

# Series 88 Safety Valves

## Series 88 / 89

Series 88 and 89 are multiple purpose safety valves for air / gas protection. Designed for durability, yet an economical choice for safety and relief applications. Choose for a variety of applications where mid-level capacity is required.

ASME and National Board Certified for Section VIII as well as CRN Certifications.



**Usages:** Over pressure protection on Pressure vessels, Piping systems, Tanks, Compressors, Dryers, Inter and After-coolers

**Features:**

- Precision lapped metal to metal seating
- Stainless steel springs
- Ruggedly constructed
- Closed seal hex cap or lift lever options
- Wide variety of inlet and outlet options
- Disk-guided seat provides quick, accurate and excellent re-seating

**Options:**

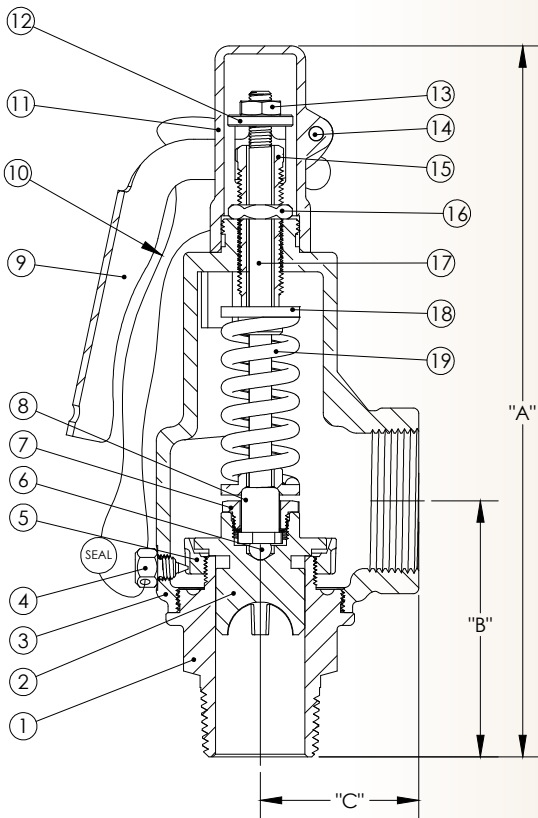
- Stainless steel body and disk
- Chrome plating
- Viton embedded o-ring at hex cap
- Packed lift lever
- Low Lead Configurations
- PTFE Seating
- Oxygen cleaning
- BSPT connections

**Cryogenic:**

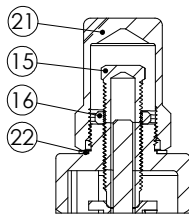
- Standard with PTFE seating
- O2 Cleaned and bagged



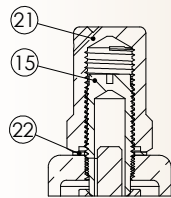
CRN



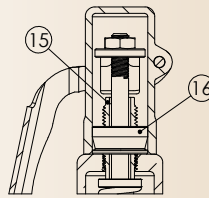
<b>Series 88 / 89</b>			
Item	Description	Brass	Stainless
1	Body	B16/B283	316 Stainless
2	Disc	B62	316 Stainless
3	Bonnet	B584	B584
4	Lock Screw	B16	B16
5	Lower Ring	B584	B584
6	Ball	Stainless	Stainless
7	Disc Nut	B16	B16
8	Spring Support	B16	B16
9	Lift Lever	Plated Steel	Plated Steel
10	Seal Wire	Steel / Lead	Steel / Lead
11	Hood	Aluminum	Aluminum
12	Lifter Nut	B16	B16
13	Jam Nut	18-8	18-8
14	Lever Pin	B16	B16
15	Pressure Screw	B16	B16
16	Locknut	B16	B16
17	Spring Post	B16	B16
18	Spring Plate	B16	B16
19	Spring	302/17-7	302/17-7
20	Nameplate	Stainless	Stainless
21	Hood	B16	B16
22	Washer	Nylon	Nylon



