



VAREC 2010B / 2020B Series
PRESSURE AND VACUUM RELIEF VALVE

The 2010B/2020B protects tanks from damage or deformation, and minimizes emissions to the environment, as well as loss of product due to evaporation.

Introduction

The Varec 2010B and 2020B Pressure and Vacuum Relief Valves are designed for use on atmospheric and low pressure storage tanks. The 2010B vents to atmosphere. The 2020B allows vapors to be piped away for recovery or destruction.

The primary function of both models is to protect the tank from physical damage or permanent deformation caused by increases in internal pressure or vacuum encountered in normal operations. On smaller tanks, the valve may also provide sufficient flow capacity for emergency venting. The "air-cushion" seating design keeps the valve tightly sealed until the pressure inside the tank approaches the valve setting. Valve selection should be in accordance with American Petroleum Institute Standard 2000 or other applicable standard.

Flow curves are provided to help you select the proper valve size for your venting requirements. Additionally, Varee's applications engineering staff and factory trained representatives are always available to assist you.

By controlling tank venting, the 2010B and 2020B not only minimize emissions to the environment, but also minimize the loss of product to evaporation. When combined with a well-designed vapor recovery system, the loss can be cut to essentially zero.

An "All-Weather" option is offered for freezing climates. The design features a special non-frosting and icing-resistant coating on the pallet perimeter, stem, guide posts and tip-of-seat ring. The coating, along with the flexible Teflon® seat insert, provides additional protection against pallets freezing closed.



Available Materials

- Aluminum
- · Carbon Steel
- Stainless Steel
- Ductile Iron
- Special Materials on Application

For high temperature and chemical applications, Varec recommends one of the extended service options, which offers the selection of O-ring, gasket, and screen material.

Models 2010B and 2020B are part of VAREC modular products which use interchangeable components for assembling a variety of functional configurations. The modular design provides flexibility of field installation and allows the valve to be reconfigured, repaired and even upgraded on-site by simply replacing or adding components.

Features

- The pressure and vacuum ports are oversized to provide maximum flow capacity.
- The hood and cover are easily removed for inspection and maintenance.
- The seat rings are both interchangeable and field replaceable.
- Protective screens are provided at pressure and vacuum ports to prevent entrance of foreign matter.
- The outlet adapter on the 2020B Series is one pipe size larger than the valve inlet flange to optimize flow capacity.

Specifications

The 2010B and 2020B Series Pressure and Vacuum Relief Valves are available in a variety of configurations to meet your specific needs.

Sizes

2010B/ 2011B:

2" [50 mm], 3" [80 mm], 4" [100 mm], 6" [150 mm], 8" [200 mm] 10" [250 mm], 12" [300 mm]

2020B/ 2021B:

2" x 3", 3" x 4", 4" x 6", 6" x 8" 8" x 10", 10" x 12", 12" x 14"

Flanged Connections

(STANDARD FLANGE DRILLING)

Aluminum

Drilled to ANSI Class 150 Dimensions (Flat-Faced)

Drilled to DIN 2633 [16 Bar] Dimensions (Flat-Faced)

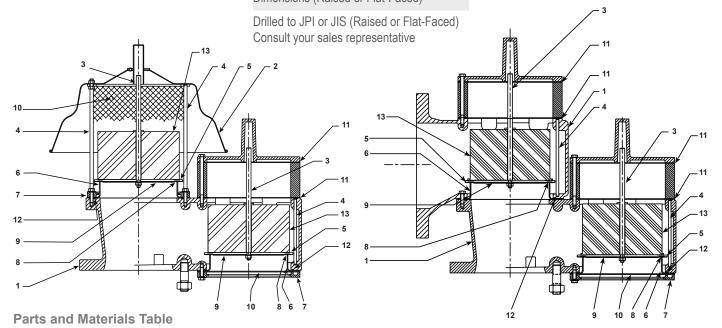
CS, DI and SS Body

Drilled to ANSI Class 150 Dimensions, (Raised or Flat-Faced)

Drilled to Imperial DIN 2633 [16 bar] Dimensions (Raised or Flat-Faced)

Testing

Each valve is tested for proper setting and for a leakage rate of less than 1 SCFH (0.03 Nm³/ hr) of air at 90 percent of the set point. Each valve is tested for leak tightness at 75 percent of set point as required in API Standard 2000.

