



## Pressure Relief and Flame Trap Assembly Model 8400A

### GROTH REGULATOR

The regulator part of the assembly is a back pressure regulator to maintain upstream pressure over a range of 2 InWC to 24 InWC. This assembly is usually placed just upstream from the waste gas burner.

### GROTH FLAME ARRESTER

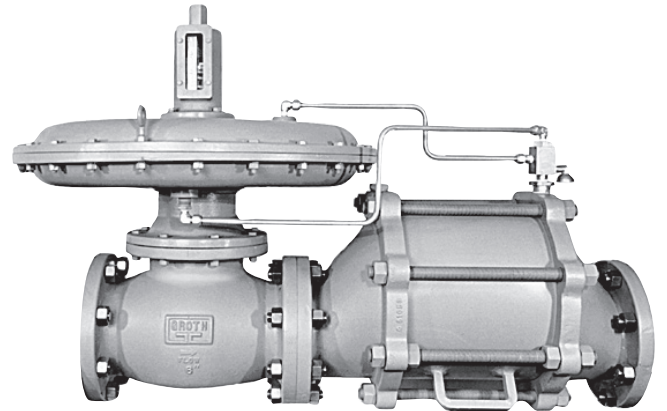
Model 7628 flame arrester is attached to Model 8860 Back Pressure Regulator with the Model 8410 thermal switch valve. See Model 7628 information in this catalog.

### FEATURES

- Sizes 2" (50 mm) through 12" (300 mm)
- Unit designed for quick and easy maintenance
- Single port regulator for tight shut-off
- Aluminum (type 356-T6), and other materials
- Factory Mutual approved flame arrester
- Custom spring ranges available

### SPECIAL FEATURES

This unit accomplishes two purposes. It will maintain a predetermined back pressure in order that only surplus gas is flared and inhibits a possible flame flashback of the flare into the gas control system. A fusible element that is rated at 260°F precludes valve shut-off unless contacted by flame. The visual indicator provides operator with easy adjustments. The proven spiral wound, crimped ribbon flame element provides the best flame quenching performance for the least pressure drop.



The unit is corrosion resistant throughout and quick and easy to open and maintain. Standard operating range is 2 to 12 InWC or a special range of 8" to 24" is available when higher pressures are required. Consult factory for 10 to 12 InWC for optional settings. When not specified, factory sets standard at 6 InWC.

### BENEFITS

- Simple upstream pressure regulation allows for accurate pressure relief
- Adjustable set pressure for easy process pressure relief adjustment
- Prevents pipeline deflagration from damaging tanks, pipelines, and other process equipment

### OPTIONS

- Drain connection
- Drip trap connection
- Insulation jacket
- Thermocouple/thermowell connection
- Flame check (vent line)
- Electronic shut-off
- Various spring ranges

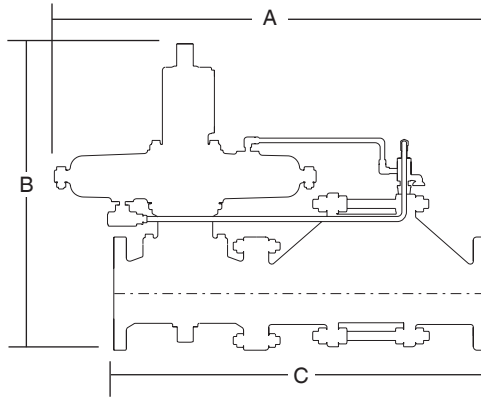
#### END-OF-LINE

- (Flanged Outlet with or without Discharge Piping)
- Gas Group: NEC D, IEC IIA
  - Operating Temperature  $\leq 140^{\circ}\text{F}$  ( $60^{\circ}\text{C}$ )
  - Pre-Ignition Pressure = Atmosphere
  - Discharge Piping Length  $\leq 10$  pipe diameters

#### IN-LINE

- Gas Group: IEC IIA1, Methane (includes most Biogas applications)
- Operating Temperature  $\leq 140^{\circ}\text{F}$  ( $60^{\circ}\text{C}$ )
- Pre-Ignition Pressure  $\leq 1$  psig
- Run-up Length  $\leq 50$  pipe diameters (2")
- Run-up Length  $\leq 20$  pipe diameters (3")
- Run-up Length  $\leq 10$  pipe diameters (4" – 12")

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## SPECIFICATION TABLE • MODEL 8400A

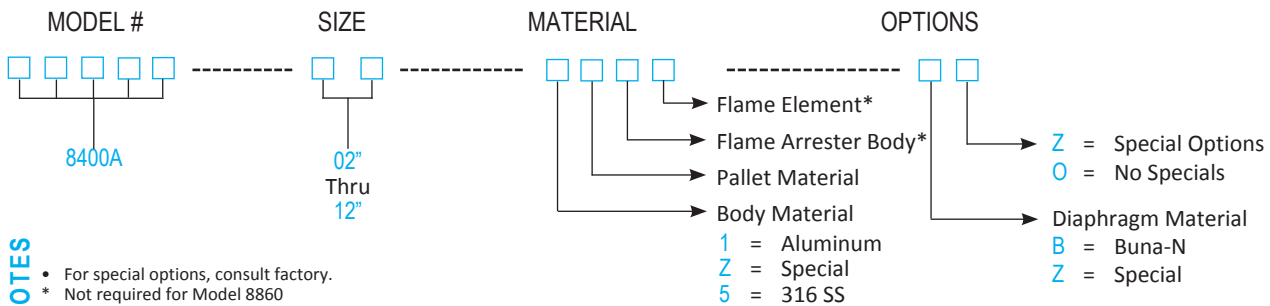
Specifications subject to change without notice.  
Certified dimensions available upon request.

