

Safety Valves

Type 06413



Cryogenic Safety Valves, angle type, stainless steel, PN50, type tested TÜV-SV.780. S/G

Full lift safety valve, orifice $d_0=23\text{mm}$ standard safety valve,
with carbon filled PTFE valve seal, orifice $d_0=23\text{mm}$ with PCTFE seal, closed bonnet, with lifting device
"cleaned and degreased for oxygen service"

Part No. 06413.X.0000

Inlet: male thread type G (BSPP) acc. to ISO 228/1, Outlet: female thread type G (BSPP) acc. to ISO 228/1

Part No. 06413.X.2000

Inlet: male thread type R (BSPT) acc. to ISO 7/1, Outlet: female thread type G (BSPP) acc. to ISO 228/1

Part No. 06413.X.5000

Inlet: male thread NPT acc. to ANSI B 1.20.1, Outlet: female thread type G (BSPP) acc. to ISO 228/1

Part No. 06413.X.6000

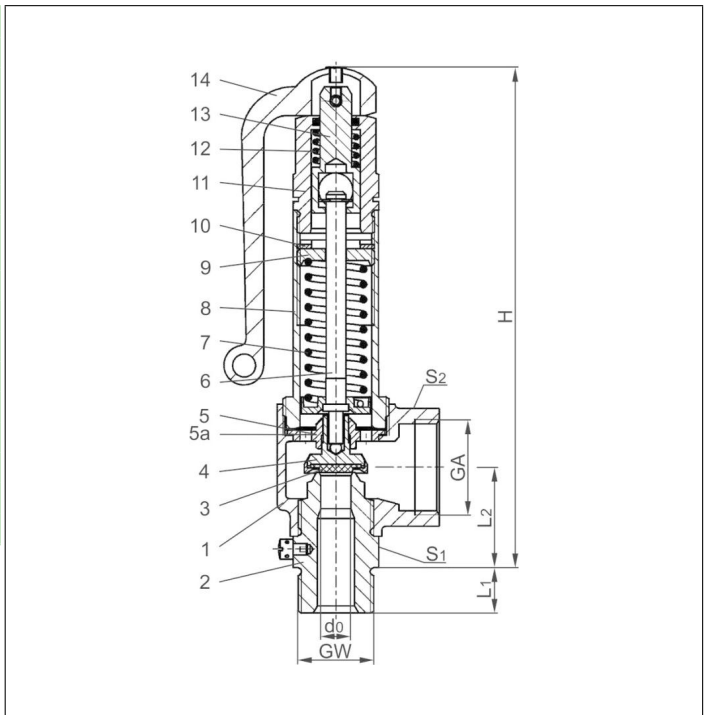
Inlet: male thread NPT acc. to ANSI B 1.20.1, Outlet: female thread NPT acc. to ANSI B 1.20.1



Applications:

Provided as safety device for protection against excessive pressure in stationary and moveable gas cylinders and pressure vessels. Approved for air gases, vapours and cryogenic liquefied gases incl. LNG.
Working temperature: -196°C / -321°F (77K) up to $+185^{\circ}\text{C}$ / $+365^{\circ}\text{F}$ (458K), suitable for horizontal installation

Materials	DIN EN	ASME/ASTM
1 Outlet body	1.4308	A 351 CF8
2 Inlet body	1.4301	A 479 Grade 304
3 Valve seal	PTFE / Carbon filled (25%) PCTFE ($d_0 23$)	
4 Disc	1.4301	A 479 Grade 304
5 Guide plate	1.4301	A 479 Grade 304
5a Guide plate from GW 1	1.4301	A 479 Grade 304
6 Stem	1.4571	A 479 Grade 316Ti
7 Spring	1.4571	A 313 Grade 316Ti
8 Bonnet	1.4308	A 351 CF8
9 Spring clamp	1.4301	A 479 Grade 304
10 Thread ring	1.4301	A 479 Grade 304
11 Lifting cap	1.4301	A 479 Grade 304
12 Lifting spring	1.4571	A 313 Grade 316Ti
13 Lifting stem	1.4301	A 479 Grade 304
14 Lever	1.4408	A 351 CF8M