Series 89



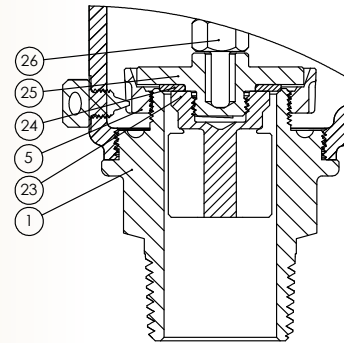
1/2" & 3/4"  
Series 89



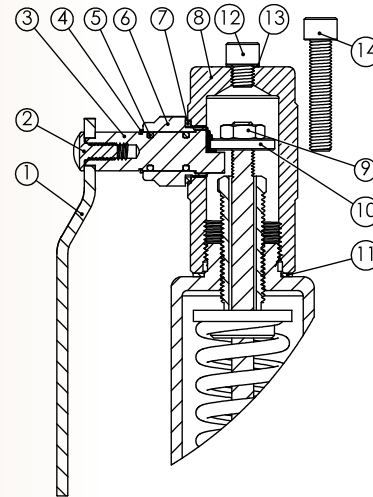
1/2" - 3/4"  
Lift Levers

<b>Series 88 / 89</b>									
Size I.D.	Inlet	Outlet	DN	Dimensions - In. (mm)				Weight Lb - (Kg)	
				A-88	A-89	B	C		
A1	1/2"	1/2"	15	6-7/8" (175)	6" (152)	2-1/2" (64)	1-3/8" (35)	1.7 (0.8)	
A2	1/2"	3/4"	15	6-7/8" (175)	6" (152)	2-1/2" (64)	1-3/8" (35)	1.7 (0.8)	
B1	3/4"	3/4"	20	7-1/8" (181)	6-1/4" (159)	2-5/8" (67)	1-1/2" (38)	2.2 (1)	
B2	3/4"	1"	20	7-1/8" (181)	6-1/4" (159)	2-5/8" (67)	1-1/2" (38)	2.2 (1)	
C1	1"	1"	25	7-7/8" (200)	7-3/8" (187)	2-7/8" (73)	1-3/4" (44)	3 (1.4)	
C2	1"	1-1/4"	25	7-7/8" (200)	7-3/8" (187)	2-7/8" (73)	1-3/4" (44)	3 (1.4)	
D1	1-1/4"	1-1/4"	32	8-3/4" (222)	8-1/4" (210)	3-3/8" (86)	2" (51)	4 (1.8)	
D2	1-1/4"	1-1/2"	32	8-3/4" (222)	8-1/4" (210)	3-3/8" (86)	2" (51)	4 (1.8)	
E1	1-1/2"	1-1/2"	40	9-7/8" (251)	9-1/2" (241)	3-1/2" (89)	2-1/8" (54)	5.8 (2.6)	
E2	1-1/2"	2"	40	9-7/8" (251)	9-1/2" (241)	3-1/2" (89)	2-1/8" (54)	5.8 (2.6)	
F1	2"	2"	50	11-1/4" (286)	11" (279)	3-7/8" (98)	2-5/8" (67)	9.7 (4.4)	
F2	2"	2-1/2"	50	11-1/4" (286)	11" (279)	3-7/8" (98)	2-5/8" (67)	9.7 (4.4)	
G1	2-1/2"	2-1/2"	65	13-7/8" (352)	13" (330)	5-1/4" (133)	3-5/8" (92)	19 (8.6)	
G2	2-1/2"	3"	65	13-7/8" (352)	13" (330)	5-1/4" (133)	3-5/8" (92)	19 (8.6)	
H1	3"	3"	80	13-7/8" (352)	13-1/4" (337)	5-5/8" (143)	3-5/8" (92)	19 (8.6)	

<b>PTFE Soft Seat</b>			
Item	Description	Brass	Stainless
1	Body	B16/B283	316 Stainless
5	Lower Ring	B584	B584
23	Disc Wings	B16	316 Stainless
24	Insert	PTFE	PTFE
25	Disc	B16	316 Stainless
26	Support	B16	B16



<b>Packed Lift Lever Options</b>				
Item	Description	Material Options		
		Brass	Carbon Steel	Stainless Steel
1	Handle	B16 Brass	B16 Brass/Plated	B16 Brass/Plated
2	Handle Screw	Steel/Plated	Steel/Plated	Steel/Plated
3	Cam	B16 Brass	SA479-316 SS	SA479-316 SS
4	Retaining Ring	Steel/Plated	17-7 SS	17-7 SS
5	O-Rings	Viton	Viton	Viton
6	Cam Nut	B16 Brass	SA479-316 SS	SA479-316 SS
7	O-Ring	PTFE	PTFE	PTFE
8	Hood	B16 Brass	SA108-C1018	SA479-316 SS
9	Jam Nut	18-8 Stainless	18-8 Stainless	18-8 Stainless
10	Lifter Nut	B16 Brass	SA479-316 SS	SA479-316 SS
11	Hood Seal	PTFE	PTFE	PTFE
12	Plug	18-8 Stainless	12, 13, 14 are part of the additional Gag Screw option	
13	Washer	PTFE		
14	Gag Screw	18-8 Stainless		



