Model 8800A
with Flame Arrester

- **Sizes 2" through 12"**
- **Pressure settings 0.5 oz/in² to 15 psig**
- **Vacuum settings 0.5 oz/in² to 12 psig**
- **Available in aluminum (type 356), carbon steel, stainless steel and other materials**
- **Proven spiral wound, crimped ribbon, flame element**
- **Modular construction**

PRESSURE / VACUUM RELIEF VALVE WITH FLAME ARRESTER

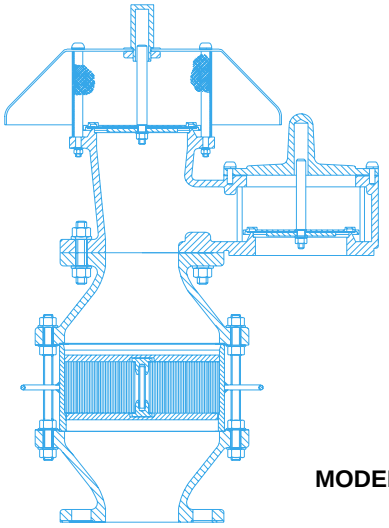
The Model 8800A Pressure/Vacuum Valve & Flame Arrester combination units are designed to protect your tank from damage created by over- pressure or excessive vacuum, at the same time that they provide protection from externally caused sources of heat and ignition. The result is increased fire protection and safety.

SPECIAL FEATURES

The Model 8800A Pressure/Vacuum Relief Valve offers Groth's special "cushioned air" seating. Superior performing TEFLON® seating diaphragms are standard to minimize sticking caused by resinous vapors and atmospheric moisture. Self draining housings and drip rings protect seating surfaces from condensate and freezing.

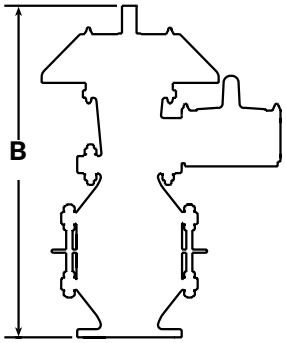
END-OF-LINE
- Gas Group: NEC D, IEC IIA
- Operating Temperature <= 140°F (60°C)
- Pre-Ignition Pressure = Atmosphere

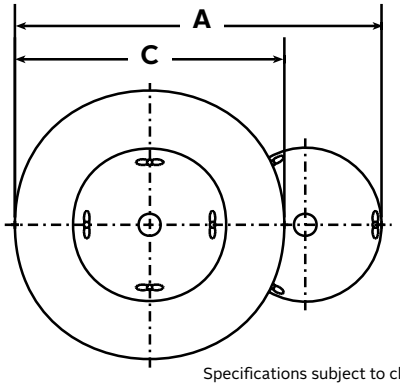
MODEL 8800A

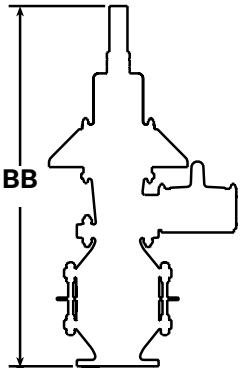


MODEL 8800A

SPECIFICATIONS







Specifications subject to change without notice. Certified dimensions available upon request.

