



CROSBY SERIES 82 PRESSURE RELIEF VALVES

High performance, direct spring operated pressure relief valve for natural gas applications



FEATURES

- Leak-tight performance near set pressure allows higher operating pressures resulting in increased process throughput and system optimization.
- 2-piece body design with easily replaceable seat and seals reduces downtime and maintenance costs.
- FKM soft seat provides repeatable leak-tight performance before and after each relief cycle.
- Bubble tight at 90% or better of set pressure.
- Manufactured to ASME Section VIII UV for gas service.
- Relieving capacities certified by National Board of Boiler and Pressure Vessel Inspectors.
- Standard trim components in 316 stainless steel for maximum corrosion resistance.
- Optional trim to NACE MR-0175 (2002 Edition).
- Gas service only. Lift lever not available for air service.

GENERAL APPLICATION

The Series 82 has a rugged construction designed specifically for high pressure multi stage natural gas compressors.

TECHNICAL DATA

Sizes:	3/4" x 1" to 1" x 1" (20 x 25 mm to 25 x 25 mm)
Orifices:	D 0.127 in ² (0.819 cm ²); E 0.221 in ² (1.423 cm ²)
Connections:	MNPT x FNPT
Temperature range:	-15°F to 400°F (-26°C to 204°C) For lower temperatures consult factory.
Set pressures:	15 to 1500 psig (1 to 103 barg)
Code:	ASME VIII

CROSBY SERIES 82 PRESSURE RELIEF VALVES

PARTS LIST

Item no.	Description	S1 - Standard material	N1 - NACE MR01754
1 ^[3]	Inlet bushing	STL SA105	STL SA105
2	Set screw, body	SST 18-8	SST 18-8
3 ^[2]	O-ring	FKM	FKM
4 ^[2]	O-ring	FKM	FKM
5	Nozzle	SST SA479-316	SST SA479-316
6 ^[2]	O-ring seat	FKM	FKM
7	Seat holder	SST A276-316	SST A276-316
8	Spindle	SST SA479-316	SST SA479-316
9	Guide	SST SA479-316	SST SA479-316
10	Spring washer	SST SA479-316	SST SA479-316
11	Body	STL SA216-WCB	STL SA216-WCB
12	Seal	Lead seal and SST wire	Lead seal and SST wire
13	Spring	SST A313-316/631	Inconel® X750
14	Top insert	SST 17-4 [SA564]	SST 17-4 [SA564]
15 ^[2]	Gasket	PTFE	PTFE
16	Locknut	SST SA479-316	SST SA479-316
17 ^[1]	Screw, adjustment	SST SA479-316/STL SA1083	SST SA479-316/STL SA1083
18 ^[3]	Cap	STL 108-1215 or A29-1215	STL 108-1215 or A29-1215
	Nameplate (not shown)	Commercial aluminum	Commercial aluminum
	Screw, drive (not shown)	SST 18-8	SST 18-8

NOTES

- Adjustment screw SST SA479-316
D orifice: pressures 15 to 800 psig
E orifice: pressures 15 to 310 psig
STL A108/A29 ZN CO PL
D orifice: pressures 801 to 1500 psig
E orifice: pressures 311 to 1500 psig
- Recommended spare parts.
- Zinc cobalt plated.
- NACE MR0175 (2002 Edition).

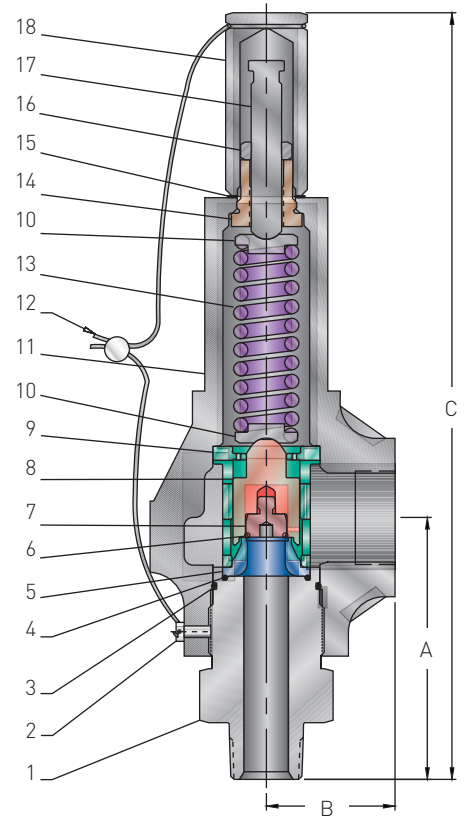
ORIFICES

Size	Area	
	in ²	cm ²
D	0.127	0.819
E	0.221	1.423

PROPERTIES

Pressure range psig (barg)	Temperature limits °F (°C)	Connections ANSI standard NPT		Valve dimensions inches (mm)			Approx. weight lb (kg)
		Inlet	Outlet	A	B	C	
15 to 1500 (1.03 to 103)	-15 to 400 (-26 to 204)	¾" or 1"	1"	3 ⁹ / ₁₆ (90.5)	1 ¹³ / ₁₆ (46.0)	10 ³ / ₄ (273.0)	6.9 (3.13)