Size*	A Length (Metric)	B Height (Metric)	C Face to Face (Metric)	MAX Working Pressure	Approx. Ship. Wt. Lbs. (Aluminum)
2" (50 mm)	28.69" (729 mm)	25" (635 mm)	22.81" (579 mm)	10 PSIG 0.689 barg	80 (36 kg)
3" (80 mm)	31.31" (795 mm)	26" (660 mm)	26.06" (662 mm)		100 (45 kg)
4" (100 mm)	34.25" (870 mm)	27" (686 mm)	29.69" (754 mm)		150 (68 kg)
6" (150 mm)	41.81" (1062 mm)	32.25" (819 mm)	36.06" (916 mm)		200 (91 kg)
8" (200 mm)	50.06" (1272 mm)	33.50" (851 mm)	47.94" (1218 mm)		300 (136 kg)
10" (250 mm)	55.75" (1416 mm)	47.75" (1213 mm)	55.75" (1416 mm)		645 (293 kg)
12" (300 mm)	67.38" (1711 mm)	50.75" (1289 mm)	67.38" (1711 mm)		795 (362 kg)

\* 150# ASME compatibility. NPT connection available on 2" and 3" size only.

## HOW TO ORDER

FOR EASY ORDERING, SELECT PROPER MODEL NUMBER



**NOTES**

- For special options, consult factory.
- \* Not required for Model 8860

### EXAMPLE

8 4 0 0 A — 0 4 — 1 5 5 5 — B O

Indicates a 4" Model 8400A with aluminum body, 316SS pallet and flame element, Buna-N diaphragm.



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Pressure		Air Flow Capacity 1000 Standard Cubic Feet per Hour at 60° F						
InWC	oz/in <sup>2</sup>	2" (50 mm)	3" (80 mm)	4" (100 mm)	6" (150mm)	8" (200 mm)	10" (250 mm)	12" (300 mm)
0.25	0.10	0.62	1.40	2.48	5.58	9.92	15.5	22.3
0.50	0.30	0.99	2.24	3.97	8.94	15.9	24.8	35.8
0.75	0.40	1.29	2.90	5.15	11.6	20.6	32.2	46.4
1.00	0.58	1.54	3.46	6.15	13.8	24.6	38.5	55.4
1.50	0.90	1.96	4.42	7.85	17.7	31.4	49.1	70.7
2.00	1.16	2.32	5.23	9.29	20.9	37.2	58.1	83.6
3.00	1.73	2.93	6.59	11.7	26.4	46.9	73.2	105
4.00	2.31	3.44	7.75	13.8	31.0	55.1	86.1	124
5.00	3.00	3.90	8.76	15.6	35.1	62.3	97.4	140
6.00	3.47	4.30	9.69	17.2	38.7	68.9	108	155
8.0	4.62	5.03	11.3	20.1	45.3	80.5	126	181
10.0	5.78	5.67	12.8	22.7	51.1	90.8	142	204
12.0	6.93	6.26	14.1	25.0	56.3	100	156	225
14.0	8.00	6.79	15.3	27.2	61.1	109	170	244
16.0	9.00	7.29	16.4	29.1	65.6	117	182	262
18.0	10.00	7.75	17.4	31.0	69.8	124	194	279
20.0	11.60	8.20	18.4	32.8	73.8	131	205	295
25.0	14.40	9.21	20.7	36.9	82.9	147	230	332
30.0	17.30	10.1	22.8	40.5	91.2	162	253	365