Type 06413	Technical data								
Nominal size	GW	1/2	3/4	1/2	3/4	1	1-1/4	1-1/2	2
Orifice	d_0	7.0	7.0	10.5	10.5	15.0	23.0	23.0	23.0
Dimension code	.X.	0704	0706	1004	1006	1510	2312	2314	2320
Set pressure range	bar	3.3-50.0	3.3-50.0	2.9-50.0	2.9-50.0	2.9-50.0	2.0-50.0	2.0-50.0	2.0-50.0
Outlet	GA	1	1	1	1	1-1/4	2	2	2
Height	H	175	175	175	175	194	270	270	268
Length	L_1	14	16	14	16	18	20	20	25
Length	L_2	36	36	36	36	42	56	56	54
Wrench size across flats	S_1	30	30	30	30	41	55	55	65
Wrench size across flats	S_2	41	41	41	41	50	70	70	70
Weight	ca. kg	1.00	1.02	0.98	1.01	1.52	3.80	3.85	4.28
Coefficient of discharge	α_w	0.82	0.82	0.58	0.58	0.5	0.62	0.62	0.62
Coefficient of discharge	rated slope	0.862	0.862	1.517	1.517	2.769	7.55	7.55	7.55

Dimensions in mm.



Discharge capacities

Medium:

Air in m³/h at 0°C and 1013.25 mbar

Air in SCFM at 60°F (15.6°C) and 14.7 psia (1013.25 mbar)

The capacity indicated below is for a fully opened valve.

d₀ - orifice

A₀ - flow area

Calculation of discharge capacity acc. to AD2000-Merkblatt A2 / DIN EN ISO 4126-1 resp. ASME Code Sec. VIII.

Set pressure in bar (g)	GW	1/2 & 3/4	1/2 & 3/4	1	1-1/4, 1-1/2 & 2
	d ₀ (mm)	7.0	10.5	15.0	23.0
	A ₀ (mm ²)	38.48	86.59	176.71	415.48
	Medium	Air in m ³ /h			
2.0		-	-	-	564
2.9		-	139	244	738
3.0		-	143	251	758
3.3		96	154	270	817
4.0		112	179	314	952
5.0		135	215	379	1148
6.0		158	251	442	1342
7.0		181	287	506	1535
8.0		204	324	571	1735
9.0		227	361	634	1929
10.0		250	398	699	2128
12.0		295	470	827	2517
14.0		341	543	955	2907
16.0		387	615	1082	3297
18.0		432	688	1210	3686
20.0		482	767	1350	4115
22.0		528	841	1479	4508
24.0		574	914	1608	4902
26.0		620	987	1737	5295
28.0		666	1060	1865	5688
30.0		719	1144	2013	6139
32.0		765	1218	2143	6536
34.0		812	1292	2273	6933
36.0		858	1366	2403	7330
38.0		905	1440	2533	7727
40.0		959	1527	2686	8194
42.0		1006	1601	2817	8595
44.0		1053	1676	2948	8995
46.0		1100	1750	3079	9396
48.0		1147	1825	3210	9796
50.0		1204	1915	3370	10283

Set pressure in psig	GW	1/2 & 3/4	1/2 & 3/4	1	1-1/4, 1-1/2 & 2
	d ₀ (inch)	0.276	0.413	0.591	0.906
	A ₀ (in ²)	0.060	0.134	0.274	0.644
	Medium	Air in SCFM			
30		-	-	-	360
40		-	-	-	443
50		60	106	193	526
60		70	122	223	609
70		79	139	254	692
80		89	156	284	775
90		98	172	315	858
100		107	189	345	941
110		117	206	376	1025
120		126	223	406	1108
130		136	239	437	1191
140		145	256	467	1274
150		155	273	498	1357
175		179	314	574	1564
200		202	356	650	1772
225		226	398	726	1980
250		250	439	802	2187
275		273	481	878	2395
300		297	523	954	2602
325		321	565	1031	2810
350		345	606	1107	3018
375		368	648	1183	3225
400		392	690	1259	3433
425		416	731	1335	3641
450		439	773	1411	3848
475		463	815	1488	4056
500		487	857	1564	4263
525		510	898	1640	4471
550		534	940	1716	4679
575		558	982	1792	4886
600		582	1024	1868	5094
625		605	1065	1944	5302
650		629	1107	2021	5509
675		653	1149	2097	5717
700		676	1190	2173	5924
725		700	1232	2249	6132