

## VAREC 5810B / 5820B Series RELIEF VALVE WITH FLAME ARRESTER

The 5810B / 5820B Series Relief Valve and Flame Arrester is a combination of the 2010B / 2020B Series Pressure and Vacuum Relief Valve and the 5000 Series Flame Arrester.

### Introduction

The Varec 5810B/5820B Series Relief Valve and Flame Arrester is a combination of the Varec 2010B / 2020B Series Pressure and Vacuum Relief Valve and the Varec 5000 Series Flame Arrester. This unit combines the high flow capacity of a relief valve with the easy-to-maintain extensible bank flame arrester to help provide maximum protection and reliable operation.

### Operation

Whenever the system gas pressure or vacuum exceeds the setting, the pallet is designed to lift. Only excess pressure is vented to the atmosphere. Air is drawn into the tank only to relieve an excess vacuum condition. The valve remains closed when the gas utilization system remains within normal operating pressure.

The valve pallets are deadweight loaded with a field adjustable pressure setting range. Side and center pallet guides are incorporated for stability. "Air cushion" Teflon® seat inserts help ensure a tighter seal. Removable seats can be easily replaced.

The case outlet adapter on the pipe-away model is one pipe size larger than the valve inlet flange to optimize flow capacities.

The "All-weather" models feature a special non-frosting and anti-icing coating. This coating is applied to the pallet perimeter and stem, guide posts, and seat ring tip. This feature provides additional protection against pallets freezing closed.



The flame arrester is designed to stop the propagation of a flame by absorbing and dissipating heat through the surface area of the bank sheets. Heat is absorbed as ignited gas attempts to pass through the small passages within the bank assembly. This action lowers the temperature of the gas below its ignition point and quenches the flame.

The net free area through the flame arrester bank is three to four times the unit pipe size. This design provides increased flow capacity with minimal pressure drop. The unique extensible bank frame allows inspection of the corrugated sheets, and routine cleaning without removal from the frame. The entire bank assembly slides out easily off the arrester housing.

It is not necessary to disassemble the flame arrester from the relief valve, nor remove the entire unit off the pipeline. The extensible bank feature is especially useful when there is excessive foaming in the digester. The bank assembly can be easily inspected and cleaned to remove any scum or residue build-up.

### Features

- Oversized pressure and vacuum ports for maximized flow capacities
- Extensible flame arrester bank assembly
- Replaceable pressure and vacuum seat rings
- "All-weather" coating option available for valve seats and guides
- Vent to atmosphere or pipe-away model

## Application

The 5810B/5820B Series Pressure and Vacuum Relief Valve with Flame Arrester are installed on low-pressure storage tank applications. The relief valve helps protect the cover from excessive pressure and vacuum within the tank. It also maintains system operating pressure so vapors are not routinely vented to the atmosphere. The flame arrester helps protect the tank from accidental ignition of vapors within the storage tank. It is designed to stop the propagation of flame from external sources. For further information on these devices, see the product data sheet for 2010B/2020B, and 5000/5010.

A variety of materials are available to suit climate conditions. The standard aluminum construction is suitable for moderate climates. In extreme hot, humid or freezing weather, the "All-weather" 5811B Series is recommended.

This design incorporated added features that can reduce potential malfunctions from these extreme conditions.

The 5820B Series provides for further protection from cold climates and provides a means to route vented gas instead of venting to atmosphere. This unit incorporates an enclosed pressure port on the relief valve. It is especially suited for field installation of insulation jackets or insulated shelters. The 5821B Series includes the pipe-away outlet and the "All-weather" features for maximum cold weather protection.

If H<sub>2</sub>S corrosion is a concern, supplying the relief valve with 316 SS trim is an option. The flame arrester bank sheets are also available in 316 SS material.

## Standard Specification

Model 5000 Flame Arrester UL (Underwriters Laboratories) listed in all Aluminum Construction with extensible bank assembly in 2", 3", 4", 6" and 10" sizes.

Flame Arresters installed not more than 15 feet from the open end of the vent pipe. These test conditions may not represent the actual service conditions or piping system design. It is recommended that the arrester be independently tested under actual service conditions before installation.

## Benefits

- Large flow capacity allows use of smaller size
- Easy maintenance
- Helps reduce maintenance time and replacement cost
- Valve will operate at temperatures to -25°F [-32°C]
- Application flexibility for weather or emissions considerations

## Specifications

### Sizes

5810B - 2", 3", 4", 6", 8", 10" and 12"

5820B - 2" x 3", 3" x 4", 4" x 6", 6" x 8",  
8" x 10", 10" x 12" and 12" x 14"

### Connections

Drilled to ANSI 150 Flat-Faced Flange Connection

All-Stainless Steel: Drilled to ANSI 150 Raised-Face Flange Connection

Special drilling requirements to DIN, JPI or JIS standards are available upon request. Consult factory or your local sales representative for further details.

### Flow Data

Consult Factory for flow data information. Valve sizing programs are available upon request.

