



VAREC 4110A/3610/3660 SERIES VACUUM RELIEF VALVES

Spring-loaded valves that protect tanks and vessels from damage or deformation caused by changes in process pressure and vacuum conditions



4110A SERIES



3660 SERIES

FEATURES

- Spring-loaded pallet provides relief settings up to 50.8 psig (3.5 barg).
- Flexible installation through top mounted (4110A), side mounted (3610) and flanged intake and discharge connections (3660) for 'in-line' applications.
- 4110A and 3610 models' pallets are statically balanced, side and center-guided for stability, proper alignment and non-binding, positive seating over the valve's life.
- Soft seat pallet inserts available for a tight seal.
- Metal-to-metal seating available for elevated process temperatures.
- Model 3660 valves suitable for either pressure (top-mounted) or vacuum (side-mounted) relief.
- Model 3660 for vacuum relief allows a dehydrator to be installed to provide dry air at the intake.
- Model 3660 for pressure relief can be connected to a discharge header to collect vapors for scrubbing, incineration, etc., controlling corrosive, flammable or toxic emissions.

GENERAL APPLICATION

These valves are also suitable for routine inbreathing or backup relief and can be used in petroleum refineries, marketing terminals, petrochemical and chemical processes, as well as pulp and paper, food and beverage and waste water plants.

TECHNICAL DATA

Materials: Aluminum, carbon steel, stainless steel, iron
Sizes: 2" to 12" (50 to 300 mm)
Connections: Flanged
Relief settings: 1 to 50 psig (.07 to 3.5 barg)
Vacuum settings: 1 to 6 psig (.07 to 0.34 barg)

VAREC 4110A/3610/3660 SERIES VACUUM RELIEF VALVES

SPECIFICATIONS

Sizes

2", 3", 4", 6", 8", 10", 12" or
 2" x 2", 3" x 3", 4" x 4", 6" x 6", 8" x 8", 10" x 10", 12" x 12"

Materials of Construction

Body Aluminum
 Carbon steel
 Stainless steel
 Gray iron
 Internals Stainless steel
 Pallet
 seat insert PTFE
 FKM
 NBR

Connections - standard flange drilling

Aluminum
 body Drilled to ANSI Class 150 flat face dimensions
 Drilled to DIN Class PN16 flat face dimensions
 CS and
 SS body Drilled to ANSI Class 150 raised face dimensions
 Drilled to DIN Class PN16 raised face dimensions

4110A AND 3610 - SETTING INFORMATION

Valve size NPS (DN)	Max. working pressure psig (barg)	Min. relief setting psig (barg)	Max. relief setting psig (barg)
2" (50)	72.5 (5.0)	1 (0.07)	11.6 (0.8)
3" (75)	72.5 (5.0)	1 (0.07)	11.6 (0.8)
4" (100)	72.5 (5.0)	1 (0.07)	11.6 (0.8)
6" (150)	72.5 (5.0)	1 (0.07)	11.6 (0.8)
8" (200)	58.0 (4.0)	1 (0.07)	11.6 (0.8)
10" (250)	36.0 (2.5)	1 (0.07)	11.6 (0.8)
12" (300)	36.0 (2.5)	1 (0.07)	11.6 (0.8)

3660 - SETTING INFORMATION

Valve size NPS (DN)	Max. working pressure psig (barg)	Min. relief setting psig (barg)	Max. relief setting psig (barg)
2" (50)	65.3 (4.5)	1 (0.07)	50.8 (3.5)
3" (75)	65.3 (4.5)	1 (0.07)	40.6 (2.8)
4" (100)	58.0 (4.0)	1 (0.07)	30.5 (2.1)
6" (150)	58.0 (4.0)	1 (0.07)	20.3 (1.4)
8" (200)	43.5 (3.0)	1 (0.07)	11.6 (0.8)
10" (250)	36.0 (2.5)	1 (0.07)	24.0 (1.7)
12" (300)	36.0 (2.5)	1 (0.07)	24.0 (1.7)

All valves are factory tested for leakage and correct setting prior to shipment. Certification of valve setting is available upon request.