Inlet Flg◊ (Metric)	Max. Set Pressure Weight Loaded	Max. Set Vacuum. Weight Loaded	Max. Setting Spring Loaded	Min. Setting Weight Loaded	Max. W.P.† for Min. Vacuum Setting	Min. Vac. Setting for Max. W.P.†	A Length (Metric)	B Height (Metric)	BB Height (Metric)	C Width (Metric)	Approx. Ship Wt. Lbs. (Aluminum)
2" (50 mm)	16 oz/in² (70.3 gm/cm²)	12 oz/in² (52.7 gm/cm²)	15 psig SPRING LOADED PRESSURE (1.05 kg/cm²) 12 psig SPRING LOADED VACUUM (0.84 kg/cm²)	*0.5 oz/in² WEIGHT LOADED (2.20 gm/cm²)	See TPD2 for Vacuum Settings and MAWP		13.63" (346 mm)	27" (685 mm)	33.87" (860 mm)	9.50" (241mm)	35 (16 kg)
3" (80 mm)		11 oz/in² (48.3 gm/cm²)					18" (457 mm)	29.63" (752 mm)	38.75" (984 mm)	11.50" (292 mm)	45 (20 kg)
4" (100 mm)		11 oz/in² (48.3 gm/cm²)					19.75" (502 mm)	34.63" (879 mm)	46.25" (1175 mm)	13" (330 mm)	70 (32 kg)
6" (150 mm)		16 oz/in² (70.3 gm/cm²)					28.75" (730 mm)	43.25" (1099 mm)	58.75" (1492 mm)	19" (483 mm)	125 (57 kg)
8" (200 mm)		16 oz/in² (70.3 gm/cm²)					36" (914 mm)	51.38" (1305 mm)	69.50" (1765 mm)	23.63" (600 mm)	210 (95 kg)
10" (250 mm)		16 oz/in² (70.3 gm/cm²)					42" (1067 mm)	58.88" (1495 mm)	83" (2108 mm)	30.75" (781 mm)	350 (160 kg)
12" (300 mm)		16 oz/in² (70.3 gm/cm²)					48.50" (1232 mm)	65.38" (1661 mm)	88.12" (2238 mm)	35.75" (908 mm)	500 (227 kg)

†W.P. = Working Pressure. †On spring loaded valves, change model number. ◊150# ANSI drilling compatibility, F.F. on aluminum and R.F. on carbon steel and stainless steel alloys. 16 oz/in² set with spacer. SS set weights-consult factory. *Some sizes require non-ferrous components to achieve 0.5 oz/in² setting.

HOW TO ORDER

For easy ordering, select proper model numbers

MODEL # | SIZE | MATERIAL | OPTIONS

8800A Weight Loaded
8801B Pressure Spring
8802B Vacuum Spring
8803A Pressure & Vacuum Springs

02" Thru 12"

Flame Element Material
Pallet Material
Seat Material
* Body Material

1 = Aluminum
3 = Carbon Steel
5 = 316 SS
Z = Special

O = No Options
Z = Special Options

O = No Jacket
J = Steam Jacket
S = Spacer
H = Steam Jacket and Spacer

Diaphragm Material (Seat):
B = Buna-N
T = TEFLON®
V = VITON®
Z = Special

NOTES
- Include model number and setting when ordering.
- For special options, consult factory.
- When ordering steam jacket, include steam pressure/temperature.
- * Stainless steel guides, stems are standard with aluminum and carbon steel bodies. Stainless steel seats standard with carbon steel bodies.

EXAMPLE

8 8 0 0 A — 0 2 — 1 1 5 1 — T 0 0

Indicates a 2" Model 8800A with Aluminum Body and Seat, 316 SS Pallet, Aluminum Flame Element, TEFLON® Seat Diaphragm, and no other options.

Model 8800A
Pressure Relief Capacity

Set Pressure (P_s)		Air Flow Capacity at 100% Overpressure (Double Set Pressure) 1000 Standard Cubic Feet per Hour at 60° F						
InWC	oz/in^2	2" (50 mm)	3" (80 mm)	4" (100 mm)	6" (150 mm)	8" (200 mm)	10" (250 mm)	12" (300 mm)
0.87	0.50	3.01	5.98	10.7	21.5	34.8	55.2	62.3
1.00	0.58	3.29	6.68	12.0	24.2	39.2	62.1	72.0
1.73	1.00	4.56	9.70	17.6	36.3	58.4	92.0	112
2.00	1.16	4.96	10.7	19.3	39.9	64.2	101	125
2.60	1.50	5.76	12.6	22.7	47.2	75.9	120	148
3.00	1.73	6.26	13.7	24.8	51.7	82.9	131	163
3.46	2.00	6.79	15.0	27.1	56.4	90.5	143	178
4.00	2.31	7.36	16.3	29.5	61.5	99.0	155	195
6.00	3.47	9.20	20.6	37.3	78.1	125	197	249
8.00	4.62	10.9	24.3	44.0	92.2	148	233	295
10.0	5.78	12.3	27.6	50.0	105	168	264	335
12.0	6.93	13.6	30.6	55.4	116	186	293	372
15.0	8.66	15.4	34.6	62.8	132	211	332	422
20.0	11.6	18.0	40.7	73.7	155	248	390	497
25.0	14.4	20.4	46.0	83.5	175	281	442	563
30.0	17.3	22.6	50.9	92.4	194	311	489	623

Flow capacity is certified by Groth Corporation, based on actual tests conducted in compliance with API Std. 2000.
Flow measurement accuracy has been verified by an independent testing laboratory.

