GROTH®
CORPORATION

PRESSURE VACUUM RELIEF WITH PIPE-AWAY

MODELS 1720A & 1760A

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The Groth 1700 Series relief valves are designed with inlet and outlet flanges of the same size to reduce installation costs by having smaller downstream piping. Model 1720A valves are designed for systems requiring pressure and vacuum relief. Model 1760A valves are designed for systems requiring only pressure relief.

Technical Details

- Size: 2" (DN50), 3" (DN75) and 4" (DN100)
- Materials: Carbon Steel, Stainless Steel or Fiberglass
- Seat and Pallet Materials: 316 Stainless Steel
- Same size inlet and outlet connections
- Manufactured in an ISO9001 Certified manufacturing facility
- Higher set pressures (in weight loaded configuration) than standard pipe-away valves
- Steel and Aluminum Models ATEX Certified
- Fiberglass Furan 800 Model 1760A PED certified

Features

- Cushioned Air Seating
- Center and peripheral pallet guiding
- Self-draining body
- Fluoropolymer seating diaphragms minimize sticking caused by resinous vapors and atmospheric moisture
- Self draining housing body and drop rings to protect seating surfaces from condensate and freezing
- Design avoids pressure or vacuum buildup doe to binding or clogging of the valve

Options

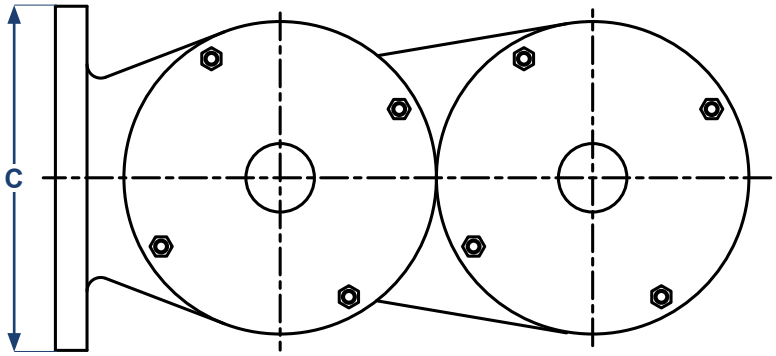
- Seating Diaphragm Options: Buna-N, FKM and other materials
- Stainless Steel Weights

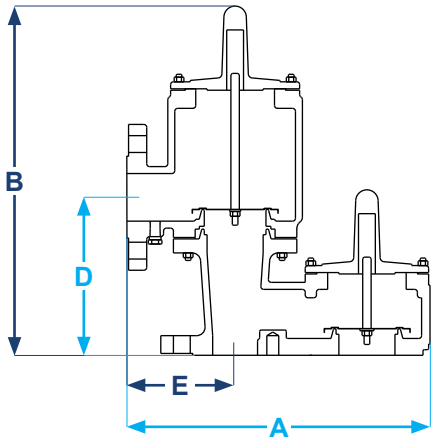
Model 1720A

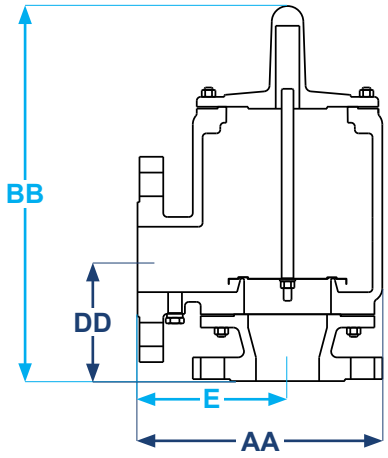
Model 1760A

SPECIFICATIONS

Size In	Model 1720A						Model 1760A					
	A In (mm)	B In (mm)	C In (mm)	D In (mm)	E In (mm)	Weight Lbs (kg)	AA In (mm)	BB In (mm)	C In (mm)	DD In (mm)	E In (mm)	Weight Lbs (kg)
2 X 2	13.50 (343)	14.63 (372)	6.50 (165)	6.75 (171)	4.75 (121)	80 (36)	7.75 (197)	11.88 (302)	6.50 (165)	3.88 (99)	4.75 (121)	50 (23)
3 X 3	18.0 (457)	17.38 (441)	8.00 (203)	8.00 (203)	6.00 (152)	105 (48)	10.00 (254)	14.13 (359)	8.00 (203)	4.75 (121)	6.00 (152)	70 (32)
4 X 4	19.25 (489)	19.50 (495)	9.00 (229)	9.13 (232)	6.50 (165)	150 (68)	10.75 (273)	16.50 (419)	9.00 (229)	6.06 (154)	6.50 (165)	92 (42)