MAXIMUM ALLOWABLE WORKING PRESSURE VERSUS VACUUM SETTING

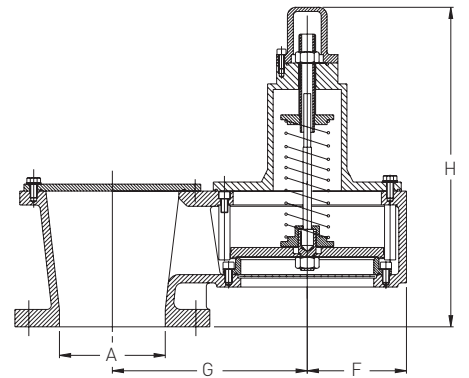
Size	Maximum allowable working pressure (psig)		
	1" WC setting	2" WC setting	5" WC setting
2"	13	40	140
3"	6	40	140
4"	3	14	60
6"	2.5	14	60
8"	1	5	21
10"	1	5	18.5
12"	1	4	10

VAREC 4110A/3610/3660 SERIES VACUUM RELIEF VALVES

SPECIFICATIONS

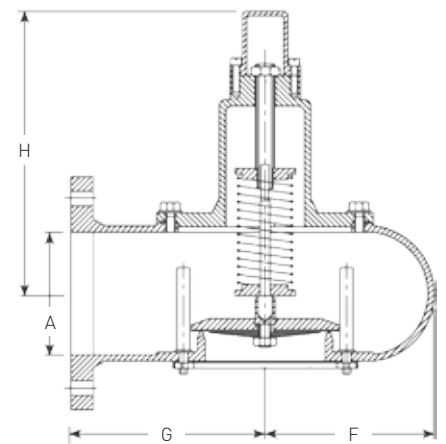
MODEL 4110A - DIMENSIONS, inches (mm)

Size code	2	3	4	6	8	0	1
Nominal pipe size	2 (50)	3 (75)	4 (100)	6 (150)	8 (200)	10 (250)	12 (300)
A	2 (51)	3 (76)	4 (102)	6 (152)	8 (203)	10 (254)	12 (305)
F	4½ (115)	6 (150)	7 (178)	9¼ (235)	11 ²¹ / ₃₂ (298)	14 (355)	16 ³ / ₁₆ (411)
G	3½ (82)	4 ⁴¹ / ₆₄ (118)	5 ²⁵ / ₆₄ (120)	7 (160)	9 (212)	8 ⁷ / ₈ (225)	10½ (268)
H	14 ³¹ / ₆₄ (368)	15½ (391)	16¼ (410)	18 ¹³ / ₁₆ (475)	20 ⁷ / ₁₆ (515)	25 (637)	24 ⁷ / ₈ (630)



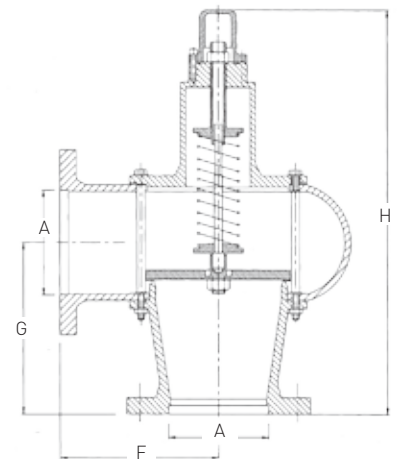
MODEL 3610 - DIMENSIONS, inches (mm)

Size code	2	3	4	6	8	0	1
Nominal pipe size	2 (50)	3 (75)	4 (100)	6 (150)	8 (200)	10 (250)	12 (300)
A	2 (51)	3 (76)	4 (102)	6 (152)	8 (203)	10 (254)	12 (305)
F	4½ (105)	5½ (140)	6 ³ / ₈ (162)	7 ⁷ / ₈ (202)	9 ¹ / ₈ (237)	11 (280)	12 ⁷ / ₈ (326)
G	5½ (140)	7 (180)	7 ⁷ / ₈ (200)	9½ (242)	12 ¹³ / ₆₄ (310)	14 (358)	15½ (393)
H	12 ¹³ / ₃₂ (325)	12 ¹³ / ₃₂ (324)	12 ⁷ / ₈ (337)	13½ (352)	13 ³ / ₄ (359)	17 ³ / ₄ (450)	17 (430)



MODEL 3660 - DIMENSIONS, inches (mm)

