VAREC 2440/2450 SERIES PRESSURE AND VACUUM RELIEF VALVES

Combination spring-loaded pressure/weight-loaded vacuum relief valves configurable for pressure settings up to 50 psig (3.5 barg)

FEATURES

- Spring-loaded on the pressure side and dead-weight loaded on the vacuum side with forces proportional to the pallet surface area to achieve the desired setting.
- Spring-loaded design allows high pressure settings with high maximum allowable working pressures.
- Oversized port for maximum flow.
- Lowest available leakage for spring loaded valves - less than 1 SCFH at 90% of setting.
- Seating design ensures a tight seal until the tank pressure or vacuum approaches the related valve setting.
- Pressure differential causes the pallet to lift, relieving excess pressure or vacuum. Pallet reseats positively in response to diminishing pressure or vacuum.
- Center and side guided pallets.
- Full formed flanges for easy installation.
- Optional flange connection (2450) on the pressure side allows piping vapors away to a recovery system or flare.

GENERAL APPLICATION

2440 and 2450 Series are used on liquid storage tanks, vessels and vapor recovery systems where excess pressure or vacuum may cause damage or permanent deformation and product leakage must be minimized.

TECHNICAL DATA

Materials:	Aluminum, carbon steel, stainless steel
Sizes	
2440:	2" to 12" (50 to 300 mm)
2450:	2" x 2" to 12" x 12" (50 x 50 mm to 300 x 300 mm)
Connections:	Flanged
Pressure range:	1 to 50 psig (.07 to 3.5 barg)
Vacuum range:	0.7 to 14 oz/in^2 (3.0 to 60 mbarg)

VAREC 2440/2450 SERIES PRESSURE AND VACUUM RELIEF VALVES

SPECIFICATIONS

Sizes

- Vent to atmosphere (2440): 2", 3", 4", 6", 8", 10", 12"
- Pipe-away (2450): 2" x 2", 3" x 3", 4" x 4", 6" x 6", 8" x 8", 10" x 10", 12" x 12"

Materials

Body	Aluminum
	Carbon steel
	316 Stainless steel
Trim	316 Stainless steel
Seat	PTFE

Flanged connections

- 150# ANSI flat faced flange drilling.
- 150# ANSI raised faced flange drilling.
- DIN PN16 flat faced flange drilling.
- DIN PN16 raised faced flange drilling.

Setting Information

Pressure setting range[1]: 1 psig to 50 psig (0.07 barg to 3.5 barg).

Vacuum setting range: 0.7 oz/in^2 to 14 oz/in^2 (3.0 mbarg to 60 mbarg).

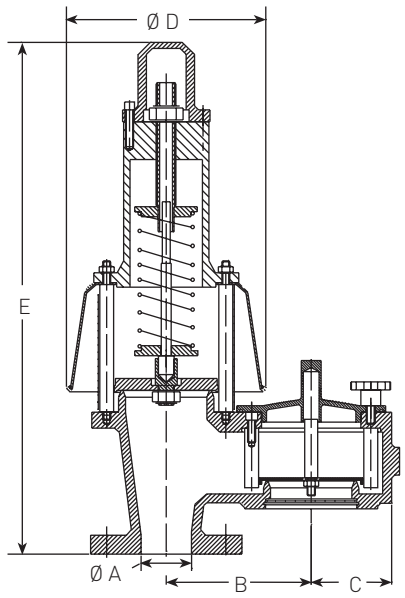
Testing

Each valve is tested for proper setting and for a leakage rate of less than 1 SCFH of air at 90% of the set point.