Flow capacity values listed above are based on full open valves at 100% overpressure.

Consult Factory for flow capacity with fiberglass valve.

Read the flow capacity at 100% overpressure directly from the table above. Use linear interpolation if the set pressure is not listed. (Ref: TPD1)

If the allowable overpressure is less than 100%, modify the flow capacity using the appropriate "C" factor from the table. If allowable overpressure is more than 100%, consult TPD1 or your Groth Representative.

Calculate the percentage overpressure by the following formula. Note that all pressures are gauge pressure expressed in the same units of measure.

P_f = Flowing pressure
P_s = Set pressure
% OP = $[(P_f - P_s)/P_s] \times 100$

Calculate flow capacity at less than 100% overpressure according to the following example.

Example—To find "C" factor from table:
Read "C" factor for 75% overpressure at intersection of row 70 and column 5
"C" factor at 75% OP = 0.87

"C" Factor Table

%OP	0	1	2	3	4	5	6	7	8	9
10 20 30 40	**Consult Factory**									
50	0.72	0.73	0.73	0.74	0.75	0.75	0.76	0.77	0.77	0.78
60	0.78	0.79	0.80	0.80	0.81	0.81	0.82	0.82	0.83	0.84
70	0.84	0.85	0.85	0.86	0.86	0.87	0.88	0.88	0.89	0.89
80	0.90	0.90	0.91	0.91	0.92	0.92	0.93	0.93	0.94	0.94
90	0.95	0.95	0.96	0.96	0.97	0.97	0.98	0.99	0.99	1.00

Example—Flow Capacity Calculation

6" Model 8800A
4 InWC set pressure [P_s]
7 InWC flowing pressure [P_f]

1. Read flow capacity at set pressure from table — Flow = 61,500 SCFH
2. Calculate overpressure — % OP = [(7 - 4)/4] x 100 = 75%
3. Read "C" factor from table — "C" = 0.87
4. Calculate flow capacity — Flow = 0.87 x 61,500 =53,505 SCFH

Model 8800A
Pressure Relief Capacity

Set Pressure (P_s)	Air Flow Capacity at 100% Overpressure (Double Set Pressure) 1000 Normal Cubic Meters per Hour at 0° C						
mmWC	2" (50 mm)	3" (80 mm)	4" (100 mm)	6" (150 mm)	8" (200 mm)	10" (250 mm)	12" (300 mm)
22.0	0.09	0.18	0.32	0.64	1.04	1.65	1.91
50.0	0.14	0.30	0.55	1.13	1.82	2.87	3.53
75.0	0.18	0.39	0.70	1.46	2.35	3.70	4.62
100	0.21	0.46	0.83	1.74	2.80	4.40	5.53
150	0.26	0.58	1.06	2.21	3.55	5.59	7.05
200	0.31	0.69	1.25	2.61	4.19	6.59	8.35
250	0.35	0.78	1.42	2.97	4.76	7.48	9.50
300	0.39	0.87	1.57	3.29	5.27	8.30	10.5
375	0.44	0.98	1.78	3.73	5.98	9.41	12.0
500	0.51	1.15	2.09	4.39	7.02	11.0	14.1
625	0.58	1.30	2.36	4.97	7.96	12.5	15.9
750	0.64	1.44	2.62	5.50	8.80	13.8	17.6

Flow capacity is certified by Groth Corporation, based on actual tests conducted in compliance with API Std. 2000.
Flow measurement accuracy has been verified by an independent testing laboratory.

Flow capacity values listed above are based on full open valves at 100% overpressure.

Consult Factory for flow capacity with fiberglass valve.

Read the flow capacity at 100% overpressure directly from the table above. Use linear interpolation if the set pressure is not listed. (Ref: TPD1)

If the allowable overpressure is less than 100%, modify the flow capacity using the appropriate "C" factor from the table. If allowable overpressure is more than 100%, consult TPD1 or your Groth Representative.

Calculate the percentage overpressure by the following formula. Note that all pressures are gauge pressure expressed in the same units of measure.

P_f = Flowing pressure
P_s = Set pressure
% OP = $[(P_f - P_s)/P_s] \times 100$

Calculate flow capacity at less than 100% overpressure according to the following example.