MODEL 1720/1760 PRESSURE RELIEF CAPACITY

Air Flow Capacity at 100% Overpressure (Double Set Pressure) 1000 Standard Cubic Feet per Hour at 60°F					Air Flow Capacity at 100% Overpressure (Double Set Pressure)Normal Cubic Meters per Hour at 0°C				
Set Pressure [P_s]		Size			Set Pressure [P_s]		Size		
InWC	oz/in^2	2" x 2"	3" x 3"	4" x 4"	mmWC	mbar	2" x 2"	3" x 3"	4" x 4"
0.9	0.5	4.79	10.7	18.1					
1.0	0.6	5.15	11.5	19.5	25	2.45	149	332	563
2.0	1.2	7.29	16.3	27.6	50	4.90	211	470	797
3.0	1.7	8.94	20.0	33.8	75	7.35	258	577	976
4.0	2.3	10.3	23.1	39.0	100	9.80	299	667	1128
6.0	3.5	12.7	28.3	47.9	150	14.7	367	818	1383
8.0	4.6	14.7	32.8	55.4	200	19.6	424	946	1599
10.0	5.8	16.5	36.7	62.0	250	24.5	476	1060	1790
					300	29.4	522	1164	1963
					350	34.3	565	1259	2123
15.0	8.7	20.3	45.2	76.1					
					400	39.2	606	1349	2285
20.0	11.6	23.6	52.4	78.5	500	49.0	680	1514	2467
					600	58.8	749	1757	2627
25.0	14.4	26.5	58.9	84.7					
30.0	17.3	29.2	60.3	90.2					
					800	78.4	872	1877	2756
34.6	20.0	31.5	64.5	94.6					
					1000	98.0	984	2052	2959
41.6	24.0	34.8	70.5	102					
					1200	118	1086	2281	3243
51.9	30.0	39.3	78.3	111					
57.1	33.0	41.4	82.0	116					
					1500	147	1229	2388	3374

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.

Pf = Flowing pressure
Ps = Set pressure
% OP = [(Pf - Ps)/Ps] x 100

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

"C" Factor Table										
%OP	0	1	2	3	4	5	6	7	8	9
10	0.42	0.43	0.44	0.45	0.46	0.46	0.47	0.48	0.49	0.50
20	0.51	0.52	0.52	0.53	0.54	0.55	0.56	0.56	0.57	0.58
30	0.59	0.59	0.60	0.61	0.61	0.62	0.63	0.64	0.64	0.65
40	0.66	0.66	0.67	0.68	0.68	0.69	0.70	0.70	0.71	0.72
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 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

Example Flow Capacity Calculation

3" Model 1760A	1.Read flow capacity at set vacuum from table	Flow = 23,100 SCFH
4 InWC Set Pressure [P_s]	2.Calculate overpressure	% OP = [(7 - 4)/4] x 100 = 75%
7 InWC Flowing Pressure [P_f]	3.Read "C" factor from table	"C" = 0.87
	4.Calculate flow capacity	Flow = 0.87 x 23,100 = 20,097 SCFH

MODEL 1720 VACUUM RELIEF CAPACITY

Air Flow Capacity at 100% Over-Vacuum (Double Set Vacuum) 1000 Standard Cubic Feet per Hour at 60°F					Air Flow Capacity at 100% Over-Vacuum (Double Set Vacuum)Normal Cubic Meters per Hour at 0°C				
Set Vacuum [P_s]		Size			Set Vacuum [P_s]		Size		
InWC	oz/in^2	2" x 2"	3" x 3"	4" x 4"	mmWC	mbar	2" x 2"	3" x 3"	4" x 4"
0.87	0.50	4.70	10.3	16.0	22	2.16	130	290	450
1.0	0.58	5.05	11.0	17.2	25	2.45	149	332	563
2.0	1.16	7.12	15.6	24.2	50	4.90	200	440	680
					75	7.35	240	530	830
4.0	2.31	10.0	21.9	34.1	100	9.80	280	620	960
					125	12.3	310	690	1070
6.0	3.47	12.2	26.7	41.5	150	14.7	340	750	1170
					175	17.2	370	810	1260
8.0	4.62	14.0	30.6	47.7	200	19.6	390	860	1340
					225	22.1	420	910	1420
10.0	5.78	15.6	34.0	53.0	250	24.5	440	960	1490
					275	27.0	460	1000	1560
12.0	6.93	17.0	37.1	57.8	300	29.4	480	1040	1620
15.0	8.66	18.8	41.1	64.0	375	36.8	530	1160	1800
20.0	11.6	21.4	46.8	72.9	500	49.0	600	1320	2050
25.0	14.4	23.6	51.5	80.3	625	61.3	660	1450	2260
27.7	16.0	24.6	53.8	83.8	800	78.4	872	1877	2756
					750	73.5	720	1570	2440

Flow Capacity Calculation

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

Pf = Flowing pressure
Ps = Set pressure
% OV = [(Pf - Ps)/Ps] x 100

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

"C" Factor Table										
%OV	0	1	2	3	4	5	6	7	8	9
10	0.42	0.43	0.44	0.45	0.46	0.46	0.47	0.48	0.49	0.50
20	0.51	0.52	0.52	0.53	0.54	0.55	0.56	0.56	0.57	0.58
30	0.59	0.59	0.60	0.61	0.61	0.62	0.63	0.64	0.64	0.65
40	0.66	0.66	0.67	0.68	0.68	0.69	0.70	0.70	0.71	0.72
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 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