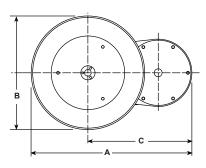


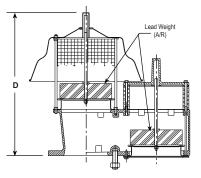
	Item	1	2 2	aterial Code 3	4	5	
1	Body	Aluminum	Aluminum	Carbon Steel	316 SS	Ductile Iron	
2	Weatherhood	Aluminum	Aluminum	Carbon Steel	316 SS	Carbon Steel	
3	Guide Stem	Aluminum	316 SS	SS 316 SS		316 SS	
4	Guide Posts	316 SS	316 SS	316 SS	316 SS	316 SS	
5	Pallet	Aluminum	316 SS	316 SS	316 SS	316 SS	
6	Seat Ring Aluminum		316 SS	316 SS	316 SS	316 SS	
7	Seat Ring Retainer 1	Polypropylene	Polypropylene Polypropylene		Polypropylene	Polypropylene	
8	Insert 1	Teflon®	Teflon® Teflon®		Teflon®	Teflon®	
9	Insert Retainer	Aluminum	316 SS	316 SS	316 SS	316 SS	
10	Screen 1	HDPE	HDPE	HDPE	HDPE	HDPE	
11	Gaskets 1	Fiber	Fiber	Fiber	Fiber	Fiber	
12	O-Ring ¹	BUNA-N	BUNA-N	BUNA-N	BUNA-N	BUNA-N	
13	Weights	Lead	Lead	Lead	Lead	Lead	

Note: 1 - Materials are as standard. See model option code for other materials and their associated temperature ranges.

- 2 Teflon® coated aluminum may be supplied with material codes 2 5 to achieve lower settings.
- 3 All nuts and cap screws are 316 SS.

2010B/ 2011B SERIES



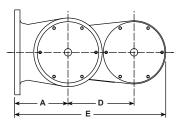


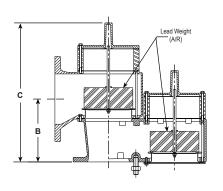
Dimensions, inches [mm]								
Size Code	2	3	4	6	8	0	1	
Nominal Pipe Size	2 [50]	3 [80]	4 [100]	6 [150]	8 [200]	10 [250]	12 [300]	
А	14 ¹ / ₈ [359]	17 ⁹ / ₁₆ [446]	19 ¹ / ₈ [486]	24 [610]	29 ⁷ / ₈ [759]	38 ⁷ / ₁₆ [976]	46 ⁵ / ₈ [1184]	
В	8 ¹ / ₂ [216]	10 ³ / ₄ [273]	13 ³ / ₈ [340]	17 [432]	20 ⁵ / ₈ [524]	27 [686]	34 [864]	
С	9 7/ ₈ [251]	12 ¹ / ₄ [311]	12 ¹ / ₄ [311]	15 ¹ / ₂ [394]	19 ⁹ / ₁₆ [497]	24 ¹⁵ / ₁₆ [633]	29 ³ / ₈ [746]	
D Low Set	10 ⁷ / ₁₆ [265]	12 ⁵ / ₁₆ [313]	12 ⁷ / ₁₆ [368]	18 ³ / ₁₆ [462]	21 ⁵ / ₈ [549]	27 ⁷ / ₁₆ [697]	31 ⁷ / ₈ [810]	
D High Set	13 ⁵ / ₁₆ [338]	15 ¹ / ₄ [387]	16 ⁵ / ₈ [422]	21 ¹ / ₂ [546]	24 ³ / ₄ [629]	29 ⁷ / ₁₆ [748]	31 ⁷ / ₈ [810]	

Note: Figure shown is for high set option.

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

2020B/ 2021B SERIES





Dim	ensi	ions,	inches	[mm]
	_		_	_

Size Code		3	4	6	8	0	1
Nominal Pipe Size	2 x 3 [50 x 80]	3 x 4	4 x 6	6 x 8 [150 x 200]	8 x 10	10 x 12	12 x 14
А	4 ¹⁵ / ₁₆ [125]	6 ³ / ₈ [162]	8 [203]	8 ⁹ / ₁₆ [217]	11 ³ / ₁₆ [284]	13 ⁵ / ₈ [346]	15 ³ / ₈ [391]
В	5 ¹ / ₄ [133]	5 ⁷ / ₈ [149]	6 ¹³ / ₁₆ [173]	10 [254]	12 ¹ / ₈ [308]	16 ¹ / ₈ [410]	18 ³ / ₄ [476]
C Low Set	9 ¹ / ₁₆ [230]	10 ³ / ₄ [273]	12 ³ / ₄ [324]	18 ³ / ₄ [4 7 6]	22 ¹ / ₈ [562]	27 ⁹ / ₁₆ [700]	32 [813]
C High Set	13 ¹ / ₂ [343]	15 ¹ / ₂ [394]	16 ¹³ / ₁₆ [427]	22 [559]	24 ¹ / ₂ [622]	29 ¹ / ₄ [743]	32 [813]
D	6 ³ / ₄ [171]	8 ³ / ₈ [213]	8 ⁷ / ₁₆ [214]	10 ¹ / ₂ [267]	13 ¹ / ₈ [333]	16 ⁷ / ₈ [429]	19 ³ / ₄ [502]
Е	14 ³ / ₄ [375]	18 ⁹ / ₁₆ [471]	20 ⁷ / ₁₆ [519]	24 ¹ / ₄ [616]	30 ³ / ₄ [781]	38 ⁹ / ₁₆ [979]	44 ¹¹ / ₁₆ [1135]