Example—To find "C" factor from table:
Read "C" factor for 67% overpressure at intersection of row 60 and column 7
"C" factor at 67% OP = 0.82

"C" Factor Table										
%OP	0	1	2	3	4	5	6	7	8	9
10 20 30 40	**Consult Factory**									
50	0.72	0.73	0.73	0.74	0.75	0.75	0.76	0.77	0.77	0.78
60	0.78	0.79	0.80	0.80	0.81	0.81	0.82	0.82	0.83	0.84
70	0.84	0.85	0.85	0.86	0.86	0.87	0.88	0.88	0.89	0.89
80	0.90	0.90	0.91	0.91	0.92	0.92	0.93	0.93	0.94	0.94
90	0.95	0.95	0.96	0.96	0.97	0.97	0.98	0.99	0.99	1.00

Example—Flow Capacity Calculation

6" Model 8800A
150 mmWC Set Pressure [P_s]
250 mmWC Flowing Pressure [P_f]

1. Read flow capacity at set pressure from table — Flow = 2,210 NCMH
2. Calculate overpressure — % OP = [(250 - 150)/150] x 100 = 67%
3. Read "C" factor from table — "C" = 0.82
4. Calculate flow capacity — *Flow = 0.82 x 2,210 = 1,812 NCMH*

Model 8800A
Vacuum Relief Capacity

Set Vacuum (P_s)		Air Flow Capacity at 100% Over-vacuum (Double Set Vacuum) 1000 Standard Cubic Feet per Hour at 60° F						
InWC	oz/in^2	2" (50 mm)	3" (80 mm)	4" (100 mm)	6" (150 mm)	8" (200 mm)	10" (250 mm)	12" (300 mm)
0.87	0.50	2.55	5.19	8.80	17.9	28.6	44.3	53.6
1.00	0.58	2.77	5.73	9.70	19.8	31.6	48.9	60.4
1.73	1.00	3.78	8.15	13.6	28.3	45.1	69.4	89.8
2.00	1.16	4.10	8.90	14.9	31.0	49.3	75.8	99.0
2.60	1.50	4.74	10.4	17.4	36.2	57.7	88.6	117
3.00	1.73	5.14	11.3	18.9	39.5	62.9	96	128
3.46	2.00	5.56	12.3	20.5	42.9	68.4	105	139
4.00	2.31	6.03	13.4	22.3	46.7	74.4	114	152
6.00	3.47	7.54	16.9	28.1	58.9	93.8	144	193
8.00	4.62	8.84	19.9	33.0	69.4	110	169	227
10.0	5.78	10.0	22.5	37.4	78.6	125	192	258
12.0	6.93	11.1	24.9	41.5	87.1	139	212	286
15.0	8.66	12.5	28.2	46.9	98.6	157	240	324
20.0	11.6	14.7	33.1	55.1	116	184	282	381
25.0	14.4	16.6	37.5	62.3	131	209	319	432
30.0	17.3	18.3	41.5	68.9	145	231	353	478

Flow capacity is certified by Groth Corporation, based on actual tests conducted in compliance with API Std. 2000. Flow measurement accuracy has been verified by an independent testing laboratory.

Flow capacity values listed above are based on full open valves at 100% over-vacuum.

Consult Factory for flow capacity with fiberglass valve.

Read the flow capacity at 100% over-vacuum directly from the table above. Use linear interpolation if the set vacuum is not listed. (Ref: TPD1)

If the allowable over-vacuum is less than 100%, modify the flow capacity using the appropriate "C" factor from the table. If allowable over-vacuum is more than 100%, consult TPD1 or your Groth Representative.

Calculate the percentage over-vacuum by the following formula. Note that all pressures are gauge pressure expressed in the same units of measure.

P_f = Flowing pressure
P_s = Set pressure
% OV = $[(P_f - P_s)/P_s] \times 100$

Calculate flow capacity at less than 100% over-vacuum according to the following example.