MATERIALS OF CONSTRUCTION



CROSBY SERIES 82 PRESSURE RELIEF VALVES

CAPACITIES

NATURAL GAS (USCS, SCFM)

Set pressure (psig)	Orifice area, in ²	
	D (0.127)	E (0.221)
15	83	141
25	108	185
50	176	301
75	246	420
100	316	539
125	385	658
150	455	777
175	524	896
200	594	1015
225	664	1134
250	733	1253
300	872	1490
350	1012	1728
400	1151	1966
450	1290	2204
500	1429	2442
550	1569	2679
600	1708	2917
650	1847	3155
700	1986	3393
800	2265	3869
900	2543	4344
1000	2821	4820
1100	3100	5295
1200	3378	5771
1300	3657	6247
1400	3935	6722
1500	4214	7198

NATURAL GAS (Metric, Nm³/HR)

Set pressure (barg)	Orifice area, cm ²	
	D (0.819)	E (1.423)
1.1	137	234
2.0	190	325
3.0	255	435
4.0	319	546
5.0	384	657
7.0	514	878
9.0	644	1100
11.0	774	1322
13.0	904	1544
15.0	1033	1765
20.0	1358	2320
25.0	1683	2874
30.0	2007	3429
35.0	2332	3983
40.0	2656	4538
45.0	2981	5092
50.0	3305	5647
55.0	3630	6201
60.0	3954	6755
65.0	4279	7310
70.0	4604	7864
75.0	4928	8419
80.0	5253	8973
85.0	5577	9528
90.0	5902	10082
95.0	6226	10636
100.0	6551	11191
103.4	6772	11568

ASME SECTION VIII AIR (USCS, SCFM)

Set pressure (psig)	Orifice area, in ²	
	D (0.127)	E (0.221)
15	66	113
25	87	148
50	141	242
75	197	337
100	253	433
125	309	528
150	365	624
175	421	719
200	476	814
225	532	910
250	588	1005
300	700	1196
350	811	1387
400	923	1578
450	1035	1769
500	1146	1960
550	1258	2150
600	1370	2341
650	1481	2532
700	1593	2723
800	1816	3105
900	2040	3486
1000	2263	3868
1100	2486	4250
1200	2709	4631
1300	2933	5013
1400	3156	5395
1500	3379	5777

	D Orifice	E Orifice
ASME Section VIII gas certified slope (USCS, SCFM/psia)	2.03	3.47
ASME Section VIII gas certified slope (metric, Nm ³ /hr/bar)	47.33	80.85
Coefficient of discharge, Kd	0.872	0.856

Natural gas properties/conditions, USCS (NTP)

Temperature, T	60°F (20°C)
Pressure, P	14.7 psia (1.013 bara)
Gas constant, C	344 (0.0261)
Ratio of specific heats, Cp/Cv	1.27
Specific gravity, SG	0.6
Molecular weight, M	17.40
Compressibility factor, Z	1.0

CROSBY SERIES 82 PRESSURE RELIEF VALVES

SELECTION GUIDE

Example:	82	S1	M	1	D	V	01	-	K	0015
Model	82									
Series 82										
Material of construction		S1								
S1		Standard materials								
N1		NACE - MR0175-2002								
Connection type			M							
M			MNPT x FNPT							
Connection size				1						
1				3/4" MNPT x 1" FNPT [20 mm x 25 mm]						
2				1" MNPT x 1" FNPT [25 mm x 25 mm]						
Orifice					D					
D					0.127 in ² [0.819 cm ²]					
E					0.221 in ² [1.423 cm ²]					
Seat material						V				
V						FKM				
Variation							01			
01							Standard			
02							Low temperature (-20°F/-29°C)			
03							Stainless steel inlet bushing			
02							Low temperature (-20°F/-29°C) and SST inlet bushing			
Design revision								-		
-								Dash (-) Indicates original design		
Service									K	
K									ASME Section VIII gas	
N									Non code gas	
Set pressure										0015
0015										15 psig
1500										1500 psig