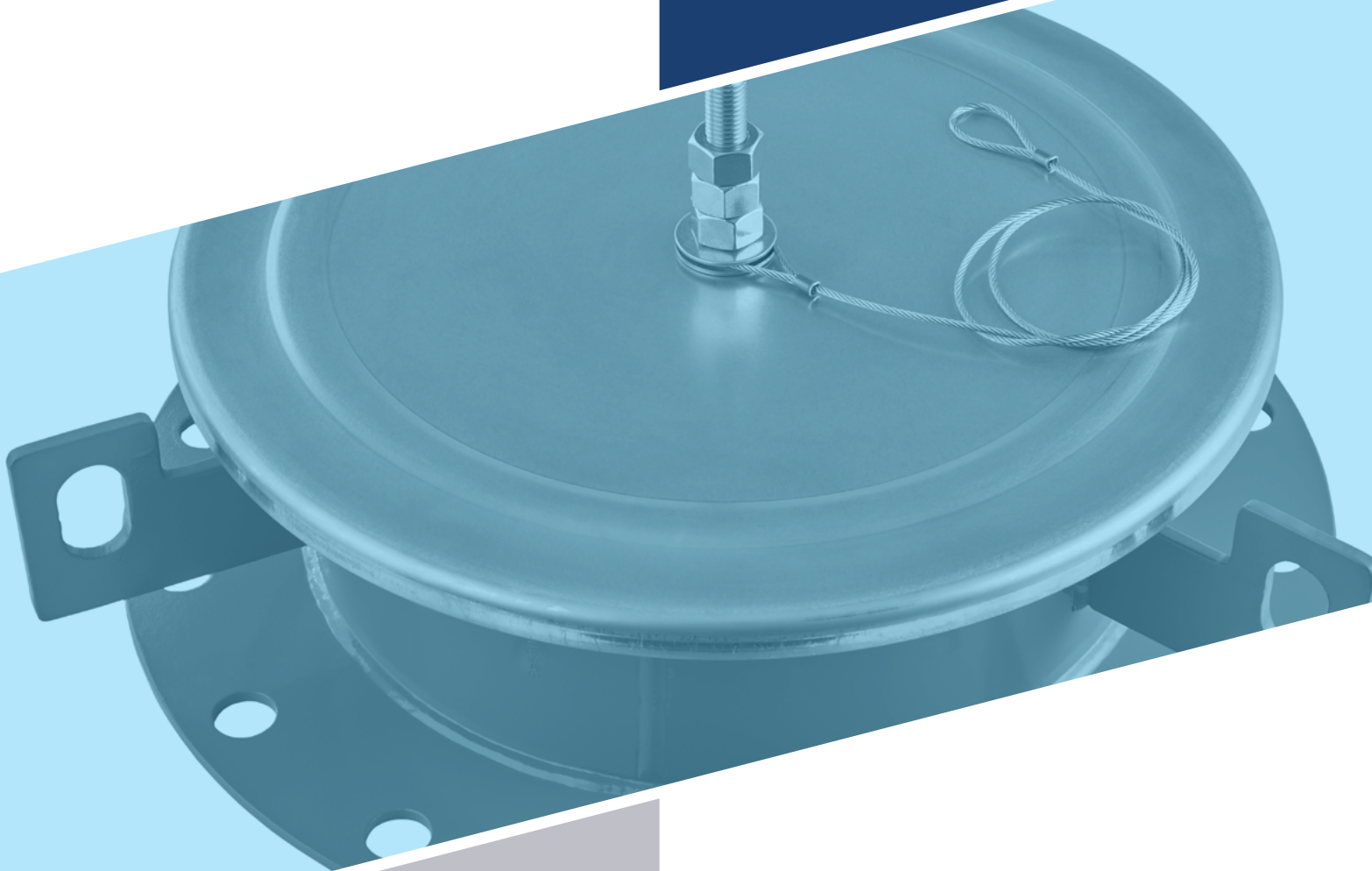




EMERGENCY RELIEF VENT

MODEL 2000A



MODEL 2000A

The Groth Model 2000A is designed to provide emergency relief capacity beyond that furnished by the normal operating pressure relief valve on the tank. The valve protects the tank against rupture or explosion that could result from excessive internal pressures caused by fire. Removable stops can be provided which restrict the lift of the cover.