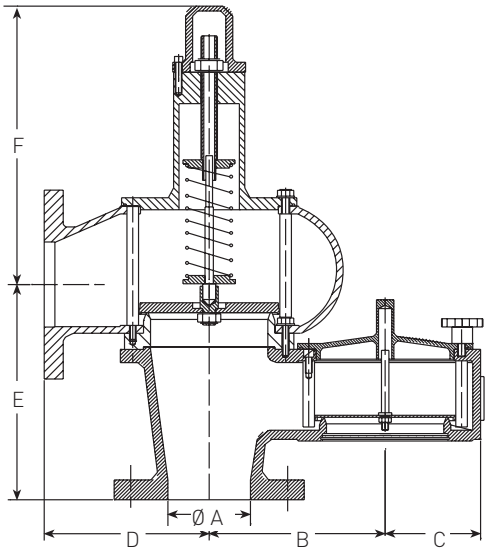
NOTE

1. Maximum setting on aluminum valves is14.5 psig (1.0 barg).
   Maximum pressure setting is limited on larger sizes:
   6" - 39 psig (2.7 barg)
   8" - 32.5 psig (2.25 barg)
   10" - 26 psig (1.8 barg)
   12" - 26 psig (1.8 barg)

MODEL 2440



MODEL 2450



2440 DIMENSIONS, INCHES (MILLIMETERS)

Size code	2	3	4	6	8	0	1
Nominal pipe size	2 (50)	3 (80)	4 (100)	6 (150)	8 (200)	10 (250)	12 (300)
A	2 (51)	3 (76)	4 (102)	6 (152)	8 (203)	10 (254)	12 (300)
B	5¾ (146)	7¼ (185)	8⅜ (213)	11 (280)	13 3/16 (335)	15⅝ (397)	17¾ (450)
C	3 3/16 (81)	3 15/16 (100)	4 11/16 (119)	5⅝ (143)	6 13/16 (173)	7 15/16 (202)	9¼ (235)
D	7 15/16 (202)	10 (253)	11 15/16 (303)	15 7/16 (392)	21 1/16 (535)	24 7/16 (620)	26⅞ (682)
E	21 (533)	22 3/16 (564)	23¼ (591)	25 15/16 (659)	27 13/16 (707)	31⅞ (810)	32½ (826)

2450 DIMENSIONS, INCHES (MILLIMETERS)

Size code	2	3	4	6	8	0	1
Nominal pipe size	2 (50)	3 (80)	4 (100)	6 (150)	8 (200)	10 (250)	12 (300)
A	2 (51)	3 (76)	4 (102)	6 (152)	8 (203)	10 (254)	12 (300)
B	5¾ (146)	7¼ (185)	8⅜ (213)	11 (280)	13 3/16 (335)	15⅝ (397)	17¾ (450)
C	3 3/16 (81)	3 15/16 (100)	4 11/16 (119)	5⅝ (143)	6 13/16 (173)	7 15/16 (202)	9¼ (235)
D	5½ (140)	7⅛ (180)	7⅞ (200)	9½ (242)	12 3/16 (310)	14⅛ (358)	15½ (393)
E	7¾ (197)	9⅜ (238)	10¼ (261)	12 3/16 (310)	14¼ (362)	15¾ (400)	17⅛ (435)
F	13 1/16 (331)	13⅛ (333)	13 13/16 (351)	14 3/16 (360)	14½ (368)	17 (431)	17⅛ (435)

