

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

## Model 8800A with Flame Arrester



MODEL 8800A

### PRESSURE / VACUUM RELIEF VALVE WITH FLAME ARRESTER

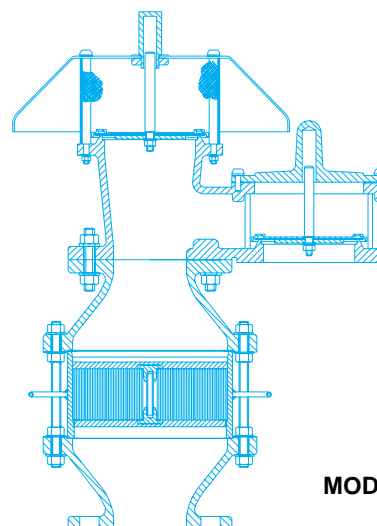
The Model 8800A Pressure/Vacuum Valve & Flame Arrester combination units are designed to protect your tank from damage created by over- pressure or excessive vacuum, at the same time that they provide protection from externally caused sources of heat and ignition. The result is increased fire protection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

### SPECIAL FEATURES

The Model 8800A Pressure/Vacuum Relief Valve offers Groth's special "cushioned air" seating. Superior performing fluoropolymer 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.

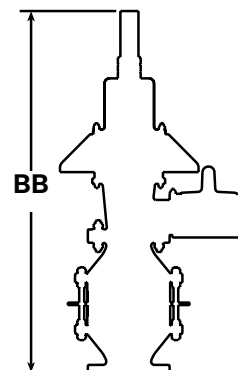
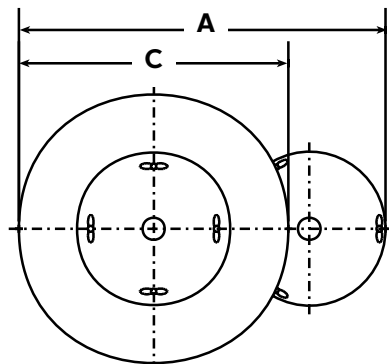
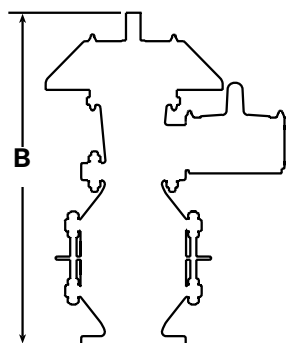
#### END-OF-LINE

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



MODEL 8800A

## SPECIFICATIONS



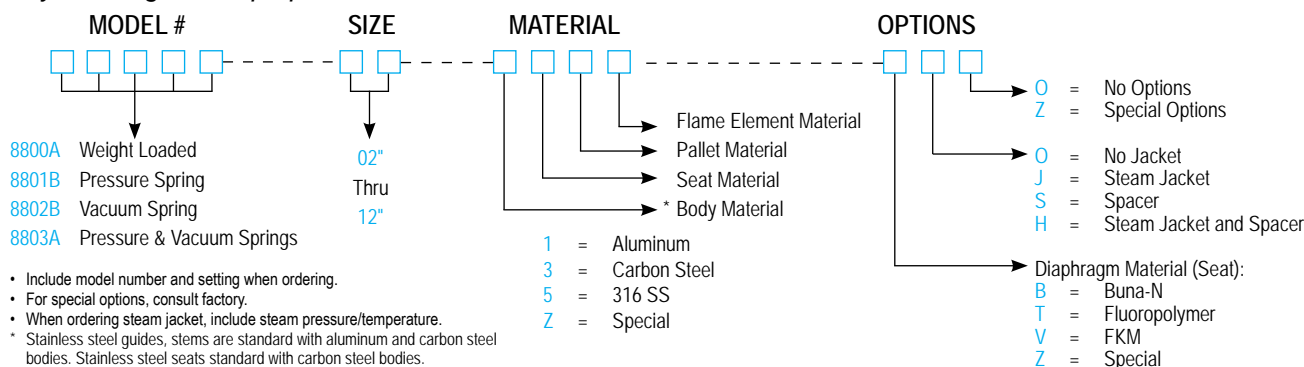
Specifications subject to change without notice. Certified dimensions available upon request.

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

\*W.P. = Working Pressure. \*On spring loaded valves, change model number. <sup>a</sup>150# ANSI drilling compatibility, F.F. on aluminum and R.F. on carbon steel and stainless steel alloys. 16 oz/in<sup>2</sup> set with spacer. SS set weights-consult factory. \*Some sizes require non-ferrous components to achieve 0.5 oz/in<sup>2</sup> setting.

## HOW TO ORDER

For easy ordering, select proper model numbers



### 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, Fluoropolymer Seat Diaphragm and no other options.

## Model 8800A Pressure Relief Capacity

| Set Pressure (P <sub>s</sub> ) |                    | Air Flow Capacity at 100% Overpressure (Double Set Pressure)<br>1000 Standard Cubic Feet per Hour at 60° F |               |                |                |                |                 |                 |
|--------------------------------|--------------------|------------------------------------------------------------------------------------------------------------|---------------|----------------|----------------|----------------|-----------------|-----------------|
| InWC                           | oz/in <sup>2</sup> | 2"<br>(50 mm)                                                                                              | 3"<br>(80 mm) | 4"<br>(100 mm) | 6"<br>(150 mm) | 8"<br>(200 mm) | 10"<br>(250 mm) | 12"<br>(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.