Technical Details

- Sizes: 16" (DN 400) , 20" (DN 500) and 24" (DN 600)
- Pressure Setting: 1.5 oz/in² to 16 oz (6.46 mbarg to 68.9 mbarg)
- Vacuum Settings: 0.5 oz/in² to 4 psig (2.15 mbarg to 17.2 mbarg)
- Materials: Carbon Steel, Fiberglass , Stainless Steel, special materials upon request
- ATEX Certified
- Manufactured in an ISO 9001 Certified Manufacturing Facility

Features

- Grounding Cable connects the head and flange
- Cushioned Air pallet
- Peripheral Guiding

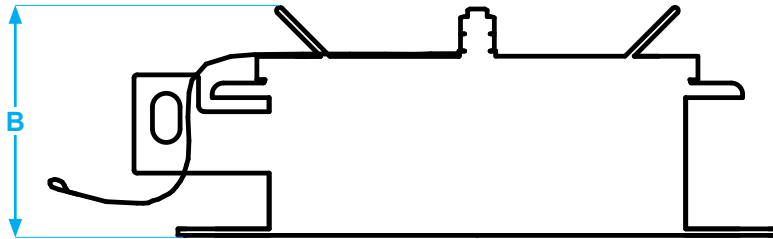
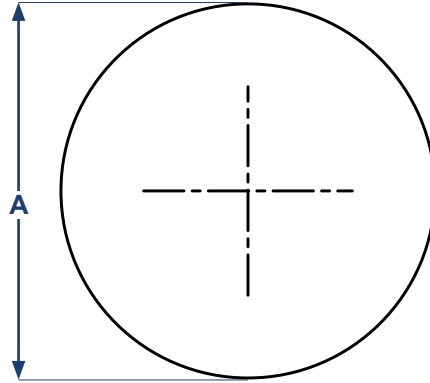
Options

- Steam Jacket
- Buna-N, Fluoropolymer, FKM
- ANSI 150# and API 650 drilling classes



SPECIFICATIONS

Size In (mm)	Minimum Pressure Setting Weight Loaded oz/in ² (mbar)	Maximum Pressure Setting Weight Loaded oz/in ² (mbar)	A Width In (mm)	B Height [†] In (mm)	Approx. Ship Wt. at min. setting Lbs (kg)
16 (406)	1.50 (6.5)	16 (69)	23.50 (597)	11 (279)	62 (28)
20 (508)	1.50 (6.5)	16 (69)	27.50 (699)	11 (279)	88 (40)
24 (610)	1.50 (6.5)	16 (69)	32 (813)	11 (279)	114 (52)



2000A PRESSURE/ VACUUM RELIEF CAPACITY

Air Flow Capacity at 100% Overpressure (Double Set Pressure/Vacuum)
1000 Standard Cubic Feet per Hour at 60° F

Set Pressure / Vacuum (P _s)		Size			All Vacuum*
InWC	oz/in ²	16" Pressure	20" Pressure	24" Pressure	
0.87	0.50*				65
1.73	1.00*				91
2.60	1.50	422	668	970	
3.00	1.73	454	718	1043	
3.46	2.00*	487	771	1120	129
4.00	2.31	524	829	1204	
4.33	2.50	545	862	1252	
5.00	2.89	585	926	1345	
5.19	3.00*	597	944	1371	157
6.93	4.00*	689	1090	1583	180
10.4	6.00	843	1334	1937	
13.9	8.00	973	1539	2236	
17.3	10.00	1087	1720	2498	
20.8	12.00	1190	1883	2735	
24.2	14.00	1284	2033	2952	
27.7	16.00	1372	2172	3154	

*Standard vacuum settings, consult factory for other settings.