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

VAREC 2440/2450 SERIES PRESSURE AND VACUUM RELIEF VALVES

SPECIFICATIONS

FLOW CAPACITY

Size, in (mm)	2" (50)			3" (80)			4" (100)			6" (150)			8" (200)			10" (250)			12" (300)		
Overpressure	**20%**	**30%**	**40%**	**20%**	**30%**	**40%**	**20%**	**30%**	**40%**	**20%**	**30%**	**40%**	**20%**	**30%**	**40%**	**20%**	**30%**	**40%**	**20%**	**30%**	**40%**
2440 Vent-to-atmosphere - Flow capacity (English units) SCFH x 1000 air																					
Pressure setting																					
1.0 psig	6.90	8.60	9.83	15.53	19.34	22.12	27.62	34.38	39.32	62.14	77.37	88.47	110.47	137.54	157.28	172.61	214.90	245.75	248.55	309.46	353.88
1.3 psig	7.80	9.71	11.11	17.56	21.86	24.99	31.21	38.86	44.43	70.23	87.44	99.98	124.85	155.44	177.73	195.09	242.87	277.71	280.92	349.74	399.90
2.0 psig	9.66	12.02	13.75	21.73	27.05	30.93	38.64	48.09	54.98	86.93	108.21	123.71	154.55	192.37	219.93	241.48	300.58	343.64	347.73	432.84	494.84
2.8 psig	11.40	14.19	16.22	25.66	31.93	36.50	45.61	56.76	64.88	102.62	127.72	145.98	182.44	227.05	259.52	285.06	354.76	405.50	410.49	510.86	583.92
3.5 psig	12.72	15.83	18.09	28.63	35.62	40.71	50.89	63.32	72.37	114.50	142.48	162.83	203.56	253.29	289.47	318.06	395.77	452.30	458.01	569.91	651.32
4.2 psig	13.91	17.30	19.77	31.30	38.94	44.49	55.63	69.21	79.09	125.18	155.74	177.96	222.54	276.87	316.36	347.72	432.61	494.32	500.72	622.96	711.82
5.3 psig	15.58	19.37	22.13	35.05	43.59	49.80	62.30	77.49	88.52	140.18	174.36	199.19	249.21	309.97	354.11	389.39	484.33	553.30	560.73	697.44	796.75
Vacuum setting																					
1" WC	1.63	2.02	2.40	3.67	4.54	5.39	6.53	8.06	9.58	14.70	18.15	21.56	26.12	32.26	38.33	40.82	50.40	59.89	58.78	72.58	86.25
2" WC	2.31	2.85	3.39	5.19	6.41	7.62	9.23	11.40	13.55	20.78	25.66	30.49	36.94	45.61	54.20	57.72	71.27	84.69	83.12	102.63	121.95
3.6" WC	3.10	3.82	4.54	6.97	8.60	10.22	12.39	15.30	18.18	27.87	34.42	40.90	49.55	61.19	72.70	77.43	95.61	113.60	111.50	137.67	163.58
5.2" WC	3.72	4.60	5.46	8.37	10.34	12.29	14.89	18.38	21.84	33.50	41.36	49.14	59.55	73.52	87.36	93.04	114.88	136.50	133.98	165.43	196.56
6.8" WC	4.25	5.25	6.24	9.57	11.82	14.05	17.02	21.02	24.97	38.30	47.29	56.18	68.08	84.06	99.88	106.38	131.35	156.07	153.18	189.14	224.74
2440 Vent-to-atmosphere - Flow capacity (metric units) Nm^3/h x 1000 air																					
Pressure setting																					
70 mbarg	0.18	0.23	0.26	0.42	0.52	0.59	0.74	0.92	1.05	1.66	2.07	2.37	2.96	3.68	4.21	4.62	5.76	6.58	6.66	8.29	9.48
90 mbarg	0.21	0.26	0.30	0.47	0.59	0.67	0.84	1.04	1.19	1.88	2.35	2.68	3.35	4.17	4.77	5.24	6.52	7.46	7.54	9.39	10.74
140 mbarg	0.26	0.32	0.37	0.59	0.73	0.83	1.04	1.30	1.48	2.35	2.92	3.34	4.17	5.19	5.93	6.52	8.11	9.27	9.39	11.68	13.35
190 mbarg	0.30	0.38	0.43	0.68	0.85	0.97	1.21	1.51	1.72	2.73	3.39	3.88	4.85	6.03	6.90	7.58	9.43	10.78	10.91	13.58	15.52