Note: Figure shown is for high set option.

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

Specifications

	Minimu		Minim		L avv S	et Range	Himb Co	4 Danne
C:	Pressure Se		Vacuum Se			•	_	et Range
Size	Aluminum	316 33	Aluminum	316 33	Pressure	Vacuum	Pressure	Vacuum
2010E	3							
2"	0.29	0.70	0.26	0.62	Min to 16 oz/in ²	Min to 10 oz/in ²	16.01 oz/in2 to 2 psig	10.01 oz/in² to 2 psig
3"	0.23	0.55	0.21	0.49	Min to 16 oz/in ²	Min to 10 oz/in ²	16.01 oz/in2 to 2 psig	10.01 oz/in2 to 2 psig
4"	0.29	0.60	0.27	0.56	Min to 16 oz/in ²	Min to 16 oz/in ²	16.01 oz/in2 to 2 psig	16.01 oz/in² to 2 psig
6"	0.26	0.61	0.26	0.61	Min to 16 oz/in ²	Min to 16 oz/in ²	16.01 oz/in2 to 2 psig	16.01 oz/in² to 2 psig
8"	0.25	0.55	0.25	0.55	Min to 16 oz/in ²	Min to 16 oz/in ²	16.01 oz/in2 to 2 psig	16.01 oz/in ² to 2 psi
10"	0,25	0.63	0,25	0,63	Min to 16 oz/in ²	Min to 16 oz/in ²	16.01 oz/in2 to 2 psig	16,01 oz/in2 to 2 psig
12"	0.23	0.59	0.23	0.59	Min to 16 oz/in ²	Min to 16 oz/in ²	16.01 oz/in ² to 2 psig	16.01 oz/in ² to 2 psig
2011E	3							
2"	0,29	0.70	0,26	0,62	Min to 16 oz/in ²	Min to 10 oz/in ²	16.01 oz/in ² to 2 psig	10.01 oz/in² to 2 psig
3"	0.23	0.55	0.21	0.49	Min to 16 oz/in ²	Min to 10 oz/in ²	16.01 oz/in2 to 2 psig	10.01 oz/in2 to 2 psig
4"	0,29	0.60	0,27	0,56	Min to 16 oz/in ²	Min to 16 oz/in ²	16.01 oz/in ² to 2 psig	16,01 oz/in2 to 2 psig
6"	0.26	0.61	0.26	0.61	Min to 16 oz/in ²	Min to 16 oz/in ²	16.01 oz/in ² to 2 psig	16.01 oz/in² to 2 psig
8"	0,25	0.55	0,25	0,55	Min to 16 oz/in ²	Min to 16 oz/in ²	16.01 oz/in ² to 2 psig	16.01 oz/in2 to 2 psig
10"	0.49	1.33	0.49	1.33	Min to 16 oz/in ²	Min to 16 oz/in ²	16.01 oz/in ² to 2 psig	16.01 oz/in2 to 2 psig
12"	0.47	1.28	0.47	1.28	Min to 16 oz/in ²	Min to 16 oz/in ²	16.01 oz/in ² to 2 psig	16.01 oz/in ² to 2 psig
2020E	3							
2"	0.26	0.62	0.26	0.62	Min to 10 oz/in ²	Min to 10 oz/in ²	10.01 oz/in ² to 2 psig	10.01 oz/in² to 2 psig
3"	0.21	0.49	0.21	0.49	Min to 10 oz/in ²	Min to 10 oz/in ²	10.01 oz/in2 to 2 psig	10.01 oz/in² to 2 psig
4"	0.27	0.56	0.27	0.56	Min to 16 oz/in ²	Min to 16 oz/in ²	16.01 oz/in2 to 2 psig	16.01 oz/in² to 2 psig
6"	0.26	0.61	0.26	0.61	Min to 16 oz/in ²	Min to 16 oz/in ²	16.01 oz/in2 to 2 psig	16.01 oz/in² to 2 psig
8"	0.25	0.55	0.25	0.55	Min to 16 oz/in ²	Min to 16 oz/in ²	16.01 oz/in2 to 2 psig	16.01 oz/in2 to 2 psig
10"	0.25	0.63	0.25	0.63	Min to 16 oz/in ²	Min to 16 oz/in ²	16.01 oz/in2 to 2 psig	16.01 oz/in² to 2 psig
12"	0.23	0.59	0.23	0.59	Min to 16 oz/in ²	Min to 16 oz/in ²	16.01 oz/in ² to 2 psig	16.01 oz/in² to 2 psig
2021E	3							
2"	0.26	0.62	0.26	0.62	Min to 10 oz/in ²	Min to 10 oz/in ²	10.01 oz/in2 to 2 psig	10.01 oz/in² to 2 psig
3"	0.21	0.49	0.21	0.49	Min to 10 oz/in ²	Min to 10 oz/in ²	10.01 oz/in ² to 2 psig	10.01 oz/in² to 2 psig
4"	0,27	0.56	0.27	0.56	Min to 16 oz/in ²	Min to 16 oz/in ²	16.01 oz/in ² to 2 psig	16.01 oz/in² to 2 psig
6"	0.26	0.61	0.26	0.61	Min to 16 oz/in ²	Min to 16 oz/in ²	16.01 oz/in² to 2 psig	16.01 oz/in² to 2 psig
8"	0,25	0.55	0,25	0.55	Min to 16 oz/in ²	Min to 16 oz/in ²	16.01 oz/in ² to 2 psig	16.01 oz/in² to 2 psi
10"	0.49	1.33	0.49	1.33	Min to 16 oz/in ²	Min to 16 oz/in ²	16.01 oz/in ² to 2 psig	16.01 oz/in² to 2 psig
12"	0.47	1.28	0.47	1.28	Min to 16 oz/in ²	Min to 16 oz/in ²	16.01 oz/in ² to 2 psig	16.01 oz/in² to 2 psig