Flow Capacity Calculation

Flow capacity values listed above are based on full open valves at 100% overpressure. Read the flow capacity at 100% overpressure directly from the table above. Use linear interpolation if the set pressure is not listed. 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 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.

$$\begin{aligned} P_f &= \text{Flowing pressure} \\ P_s &= \text{Set pressure} \\ \% \text{ OP} &= [(P_f - P_s) / P_s] \times 100 \end{aligned}$$

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

Example Flow Capacity Calculation

20" Model 2000A

4 InWC set pressure [P_s]

7 InWC flowing pressure [P_f]

1. Read flow capacity at set pressure from table Flow = 829,000 SCFH
2. Calculate overpressure % OP = [(7 - 4) / 4] x 100 = 75%
3. Read "C" factor from table "C" = 0.95
4. Calculate flow capacity Flow = 0.95 x 829,000 = 787,550 SCFH

"C4" Factor Table - Pressure Only

%OP	0	1	2	3	4	5	6	7	8	9
10	0.70	0.71	0.71	0.72	0.72	0.73	0.73	0.74	0.74	0.75
20	0.75	0.76	0.76	0.77	0.77	0.78	0.78	0.79	0.79	0.80
30	0.80	0.81	0.81	0.82	0.82	0.83	0.83	0.84	0.84	0.85
40	0.85	0.86	0.86	0.87	0.87	0.88	0.88	0.89	0.89	0.90
50	0.90	0.90	0.90	0.91	0.91	0.91	0.91	0.91	0.92	0.92
60	0.92	0.92	0.92	0.93	0.93	0.93	0.93	0.93	0.94	0.94
70	0.94	0.94	0.94	0.95	0.95	0.95	0.95	0.95	0.96	0.96
80	0.96	0.96	0.96	0.97	0.97	0.97	0.97	0.97	0.98	0.98
90	0.98	0.98	0.98	0.99	0.99	0.99	0.99	0.99	1.00	1.00

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 = 0.95

2000A PRESSURE/VACUUM RELIEF CAPACITY

Air Flow Capacity at 100% Overpressure (Double Set Pressure/Vacuum)
1000 Normal Cubic Meters per Hour at 0° C

Set Pressure / Vacuum (P _s)		Size			All Vacuum*
mmWC	mb	16" Pressure	20" Pressure	24" Pressure	
22	2.16*				1.83
44	4.31*				2.58
88	8.63*	13.8	21.9	31.7	3.63
100	9.80	14.7	23.3	33.8	
132	12.9*	16.9	26.8	38.9	4.42
176	17.3*	19.5	30.9	44.9	5.08
200	19.6	20.8	32.9	47.8	
250	24.5	23.2	36.8	53.4	
300	29.4	25.5	40.3	58.5	
350	34.3	27.5	43.5	63.2	
400	39.2	29.4	46.5	67.5	
500	49.0	32.8	51.9	75.4	
600	58.8	35.9	56.9	82.6	
700	68.6	38.8	61.4	89.1	

* Standard vacuum settings, consult factory for other settings.

Flow Capacity Calculation

Flow capacity values listed above are based on full open valves at 100% overpressure. Read the flow capacity at 100% overpressure directly from the table above. Use linear interpolation if the set pressure is not listed. 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 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.

$$\begin{aligned} P_f &= \text{Flowing pressure} \\ P_s &= \text{Set pressure} \\ \% \text{ OP} &= [(P_f - P_s)/P_s] \times 100 \end{aligned}$$

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

Example Flow Capacity Calculation

20" Model 2000A

100 mmWC Set Pressure [P_s]

175 mmWC Flowing Pressure [P_f]

1. Read flow capacity at set pressure from table Flow = 23,300 NCMH
2. Calculate overpressure % OP = [(175 - 100)/100] x 100 = 75%
3. Read "C" factor from table "C" = 0.95
4. Calculate flow capacity Flow = 0.95 x 23,300 = 22,135 NCMH