Size code	2	3	4	6	8	0	1
Nominal pipe size	2 (50)	3 (75)	4 (100)	6 (150)	8 (200)	10 (250)	12 (300)
A	2 (51)	3 (76)	4 (102)	6 (152)	8 (203)	10 (254)	12 (306)
F	5½ (140)	7 (180)	7 ⁷ / ₈ (200)	10 ³ / ₁₆ (259)	12 ³ / ₁₆ (310)	14 (358)	15½ (393)
G	5 ⁵ / ₆₄ (129)	6½ (166)	7 ⁷ / ₈ (200)	10 ³ / ₁₆ (259)	11 ²¹ / ₃₂ (296)	13½ (343)	14¼ (363)
H	17 ⁷ / ₈ (454)	19 ¹³ / ₃₂ (493)	21 ³ / ₁₆ (538)	24 (611)	25 ⁷ / ₈ (656)	30 (761)	33 ³ / ₄ (858)



Dimensions are for preliminary general information and should not be used for construction purposes. Certified dimensional drawings are available upon request.

VAREC 4110A/3610/3660 SERIES VACUUM RELIEF VALVES

FLOW CAPACITY

The following flow tables reflect the high performance characteristics of the 4110A and 3610 designs.

MODELS 4110A, 3610 - ENGLISH

Size Overpressure Set vacuum (psig)	2" (50 mm)			3" (75 mm)			4" (100 mm)			6" (150 mm)			8" (200 mm)		
	1.2	1.3	1.4	1.2	1.3	1.4	1.2	1.3	1.4	1.2	1.3	1.4	1.2	1.3	1.4
1	4.24	5.47	6.29	10.24	12.71	14.48	17.66	21.90	25.07	39.91	49.44	56.50	70.98	87.93	100.65
1.3	4.94	6.14	7.13	12.71	16.24	18.36	19.78	24.72	28.61	44.50	55.44	64.27	79.11	98.53	114.42
2.0	6.22	7.66	8.90	15.89	19.42	22.60	24.72	30.72	35.67	55.80	68.86	80.17	99.24	122.54	142.67
2.8	7.20	8.93	10.38	18.36	22.95	26.49	28.96	35.67	41.67	64.98	80.52	93.58	115.83	143.38	166.69
3.5	8.12	10.06	11.65	20.84	25.78	29.66	32.49	40.26	46.61	73.10	90.41	104.89	129.96	161.04	186.82
4.2	8.90	11.05	12.82	22.60	28.25	32.84	35.67	44.14	51.21	80.17	99.59	115.48	142.67	177.28	205.53
5.0	9.66	11.97	13.88	24.72	30.72	35.67	38.85	48.03	55.44	87.23	107.71	125.01	155.03	191.76	222.48

Flow capacity SCFH x 1000 air

MODELS 4110A, 3610 - METRIC

Size Overpressure Set vacuum (barg)	2" (50 mm)			3" (75 mm)			4" (100 mm)			6" (150 mm)			8" (200 mm)		
	1.2	1.3	1.4	1.2	1.3	1.4	1.2	1.3	1.4	1.2	1.3	1.4	1.2	1.3	1.4
0.07	0.12	0.16	0.18	0.29	0.36	0.41	0.50	0.62	0.71	1.13	1.40	1.60	2.01	2.49	2.85
0.09	0.14	0.17	0.20	0.36	0.46	0.52	0.56	0.70	0.81	1.26	1.57	1.82	2.24	2.79	3.24
0.14	0.18	0.22	0.25	0.45	0.55	0.64	0.70	0.87	1.01	1.58	1.95	2.27	2.81	3.47	4.04
0.19	0.20	0.25	0.29	0.52	0.65	0.75	0.82	1.01	1.18	1.84	2.28	2.65	3.28	4.06	4.72
0.24	0.23	0.29	0.33	0.59	0.73	0.84	0.92	1.14	1.32	2.07	2.56	2.97	3.68	4.56	5.29
0.29	0.25	0.31	0.36	0.64	0.80	0.93	1.01	1.25	1.45	2.27	2.82	3.27	4.04	5.02	5.82
0.34	0.27	0.34	0.39	0.70	0.87	1.01	1.10	1.36	1.57	2.47	3.05	3.54	4.39	5.43	6.30

Flow capacity Nm³/h x 1000 air

VAREC 4110A/3610/3660 SERIES VACUUM RELIEF VALVES

FLOW CAPACITY

The following flow tables reflect the high performance characteristics of the 3660 design.