### Settings

Pressure and Vacuum:  
Available up to 1 PSIG

### Materials

#### VALVE BODY

356 T6 Low Copper Cast Aluminum  
316 Stainless Steel (Option)

#### VALVE TRIM

Low Copper Aluminum with 316 SS  
Guideposts (Standard)  
316 Stainless Steel (Option)

#### PALLET SEAT INSERTS

Teflon®

#### PALLET WEIGHTS

Lead

#### PROTECTIVE SCREEN

HDPE (High-Density Polyethylene)

#### ARRESTER HOUSING

356 T6 Low Copper Cast Aluminum  
316 Stainless Steel (Option)

#### BANK ASSEMBLY

Low Copper Aluminum Extensible Frame  
with Aluminum Bank Sheets (Standard)

Low Copper Aluminum Extensible Frame  
with 316 SS Bank Sheets (Option)

All 316 Stainless Steel (Option)

#### HARDWARE (Nuts, Bolts, etc.)

Zinc-plated Steel (Standard)  
Stainless Steel (Option)

#### MOUNTING HARDWARE

Per ANSI standards (Supplied by Others)

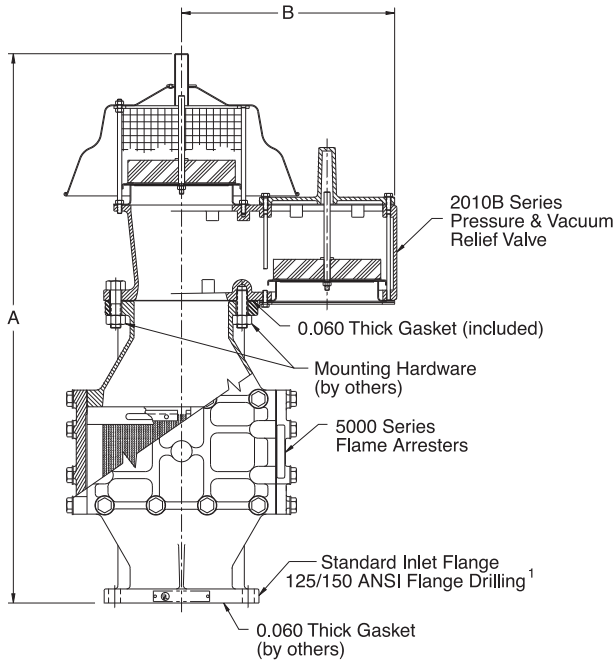
#### ALL-WEATHER OPTION

Relief Valve Operating Temperature is -25°F  
to 200°F (-32°C to 93°C)

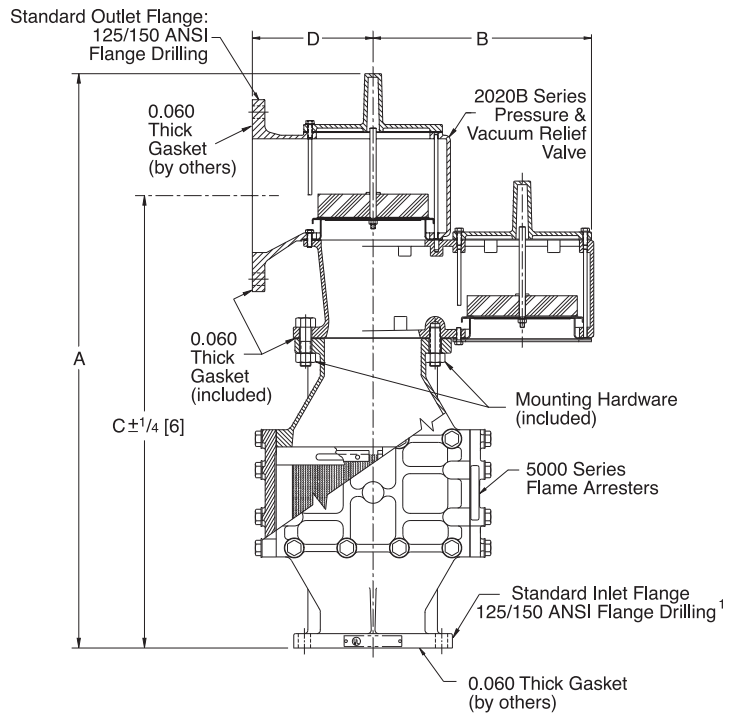
NOTE: Teflon® is a registered trademark of E.I. du Pont de Nemours Company.

Specification

5810B SERIES



5820B SERIES



Note: 1 - Aluminum Bodies Flat Face Only.  
Stainless and Carbon Steel Raised Face Only.