"C4" Factor Table - Pressure Only

%OP	0	1	2	3	4	5	6	7	8	9
10	0.70	0.71	0.71	0.72	0.72	0.73	0.73	0.74	0.74	0.75
20	0.75	0.76	0.76	0.77	0.77	0.78	0.78	0.79	0.79	0.80
30	0.80	0.81	0.81	0.82	0.82	0.83	0.83	0.84	0.84	0.85
40	0.85	0.86	0.86	0.87	0.87	0.88	0.88	0.89	0.89	0.90
50	0.90	0.90	0.90	0.91	0.91	0.91	0.91	0.91	0.92	0.92
60	0.92	0.92	0.92	0.93	0.93	0.93	0.93	0.93	0.94	0.94
70	0.94	0.94	0.94	0.95	0.95	0.95	0.95	0.95	0.96	0.96
80	0.96	0.96	0.96	0.97	0.97	0.97	0.97	0.97	0.98	0.98
90	0.98	0.98	0.98	0.99	0.99	0.99	0.99	0.99	1.00	1.00

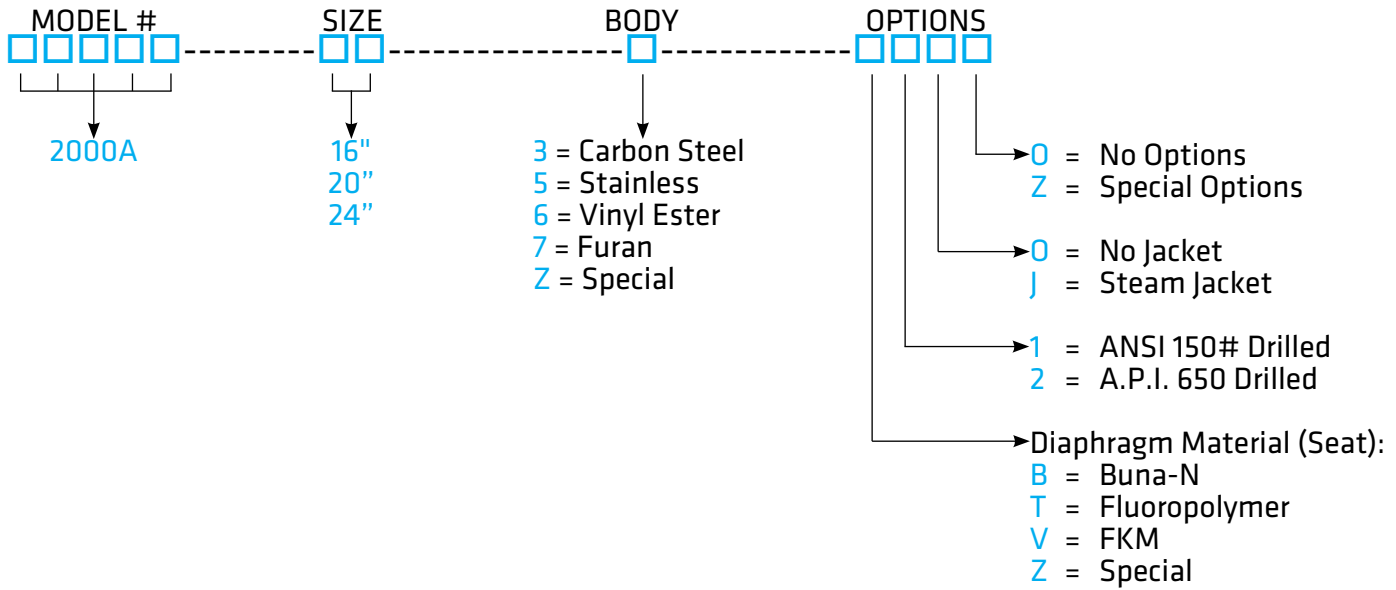
Example to find "C" factor from table:

Read "C" factor for 75% overpressure at intersection of row 70 and column 5

"C" factor at 75% OP = 0.95

HOW TO ORDER

For easy ordering, select proper model numbers



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 carbon steel bodies.

Example

2 0 0 0 A - 2 0 - 5 - T 1 J 0

Indicates a 20" Model 2000A with Stainless Steel Body, Fluoropolymer Seat Diaphragm, ANSI 150# drilled, Steam Jacket and no other options.

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