Example Flow Capacity Calculation

6" Model 1720A	1.Read flow capacity at set vacuum from table	Flow = 21,900 SCFH
4 InWC Set Vacuum [P_s]	2.Calculate over-vacuum	% OV = [(7 - 4)/4] x 100 = 75%
7 InWC Flowing Vacuum [P_f]	3.Read "C" factor from table	"C" = 0.87
	4.Calculate flow capacity	Flow = 0.87 x 21,900 = 19,053 SCFH

SETTING RANGES

Model	Size (inches)	Standard Weights				Stainless Steel Weights			
		Pressure oz/in² (mbar)		Vacuum oz/in² (mbar)		Pressure oz/in² (mbar)		Vacuum oz/in² (mbar)	
		Min	Max	Min	Max	Min	Max	Min	Max
1720A	2 X 2	0.5 (2.2)	33 (142)	0.5 (2.1)	17.4 (74)	0.5 (2.2)	24 (103)	0.5 (2.2)	16.5 (71)
	3 X 3	0.5 (2.2)	33 (142)	0.5 (2.1)	15.5 (66)	0.5 (2.2)	24 (103)	0.5 (2.2)	15.2 (65)
	4 X 4	0.5 (2.2)	33 (142)	0.5 (2.1)	16.5 (71)	0.5 (2.2)	24 (103)	0.5 (2.2)	15.0 (64)
1760A	2 X 2	0.5 (2.2)	33 (142)	–	–	0.5 (2.2)	24 (103)	–	–
	3 X 3	0.5 (2.2)	33 (142)	–	–	0.5 (2.2)	24 (103)	–	–
	4 X 4	0.5 (2.2)	33 (142)	–	–	0.5 (2.2)	24 (103)	–	–

The 1700 Series relief valves are also available in spring loaded designs for pressure settings up to 15 psig. Other options include FRP (Furan or Derakane) construction, positive lift indicators and special coatings. Consult the factory for details.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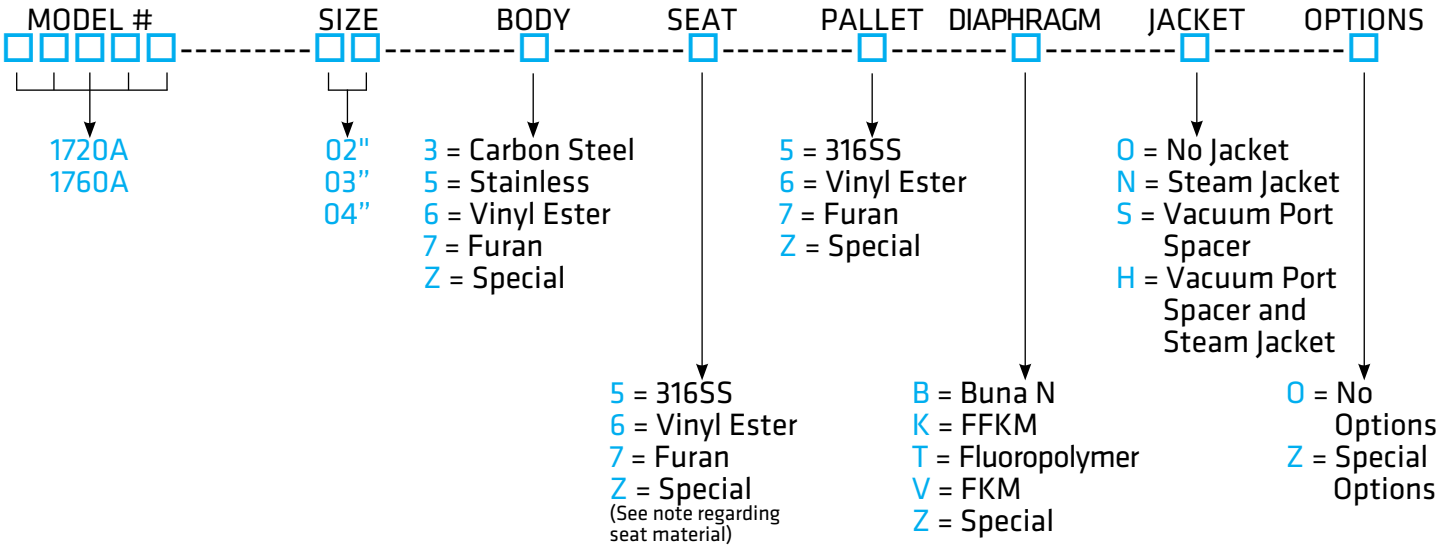
HOW TO ORDER

For easy ordering, select proper model numbers



Notes

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

Example

1	7	2	0	A	–	0	3	–	3	5	5	–	B	0	0

Indicates a 3" x 3" Model 1720 A with CS body, 316SS seat, 316SS pallet, Buna-N diaphragm, no steam jacket and no special options.

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