240 mbarg	0.34	0.42	0.48	0.76	0.95	1.09	1.36	1.69	1.93	3.06	3.81	4.35	5.44	6.77	7.73	8.50	10.57	12.08	12.24	15.23	17.40
290 mbarg	0.37	0.46	0.53	0.84	1.04	1.19	1.49	1.86	2.12	3.36	4.17	4.77	5.96	7.42	8.48	9.32	11.60	13.25	13.42	16.70	19.08
340 mbarg	0.40	0.50	0.57	0.91	1.13	1.29	1.61	2.00	2.29	3.63	4.51	5.15	6.45	8.02	9.16	10.07	12.53	14.31	14.50	18.04	20.61
Vacuum setting																					
2.5 mbarg	0.04	0.05	0.06	0.10	0.12	0.14	0.18	0.22	0.26	0.39	0.49	0.58	0.70	0.87	1.03	1.10	1.35	1.61	1.58	1.95	2.31
5 mbarg	0.06	0.08	0.09	0.14	0.17	0.20	0.25	0.31	0.36	0.56	0.69	0.82	0.99	1.23	1.46	1.55	1.92	2.28	2.23	2.76	3.28
9 mbarg	0.08	0.10	0.12	0.19	0.23	0.27	0.33	0.41	0.49	0.75	0.92	1.10	1.33	1.64	1.95	2.08	2.57	3.05	3.00	3.70	4.39
13 mbarg	0.10	0.12	0.15	0.22	0.28	0.33	0.40	0.49	0.59	0.90	1.11	1.32	1.60	1.97	2.35	2.50	3.09	3.67	3.60	4.44	5.28
17 mbarg	0.11	0.14	0.17	0.26	0.32	0.38	0.46	0.56	0.67	1.03	1.27	1.51	1.83	2.26	2.68	2.86	3.53	4.19	4.11	5.08	6.03
2450 Pipe-away - Flow capacity (English units) SCFH x 1000 air																					
Pressure Setting																					
1.0 psig	4.64	5.84	6.84	10.45	13.13	15.38	18.57	23.34	27.34	41.79	52.52	61.52	74.29	93.36	109.36	116.08	145.88	170.88	167.15	210.07	246.07
1.3 psig	5.25	6.59	7.72	11.81	14.84	17.38	20.99	26.38	30.90	47.23	59.35	69.52	83.96	105.52	123.59	131.19	164.87	193.11	188.92	237.42	278.08
2.0 psig	6.50	8.16	9.56	14.62	18.36	21.51	25.98	32.65	38.23	58.46	73.46	86.02	103.93	130.59	152.93	162.39	204.05	238.95	233.84	293.83	344.09
2.8 psig	7.67	9.63	11.28	17.25	21.67	25.38	30.67	38.53	45.11	69.01	86.70	101.51	122.69	154.12	180.46	191.70	240.82	281.97	276.04	346.78	406.04
3.5 psig	8.56	10.75	12.58	19.25	24.18	28.31	34.22	42.98	50.32	77.00	96.72	113.23	136.89	171.94	201.29	213.89	268.66	314.51	308.01	386.87	452.90
4.2 psig	9.35	11.75	13.75	21.05	26.43	30.94	37.41	46.98	55.00	84.18	105.72	123.75	149.65	187.94	219.99	233.84	293.67	343.73	336.73	422.88	494.98
5.3 psig	10.47	13.15	15.39	23.57	29.59	34.63	41.90	52.60	61.56	94.27	118.36	138.51	167.59	210.42	246.23	261.86	328.78	384.74	377.08	473.44	554.03
Vacuum setting																					
1" WC	1.63	2.02	2.40	3.67	4.54	5.39	6.53	8.06	9.58	14.70	18.15	21.56	26.12	32.26	38.33	40.82	50.40	59.89	58.78	72.58	86.25
2" WC	2.31	2.85	3.39	5.19	6.41	7.62	9.23	11.40	13.55	20.78	25.66	30.49	36.94	45.61	54.20	57.72	71.27	84.69	83.12	102.63	121.95
3.6" WC	3.10	3.82	4.54	6.97	8.60	10.22	12.39	15.30	18.18	27.87	34.42	40.90	49.55	61.19	72.70	77.43	95.61	113.60	111.50	137.67	163.58
5.2" WC	3.72	4.60	5.46	8.37	10.34	12.29	14.89	18.38	21.84	33.50	41.36	49.14	59.55	73.52	87.36	93.04	114.88	136.50	133.98	165.43	196.56
6.8" WC	4.25	5.25	6.24	9.57	11.82	14.05	17.02	21.02	24.97	38.30	47.29	56.18	68.08	84.06	99.88	106.38	131.35	156.07	153.18	189.14	224.74