5810B Dimensions, inches [mm]

Size	A	B
2"	23 <sup>1</sup> / <sub>16</sub> [586]	9 <sup>7</sup> / <sub>8</sub> [251]
3"	26 <sup>5</sup> / <sub>16</sub> [668]	12 <sup>1</sup> / <sub>4</sub> [311]
4"	30 <sup>11</sup> / <sub>16</sub> [779]	12 <sup>7</sup> / <sub>16</sub> [316]
6"	39 <sup>3</sup> / <sub>8</sub> [1000]	15 <sup>1</sup> / <sub>2</sub> [394]
8"	48 [1243]	19 <sup>9</sup> / <sub>16</sub> [497]
10"	56 [1422]	24 <sup>15</sup> / <sub>16</sub> [633]
12"	66 <sup>3</sup> / <sub>8</sub> [1686]	29 <sup>3</sup> / <sub>8</sub> [746]

5820B Dimensions, inches [mm]

Size		A	B	C± 1/4[6]	D
Inlet	Outlet				
2"	3"	21 <sup>7</sup> / <sub>8</sub> [556]	9 <sup>7</sup> / <sub>8</sub> [251]	17 <sup>15</sup> / <sub>16</sub> [456]	4 <sup>15</sup> / <sub>16</sub> [125]
3"	4"	24 <sup>11</sup> / <sub>16</sub> [627]	12 <sup>1</sup> / <sub>4</sub> [311]	19 <sup>13</sup> / <sub>16</sub> [503]	6 <sup>3</sup> / <sub>8</sub> [162]
4"	6"	29 <sup>7</sup> / <sub>16</sub> [748]	12 <sup>7</sup> / <sub>16</sub> [316]	23 <sup>1</sup> / <sub>2</sub> [597]	8 [203]
6"	8"	40 <sup>5</sup> / <sub>16</sub> [1024]	15 <sup>1</sup> / <sub>2</sub> [394]	31 <sup>9</sup> / <sub>16</sub> [802]	8 <sup>9</sup> / <sub>16</sub> [217]
8"	10"	45 <sup>7</sup> / <sub>16</sub> [1154]	19 <sup>9</sup> / <sub>16</sub> [497]	39 <sup>7</sup> / <sub>16</sub> [1002]	11 <sup>3</sup> / <sub>16</sub> [284]
10"	12"	56 [1422]	24 <sup>15</sup> / <sub>16</sub> [633]	44 <sup>11</sup> / <sub>16</sub> [1135]	13 <sup>5</sup> / <sub>8</sub> [346]
12"	14"	66 <sup>7</sup> / <sub>16</sub> [1688]	29 <sup>3</sup> / <sub>8</sub> [746]	53 <sup>5</sup> / <sub>16</sub> [1354]	15 <sup>3</sup> / <sub>8</sub> [391]

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

**Ordering Information**

<b>Model</b> 58	<b>Description</b> Relief Valve and Flame Arrester				
	<b>Code</b>	<b>Valve Style</b>			
	1	Vent to Atmosphere			
	2	Pipe-Away			
		<b>Code</b>	<b>Connection Size</b>		
		0B	Air Cushion Type		
		1B	All Weather Type		
			<b>Code</b>	<b>Size (Pipe-Away Option)</b>	
			2	2" (x 3")	
			3	3" (x 4")	
			4	4" (x 6")	
			6	6" (x 8")	
			8	8" (x 10")	
			0	10" (x 12")	
			1	12" (x 14")	
			<b>Code</b>	<b>Relief Valve and Flame Arrester Material (Must Specify One)</b>	
			1	All -Aluminum Construction Aluminum Body and Trim on Valve, Aluminum Housing, Extensible Frame and Sheets on Flame Arrester, Drilled to ANSI 150 FF	
			2	Aluminum/ Stainless Steel Construction Aluminum Body and Stainless Steel Trim on Valve; Aluminum Housing and Extensible Bank, Stainless Steel Sheets on Flame Arrester, Drilled to ANSI 150 FF	
			3	All-Stainless Steel Construction <sup>1</sup> 316 SS Body and Trim on Valve, Stainless Steel Housing, Frame and Sheets on Flame Arrester, Drilled to ANSI 150 RF	
			<b>Code</b>	<b>Flame Arrester Hardware Material</b>	
			*	Leave Blank When Ordering Standard Zinc Plated Steel	
			S	Stainless Steel (Optional)	

58      1      0B      8      2      S      (Example)

Example: Pressure/Vacuum Relief Valve with Flame Arrester, Vent to Atmosphere, Air-Cushion Type, 8" Size, Aluminum Body and Stainless Steel Trim on Valve; Aluminum Housing and Extensible Bank, Rectangular Stainless Steel Sheets on Flame Arrester, Stainless Steel Hardware. Specify Pressure and Vacuum Settings.

NOTE: 1 - Carbon Steel Available on Request.

**5810B Shipping Weights, lbs (kg)**

Size	Material Code		
	1	2	3
2"	52 (24)	62 (28)	117 (53)
3"	88 (40)	98 (44)	193 (88)
4"	132 (60)	152 (69)	282 (128)
6"	187 (85)	237 (108)	437 (198)
8"	302 (137)	377 (171)	702 (318)
10"	448 (203)	568 (258)	1058 (480)
12"	662 (300)	837 (380)	1477 (670)

**5820B Shipping Weights, lbs (kg)**

Size	Material Code		
	1	2	3
2"	62 (28)	72 (33)	146 (66)
3"	103 (47)	113 (51)	237 (108)
4"	152 (69)	172 (78)	340 (154)
6"	217 (98)	267 (121)	525 (238)
8"	342 (155)	417 (189)	819 (371)
10"	528 (239)	648 (294)	1291 (586)
12"	767 (348)	942 (427)	1783 (809)