$$P_f = \text{Flowing pressure}$$

$$P_s = \text{Set pressure}$$

$$\% \text{ OP} = [(P_f - P_s) / P_s] \times 100$$

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               | Consult<br>Factory |      |      |      |      |      |      |      |      |      |
| 20               |                    |      |      |      |      |      |      |      |      |      |
| 30               |                    |      |      |      |      |      |      |      |      |      |
| 40               |                    |      |      |      |      |      |      |      |      |      |
| 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<sub>s</sub>]  
7 InWC flowing pressure [P<sub>f</sub>]

1. Read flow capacity at set pressure from table
2. Calculate overpressure
3. Read "C" factor from table
4. Calculate flow capacity

Flow = 61,500 SCFH  
 $\% \text{ OP} = [(7 - 4) / 4] \times 100 = 75\%$   
 "C" = 0.87  
 Flow = 0.87 x 61,500 = 53,505 SCFH

## Model 8800A Pressure Relief Capacity

| Set Pressure (P <sub>s</sub> ) | Air Flow Capacity at 100% Overpressure (Double Set Pressure)<br>1000 Normal Cubic Meters per Hour at 0° C |               |                |                |                |                 |                 |
|--------------------------------|-----------------------------------------------------------------------------------------------------------|---------------|----------------|----------------|----------------|-----------------|-----------------|
| mmWC                           | 2"<br>(50 mm)                                                                                             | 3"<br>(80 mm) | 4"<br>(100 mm) | 6"<br>(150 mm) | 8"<br>(200 mm) | 10"<br>(250 mm) | 12"<br>(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.

$$P_f = \text{Flowing pressure}$$

$$P_s = \text{Set pressure}$$

$$\% \text{ OP} = [(P_f - P_s)/P_s] \times 100$$

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               | Consult<br>Factory |      |      |      |      |      |      |      |      |      |
| 20               |                    |      |      |      |      |      |      |      |      |      |
| 30               |                    |      |      |      |      |      |      |      |      |      |
| 40               |                    |      |      |      |      |      |      |      |      |      |
| 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

1. Read flow capacity at set pressure from table
  2. Calculate overpressure
  3. Read "C" factor from table
  4. Calculate flow capacity
- 6" Model 8800A  
150 mmWC Set Pressure [P<sub>s</sub>]  
250 mmWC Flowing Pressure [P<sub>f</sub>]

Flow = 2,210 NCMH  
 $\% \text{ OP} = [(250 - 150)/150] \times 100 = 67\%$   
 "C" = 0.82  
**Flow = 0.82 x 2,210 = 1,812 NCMH**

## Model 8800A Vacuum Relief Capacity

| Set Vacuum (P <sub>s</sub> ) |                    | Air Flow Capacity at 100% Over-vacuum (Double Set Vacuum)<br>1000 Standard Cubic Feet per Hour at 60° F |               |                |                |                |                 |                 |
|------------------------------|--------------------|---------------------------------------------------------------------------------------------------------|---------------|----------------|----------------|----------------|-----------------|-----------------|
| InWC                         | oz/in <sup>2</sup> | 2"<br>(50 mm)                                                                                           | 3"<br>(80 mm) | 4"<br>(100 mm) | 6"<br>(150 mm) | 8"<br>(200 mm) | 10"<br>(250 mm) | 12"<br>(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.

$$P_f = \text{Flowing pressure}$$

$$P_s = \text{Set pressure}$$

$$\% \text{ OV} = [(P_f - P_s)/P_s] \times 100$$

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               | <b>Consult<br/>Factory</b> |      |      |      |      |      |      |      |      |      |
| 20               |                            |      |      |      |      |      |      |      |      |      |
| 30               |                            |      |      |      |      |      |      |      |      |      |
| 40               |                            |      |      |      |      |      |      |      |      |      |
| 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<sub>s</sub>]
- 7 InWC flowing vacuum [P<sub>f</sub>]

1. Read flow capacity at set vacuum from table
2. Calculate over-vacuum
3. Read "C" factor from table
4. Calculate flow capacity

$$\text{Flow} = 46,700 \text{ SCFH}$$

$$\% \text{ OV} = [(7 - 4)/4] \times 100 = 75\%$$

$$"C" = 0.87$$

$$\text{Flow} = 0.87 \times 46,700 = 40,629 \text{ SCFH}$$

## Model 8800A Vacuum Relief Capacity

| Set Pressure (P <sub>s</sub> ) | Air Flow Capacity at 100% Over-vacuum (Double Set Vacuum)<br>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.

$$P_f = \text{Flowing pressure}$$

$$P_s = \text{Set pressure}$$

$$\% \text{ OV} = [(P_f - P_s)/P_s] \times 100$$

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 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               | Consult<br>Factory |      |      |      |      |      |      |      |      |      |
| 20               |                    |      |      |      |      |      |      |      |      |      |
| 30               |                    |      |      |      |      |      |      |      |      |      |
| 40               |                    |      |      |      |      |      |      |      |      |      |
| 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<sub>s</sub>]  
250 mmWC Flowing Vacuum [P<sub>f</sub>]

1. Read flow capacity at set vacuum from table
2. Calculate over-vacuum
3. Read "C" factor from table
4. Calculate flow capacity

Flow = 1,660 NCMH  
 $\% \text{ OV} = [(250 - 150)/150] \times 100 = 67\%$   
 "C" = 0.82  
**Flow = 0.82 x 1,660 = 1,361 NCMH**