<b>Series 88 / 89 Part Numbers</b>									
88	C	2	A	1	M	1	K	1	125
Series	Inlet	Outlet	Metals	Connection	Seating	Cap	Service	Options	Set
88	A- 1/2"	1- Same Size as Inlet 2- Next Larger than Inlet	A- Brass/Bronze	1- NPT MxF	M- Metal	1- Lift lever	K- ASME VIII Air/gas	1- None	Ex.125
89	B- 3/4"		B- 316 SS Nozzle Disc w/Bronze	2- NPT FxF	P- PTFE	2- Closed cap	N- Non-code Air/gas	2- Chrome Plating	
	C- 1"		L- No Lead Nozzle Disc w/Bronze	3- BSPT MxF		3- Packed Lift Lever	T- Non-code Steam	3- O2 Cleaned	
	D- 1-1/4"		M- 316 SS/ No Lead Bronze	4- BSPT FxF		4- Lift Lever Anti-Vibration Spring		4- API Seating	
	E- 1-1/2"			8- BSPP MxF		5- Closed Cap with Test Gag		5- O2 Clean / API Seating	
	F- 2"			9- BSPP FxF		6- Packed Lever with Test Gag			
	G- 2-1/2"					8- Closed Cap with O-Ring			
	H- 3"								

# Air Capacities

**Series 88 / 89 Air Capacity  
SCFM @ 10% over Set Pressure**

Slope	.644	.93	2.274	3.504	4.90	7.404	13.416	16.98
Set PSI	A 1/2"	B 3/4"	C 1"	D 1-1/4"	E 1-1/2"	F 2"	G 2-1/2"	H 3"
5.0	15	21	52	80	111	168	305	385
10	18	26	63	97	136	205	372	470
15	21	30	74	115	160	242	439	555
20	24	35	86	132	185	279	506	640
25	27	40	97	150	209	316	573	725
30	31	44	108	167	234	353	640	810
35	34	49	121	186	261	394	714	903
40	38	55	133	206	288	435	788	997
45	41	60	146	225	315	475	861	1090
50	45	65	158	244	342	516	935	1184
55	48	70	171	264	368	557	1009	1277
60	52	75	184	283	395	598	1083	1370
65	56	80	196	302	422	638	1156	1464
70	59	85	209	321	449	679	1230	1557
75	63	90	221	341	476	720	1304	1650
80	66	96	234	360	503	760	1378	1744
85	70	101	246	379	530	801	1452	1837
90	73	106	259	398	557	842	1525	1931
95	77	111	271	418	584	883	1599	2024
100	80	116	284	437	611	923	1673	2117
120	94	136	334	514	719	1086	1968	2491
140	109	157	384	591	827	1249	2263	2865
160	123	177	434	668	934	1412	2558	3238
180	137	198	484	745	1042	1575	2854	3612
200	151	218	534	822	1150	1738	3149	3985
220	165	239	584	899	1258	1901	3444	4359
240	179	259	634	977	1366	2063	3739	4732
250	187	269	659	1015	1420	2145	3887	4919

**Series 88 / 89 Air Capacity  
Nm<sup>3</sup>/hr @ 10% over Set Pressure**

Slope	.644	.93	2.274	3.504	4.90	7.404	13.416	16.98
Set Bar	A 1/2"	B 3/4"	C 1"	D 1-1/4"	E 1-1/2"	F 2"	G 2-1/2"	H 3"
.2	23	33	80	123	171	259	470	594
.5	27	39	96	149	208	314	569	720
1	35	51	124	192	268	405	734	929
2	51	74	180	278	389	587	1064	1347
3	68	99	242	372	521	787	1426	1804
4	86	124	303	467	653	987	1789	2265
5	103	149	365	562	786	1188	2153	2725
6	121	174	427	657	919	1389	2516	3185
7	138	200	488	752	1052	1589	2880	3645
8	156	225	550	847	1185	1790	3243	4105
9	173	250	611	942	1317	1991	3607	4565
10	191	275	673	1037	1450	2191	3970	5025
11	208	300	735	1132	1583	2392	4334	5485
12	225	326	796	1227	1716	2592	4698	5945
13	243	351	858	1322	1848	2793	5061	6406
14	260	376	919	1417	1981	2994	5425	6866
15	278	401	981	1512	2114	3194	5788	7326
16	295	426	1043	1607	2247	3395	6152	7786
17.2	316	457	1117	1721	2406	3636	6588	8338



Set pressures below 15 PSI (1.03 Bar) and above 250 PSI (17.2 bar) are NON-Code.  
2-1/2" ("G") and 3" ("H") sizes are NON-Code.

Maximum back-pressure is 10% of set pressure or 50 PSI (3.45 Bar) whichever is less.

Lifting Device as required by the ASME,  
ASME Section VIII: UG136(3)

Each pressure relief valve on air, water at the valve inlet that exceeds 140°F (60°C), excluding over-pressure or relief events, or steam service shall have a substantial lifting device which when activated will release the seating force on the disc when the pressure relief valve is subjected to a pressure of at least 75% of the set pressure of the valve.