GAS SAFETY & CONTROL EQUIPMENT

Pressure		Flow Capacity of 0.7 SG Digester Gas 1000 Standard Cubic Feet per Hour at 60° F						
InWC	oz/in <sup>2</sup>	2" (50 mm)	3" (80 mm)	4" (100 mm)	6" (150mm)	8" (200 mm)	10" (250 mm)	12" (300 mm)
0.25	0.10	0.74	1.67	2.97	6.67	11.9	18.5	26.7
0.50	0.30	1.19	2.67	4.75	10.7	19.0	29.7	42.7
0.75	0.40	1.54	3.46	6.16	13.9	24.6	38.5	55.4
1.00	0.58	1.84	4.14	7.36	16.6	29.4	46.0	66.2
1.50	0.90	2.35	5.28	9.39	21.1	37.5	58.7	84.5
2.00	1.16	2.78	6.25	11.1	25.0	44.4	69.4	100
3.00	1.73	3.50	7.88	14.0	31.5	56.0	87.5	126
4.00	2.31	4.11	9.26	16.5	37.0	65.8	103	148
5.00	3.00	4.66	10.5	18.6	41.9	74.5	116	168
6.00	3.47	5.15	11.6	20.6	46.3	82.3	129	185
8.0	4.62	6.02	13.5	24.1	54.1	96.2	150	217
10.0	5.78	6.78	15.3	27.1	61.0	109	170	244
12.0	6.93	7.48	16.8	29.9	67.3	120	187	269
14.0	8.00	8.12	18.3	32.5	73.0	130	203	292
16.0	9.00	8.71	19.6	34.8	78.4	139	218	314
18.0	10.00	9.27	20.9	37.1	83.4	148	232	334
20.0	11.60	9.80	22.0	39.2	88.2	157	245	353
25.0	14.40	11.0	24.8	44.0	99.1	176	275	396
30.0	17.30	12.1	27.2	48.4	109	194	303	436

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Pressure		Air Flow Capacity						
		1000 Normal Cubic Meters per Hour at 0° C						
mmWC	mbar	2" (50 mm)	3" (80 mm)	4" (100 mm)	6" (150mm)	8" (200 mm)	10" (250 mm)	12" (300 mm)
6.35	0.60	0.02	0.04	0.07	0.15	0.27	0.42	0.60
12.7	1.00	0.03	0.06	0.11	0.24	0.43	0.66	0.96
19.1	2.00	0.03	0.08	0.14	0.31	0.55	0.86	1.24
25.4	3.00	0.04	0.09	0.16	0.37	0.66	1.03	1.48
38.1	4.00	0.05	0.12	0.21	0.47	0.84	1.32	1.89
50.8	5.00	0.06	0.14	0.25	0.56	1.00	1.56	2.24
76.2	7.50	0.08	0.18	0.31	0.71	1.26	1.96	2.81
102	10.00	0.09	0.21	0.37	0.83	1.48	2.31	3.32
127	12.50	0.10	0.23	0.42	0.94	1.67	2.61	3.75
152	15.00	0.12	0.26	0.46	1.04	1.85	2.89	4.15
203	20.00	0.13	0.30	0.54	1.21	2.16	3.38	4.85
254	25.00	0.15	0.34	0.61	1.37	2.43	3.80	5.47
305	30.00	0.17	0.38	0.67	1.51	2.68	4.18	6.03
356	35.00	0.18	0.41	0.73	1.64	2.92	4.55	6.54
406	40.00	0.20	0.44	0.78	1.76	3.13	4.88	7.02
457	45.00	0.21	0.47	0.83	1.87	3.32	5.20	7.47
508	50.00	0.22	0.49	0.88	1.98	3.51	5.49	7.90
635	62.00	0.25	0.55	0.99	2.22	3.94	6.16	8.89
762	75.00	0.27	0.61	1.08	2.44	4.34	6.78	9.78

Pressure		Flow Capacity of 0.7 SG Digester Gas						
		1000 Normal Cubic Meters per Hour at 0° C						
mmWC	mbar	2" (50 mm)	3" (80 mm)	4" (100 mm)	6" (150mm)	8" (200 mm)	10" (250 mm)	12" (300 mm)
6.35	0.60	0.02	0.04	0.08	0.18	0.32	0.50	0.72
12.7	1.00	0.03	0.07	0.13	0.29	0.51	0.80	1.14
19.1	2.00	0.04	0.09	0.17	0.37	0.66	1.03	1.48
25.4	3.00	0.05	0.11	0.20	0.44	0.79	1.23	1.77
38.1	4.00	0.06	0.14	0.25	0.57	1.00	1.57	2.26
50.8	5.00	0.07	0.17	0.30	0.67	1.19	1.86	2.68
76.2	7.50	0.09	0.21	0.38	0.84	1.50	2.34	3.38
102	10.00	0.11	0.25	0.44	0.99	1.76	2.76	3.96
127	12.50	0.12	0.28	0.50	1.12	2.00	3.11	4.50
152	15.00	0.14	0.31	0.55	1.24	2.20	3.46	4.96
203	20.00	0.16	0.36	0.65	1.45	2.58	4.02	5.81
254	25.00	0.18	0.41	0.73	1.63	2.92	4.55	6.54
305	30.00	0.20	0.45	0.80	1.80	3.21	5.01	7.21
356	35.00	0.22	0.49	0.87	1.96	3.48	5.44	7.82
406	40.00	0.23	0.53	0.93	2.10	3.72	5.84	8.41
457	45.00	0.25	0.56	0.99	2.23	3.96	6.22	8.95
508	50.00	0.26	0.59	1.05	2.36	4.21	6.56	9.46
635	62.00	0.29	0.66	1.18	2.65	4.72	7.37	10.61
762	75.00	0.32	0.73	1.30	2.92	5.20	8.12	11.68