Example—To find "C" factor from table:
Read "C" factor for 75% Over-vacuum at intersection of row 70 and column 5
"C" factor at 75% OV = 0.87

"C" Factor Table										
%OV	0	1	2	3	4	5	6	7	8	9
10 20 30 40	Consult Factory									
50	0.72	0.73	0.73	0.74	0.75	0.75	0.76	0.77	0.77	0.78
60	0.78	0.79	0.80	0.80	0.81	0.81	0.82	0.82	0.83	0.84
70	0.84	0.85	0.85	0.86	0.86	0.87	0.88	0.88	0.89	0.89
80	0.90	0.90	0.91	0.91	0.92	0.92	0.93	0.93	0.94	0.94
90	0.95	0.95	0.96	0.96	0.97	0.97	0.98	0.99	0.99	1.00

Example—Flow Capacity Calculation

6" Model 8800A
4 InWC set vacuum [P_s]
7 InWC flowing vacuum [P_f]

1. Read flow capacity at set vacuum from table — Flow = 46,700 SCFH
2. Calculate over-vacuum — % OV = [(7 - 4)/4] x 100 = 75%
3. Read "C" factor from table — "C" = 0.87
4. Calculate flow capacity — *Flow = 0.87 x 46,700 = 40,629 SCFH*

Model 8800A
Vacuum Relief Capacity

Set Pressure (P_s)	Air Flow Capacity at 100% Over-vacuum (Double Set Vacuum) 1000 Normal Cubic Meters per Hour at 0° C						
mmWC	2" (50 mm)	3" (80 mm)	4" (100 mm)	6" (150 mm)	8" (200 mm)	10" (250 mm)	12" (300 mm)
22.0	0.07	0.15	0.26	0.52	0.84	1.29	1.60
50.0	0.12	0.25	0.42	0.87	1.39	2.13	2.78
75.0	0.14	0.32	0.53	1.11	1.77	2.72	3.59
100	0.17	0.38	0.63	1.32	2.09	3.21	4.27
150	0.21	0.48	0.79	1.66	2.64	4.05	5.42
200	0.25	0.56	0.93	1.95	3.11	4.76	6.40
250	0.28	0.63	1.05	2.21	3.53	5.40	7.27
300	0.31	0.70	1.17	2.45	3.90	5.97	8.06
375	0.35	0.80	1.32	2.78	4.42	6.77	9.10
500	0.41	0.93	1.55	3.26	5.19	7.94	10.7
625	0.47	1.06	1.76	3.69	5.87	8.98	12.2
750	0.52	1.17	1.94	4.08	6.50	9.90	13.5

Flow capacity is certified by Groth Corporation, based on actual tests conducted in compliance with API Std. 2000. Flow measurement accuracy has been verified by an independent testing laboratory.

Flow capacity values listed above are based on full open valves at 100% over-vacuum.

Consult Factory for flow capacity with fiberglass valve.

Read the flow capacity at 100% over-vacuum directly from the table above. Use linear interpolation if the set vacuum is not listed. (Ref: TPD1)

If the allowable over-vacuum is less than 100%, modify the flow capacity using the appropriate "C" factor from the table. If allowable over-vacuum is more than 100%, consult TPD1 or your Groth Representative.

Calculate the percentage over-vacuum by the following formula. Note that all pressures are gauge pressure expressed in the same units of measure.

P_f = Flowing pressure
P_s = Set pressure
% OV = $[(P_f - P_s)/P_s]$ x 100

Calculate flow capacity at less than 100% over-vacuum according to the following example.

Example—To find "C" factor from table:
Read "C" factor for 67% Over-vacuum at intersection of row 60 and column 7
"C" factor at 67% OP = 0.82

"C" Factor Table										
%OV	0	1	2	3	4	5	6	7	8	9
10 20 30 40	**Consult Factory**									
50	0.72	0.73	0.73	0.74	0.75	0.75	0.76	0.77	0.77	0.78
60	0.78	0.79	0.80	0.80	0.81	0.81	0.82	0.82	0.83	0.84
70	0.84	0.85	0.85	0.86	0.86	0.87	0.88	0.88	0.89	0.89
80	0.90	0.90	0.91	0.91	0.92	0.92	0.93	0.93	0.94	0.94
90	0.95	0.95	0.96	0.96	0.97	0.97	0.98	0.99	0.99	1.00

Example—Flow Capacity Calculation

6" Model 8800A
150 mmWC Set Vacuum [P_s]
250 mmWC Flowing Vacuum [P_f]

1. Read flow capacity at set vacuum from table — Flow = 1,660 NCMH
2. Calculate over-vacuum — % OV = [(250 - 150)/150] x 100 = 67%
3. Read "C" factor from table — "C" = 0.82
4. Calculate flow capacity — *Flow = 0.82 x 1,660 = 1,361 NCMH*