841	14411	9865