MODEL 3660 - ENGLISH

Size Overpressure Set vacuum (psig)	2" (50 mm)			3" (75 mm)			4" (100 mm)			6" (150 mm)			8" (200 mm)		
	1.2	1.3	1.4	1.2	1.3	1.4	1.2	1.3	1.4	1.2	1.3	1.4	1.2	1.3	1.4
1.3	4.94	6.00	7.42	12.36	15.54	18.72	19.78	25.07	29.31	44.50	56.15	66.39	79.11	99.94	117.95
2.0	6.00	7.77	9.18	15.54	19.42	23.31	24.72	31.08	36.73	55.80	69.92	82.99	99.24	124.31	147.62
2.8	7.06	9.18	10.59	18.01	22.95	27.19	28.96	36.37	43.08	64.98	81.93	96.76	115.48	145.50	171.98
3.5	8.12	10.24	12.00	20.48	25.78	30.37	32.49	40.61	48.03	73.10	91.82	108.42	129.96	163.16	192.82
4.2	8.83	11.30	13.07	22.25	28.25	33.55	35.67	44.85	52.97	80.17	101.00	119.36	142.32	179.40	212.24
5.0	9.54	12.01	14.48	24.37	30.72	36.02	38.85	48.73	57.56	87.23	109.48	129.25	155.03	194.23	229.90

Flow capacity SCFH x 1000 air

* Consult your sales representative for 10" (250 mm) and 12" (300 mm) flow information.

MODEL 3660 - METRIC

Size Overpressure Set vacuum (barg)	2" (50 mm)			3" (75 mm)			4" (100 mm)			6" (150 mm)			8" (200 mm)		
	1.2	1.3	1.4	1.2	1.3	1.4	1.2	1.3	1.4	1.2	1.3	1.4	1.2	1.3	1.4
0.09	0.14	0.17	0.21	0.35	0.44	0.53	0.56	0.71	0.83	1.26	1.59	1.88	2.24	2.83	3.34
0.14	0.17	0.22	0.26	0.44	0.55	0.66	0.70	0.88	1.04	1.58	1.98	2.35	2.81	3.52	4.18
0.19	0.20	0.26	0.30	0.51	0.65	0.77	0.82	1.03	1.22	1.84	2.32	2.74	3.27	4.12	4.87
0.24	0.23	0.29	0.34	0.58	0.73	0.86	0.92	1.15	1.36	2.07	2.60	3.07	3.68	4.62	5.46
0.29	0.25	0.32	0.37	0.63	0.80	0.95	1.01	1.27	1.50	2.27	2.86	3.38	4.03	5.08	6.01
0.34	0.27	0.34	0.41	0.69	0.87	1.02	1.10	1.38	1.63	2.47	3.10	3.66	4.39	5.50	6.51

Flow capacity Nm³/h x 1000 air

VAREC 4110A/3610/3660 SERIES VACUUM RELIEF VALVES

ORDERING INFORMATION

SELECTION GUIDE

Example:	4110A	2	2	T	FF
Model					
4110A	Top mounted vacuum relief valve				
3610	Side mounted vacuum relief valve				
3660	'In-line' pressure or vacuum relief valve				
Size (select one)					
2	2" (50 mm)				
3	3" (75 mm)				
4	4" (100 mm)				
6	6" (150 mm)				
8	8" (200 mm)				
0	10" (250 mm)				
1	12" (300 mm)				
Body and trim material (select one)					
2	Aluminum body with stainless steel internals				
3	Carbon steel body with stainless steel internals				
4	Stainless steel body with stainless steel internals				
5	Gray iron body with stainless steel internals				
Soft seat pallet insert (select one)					
M	Metal-to-metal (no insert)				
B	NBR				
T	PTFE				
V	FKM				
Flange finish (select one)					
FF	Flat faced flange - drilled to ANSI 150				
RF	Raised faced flange - drilled to ANSI 150 (CS or SS housing only)				
DF	Flat faced flange - drilled to DIN PN16				
DF	Raised faced flange - drilled to DIN PN16 (CS or SS housing only)				

Example: 2" top mounted vacuum relief valve, aluminum body with stainless steel internals, PTFE insert flat faced flange.