Lower settings may be available. Please consult your sales representative.

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

The mixed pressure/vacuum set ranges, 0204 and 0402 (Low Pressure/High Vacuum and High Pressure/Low Vacuum) use heavier pallets, and therefore have higher low set range minimums. For these cases, add the applicable value from the following table to the low set range minimum. (This increase does not apply for 10" and 12" 2011B/2021B.)

Size	Aluminum	316 SST
2"	0.30	0.72
3"	0.27	0.70
4"	0.21	0.62
6"	0.20	0.55
8"	0.21	0.44
10"	0.25	0.61
12"	0.26	0.67

Ordering Information

Model 20	Descrip Air Cushi	ption ion Pressure/ Vacuum Relief Valve										
	Code 1 2	Model Vent-to-/ Pipe-Aw	Atmosphere)								
		Code 0B 1B	B Standard Air Cushion Type									
			2 3 4 6 8 0	Size 2" (2" x 3' 3" (3" x 4' 4" (4" x 6' 6" (6" x 8' 8" (8" x 1) 10" (10" x 12" (12" x) Code	7) 7) 7) 0") 12") 14") Body/	Trim Ma						
				1 2 3 4 5	Aluminu Carbon 316 Sta	um/ Aluminu um/ 316 Sta Steel/ 316 inless Steel Iron/ 316 St	inless Stee Stainless S I/ 316 Stain	I (-65°F to 2 teel (-20°F less Steel (to 350°F) -65°F to 35	50°F) 20° to 325°F)		
					T B V	Teflon® BUNA-N	Material (-65°F to 4 logs) (-40°F to 40°F to	250°F)				
						FF MF FR MR DF DR	Flat Fac Flat Fac Raised (Not Ava Raised (Not Ava DIN Flat	e flange dri Face flange ailable in Alu Face flange ailable in Alu EFace Flange	lled to ANS lled to ANS drilled to A uminum) drilled to A uminum) ge Drilling	Is I 150 with Fractional Studs Is I 150 with Metric Studs INSI 150 with Fractional Studs INSI 150 with Metric Studs Ing (Not Available in Aluminum)		
							Code OP OS TP TS BP BS VP VS	Standard Standard Teflon® Teflon® BUNA-N BUNA-N Viton® a	3 3 \ ,10 /			
								04	Code 02 04			
	1 : 12" Size Al ture Range:			2 rim, Teflon® li	T nsert, 150	FF FF Flanges,	OP Standard Fib	02 er/ BUNA-N	02 Gaskets, Lo	(Example) w Set Pressure and Vacuum,		