FLOW CAPACITY (continued)

Size, in (mm)	2" (50)			3" (80)			4" (100)			6" (150)			8" (200)			10" (250)			12" (300)		
Overpressure	**20%**	**30%**	**40%**	**20%**	**30%**	**40%**	**20%**	**30%**	**40%**	**20%**	**30%**	**40%**	**20%**	**30%**	**40%**	**20%**	**30%**	**40%**	**20%**	**30%**	**40%**
2450 Pipe-away - Flow capacity (metric units) Nm^3/h x 1000 air																					
Pressure setting																					
70 mbarg	0.12	0.16	0.18	0.28	0.35	0.41	0.50	0.62	0.73	1.12	1.41	1.65	1.99	2.50	2.93	3.11	3.91	4.58	4.47	5.62	6.59
90 mbarg	0.14	0.18	0.21	0.32	0.40	0.47	0.56	0.71	0.83	1.27	1.59	1.87	2.25	2.83	3.32	3.52	4.43	5.18	5.07	6.37	7.46
140 mbarg	0.18	0.22	0.26	0.39	0.50	0.58	0.70	0.88	1.03	1.58	1.98	2.32	2.80	3.52	4.12	4.38	5.51	6.43	6.31	7.93	9.26
190 mbarg	0.20	0.26	0.30	0.46	0.58	0.67	0.82	1.02	1.20	1.83	2.30	2.70	3.26	4.10	4.80	5.10	6.40	7.50	7.34	9.22	10.79
240 mbarg	0.23	0.29	0.34	0.51	0.65	0.76	0.91	1.15	1.34	2.06	2.58	3.03	3.66	4.59	5.38	5.72	7.18	8.40	8.23	10.34	12.10
290 mbarg	0.25	0.31	0.37	0.56	0.71	0.83	1.00	1.26	1.47	2.26	2.83	3.32	4.01	5.04	5.90	6.27	7.87	9.21	9.03	11.34	13.27
340 mbarg	0.27	0.34	0.40	0.61	0.77	0.90	1.08	1.36	1.59	2.44	3.06	3.58	4.33	5.44	6.37	6.77	8.51	9.95	9.75	12.25	14.33
Vacuum setting																					
2.5 mbarg	0.04	0.05	0.06	0.10	0.12	0.14	0.18	0.22	0.26	0.39	0.49	0.58	0.70	0.87	1.03	1.10	1.35	1.61	1.58	1.95	2.31
5 mbarg	0.06	0.08	0.09	0.14	0.17	0.20	0.25	0.31	0.36	0.56	0.69	0.82	0.99	1.23	1.46	1.55	1.92	2.28	2.23	2.76	3.28
9 mbarg	0.08	0.10	0.12	0.19	0.23	0.27	0.33	0.41	0.49	0.75	0.92	1.10	1.33	1.64	1.95	2.08	2.57	3.05	3.00	3.70	4.39
13 mbarg	0.10	0.12	0.15	0.22	0.28	0.33	0.40	0.49	0.59	0.90	1.11	1.32	1.60	1.97	2.35	2.50	3.09	3.67	3.60	4.44	5.28
17 mbarg	0.11	0.14	0.17	0.26	0.32	0.38	0.46	0.56	0.67	1.03	1.27	1.51	1.83	2.26	2.68	2.86	3.53	4.19	4.11	5.08	6.03

SELECTION GUIDE

Example:		**24**	**40**	**2**	**2**	**FF**
Model						
24	Spring loaded pressure and vacuum relief valve					
Configuration						
40	Vent to atmosphere					
50	Pipe-away					
Size						
2	2" (2" x 2")					
3	3" (3" x 3")					
4	4" (4" x 4")					
6	6" (6" x 6")					
8	8" (8" x 8")					
0	10" (10" x 10")					
1	12" (12" x 12")					
Body/trim/insert material						
2	Aluminum/316 Stainless steel					
3	Carbon steel/316 Stainless steel					
4	316 Stainless steel/316 Stainless steel					
Flange finish						
FF	Flat faced flange - 150# ANSI drilling					
RF	Raised faced flange - 150# ANSI drilling (carbon steel and 316 stainless steel bodies only)					
DF	Flat faced flange - DIN PN16 drilling					
DF	Raised faced flange - DIN PN16 drilling (carbon steel and 316 stainless steel bodies only)					

Example: 2" vent-to-atmosphere, aluminum body with 316 stainless steel trim, flat faced 150# ANSI flange drilling.