



## VAREC 5810B AND 5820B SERIES RELIEF VALVE WITH FLAME ARRESTER

These units combine the high flow capacity of a pressure and vacuum relief valve with an extensible bank flame arrester to provide maximum protection and reliable operation



5810B



5820B

### 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 is available for valve seats and guides.
- Vent to atmosphere or pipe-away models.
- Large flow capacity allows use of smaller size.
- Easy maintenance helps reduce maintenance time and replacement cost.
- Application flexibility for weather or emissions considerations.

### GENERAL APPLICATION

The 5810B and 5820B Series are for vertical installations on low-pressure storage tank applications.

### TECHNICAL DATA

Materials:	Aluminum, stainless steel
Sizes	
5810B:	2" to 12" (50 to 300 mm)
5820B:	2" x 3" to 12" x 14" (50 x 75 mm to 300 x 350 mm)
Connections:	Drilled flange
Pressure/vacuum settings:	To 1 psig (.07 barg)
Temperature:	-25° to 200°F (-32° to 93°C)

# VAREC 5810B AND 5820B SERIES RELIEF VALVE WITH FLAME ARRESTER

## SPECIFICATIONS

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### MODELS OVERVIEW

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The 5810B/5820B Series is a combination of the 2010B/2020B Series pressure and vacuum relief valve and the 5000 Series flame arrester.

The relief valve helps protect the cover from excessive pressure and vacuum within the tank, maintaining system operating pressure so vapors are not vented to the atmosphere routinely. The flame arrester helps protect the tank from accidental ignition of internal vapors and is designed to stop the propagation of flame from external sources. For further information on these devices, see the product data sheets for 2010B/2020B and 5000/5010.

A variety of materials is 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, which incorporates added features that can reduce potential malfunctions from extreme conditions.

The 5820B Series provides for further protection from cold climates and a means to route vented gas instead of venting to atmosphere. It incorporates an enclosed pressure port on the relief valve and 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.

### OPERATION

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The pallet is designed to lift whenever the system gas pressure or vacuum exceeds the setting. 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' PTFE seat inserts help ensure a tighter seal and can be replaced easily.

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 applied to the pallet perimeter and stem, guide posts and seat ring tip providing 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 of the arrester housing easily. 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 inspected and cleaned easily to remove any scum or residue build-up.

# VAREC 5810B AND 5820B SERIES RELIEF VALVE WITH FLAME ARRESTER

## SPECIFICATIONS

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### 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 on request. Consult your local sales representative for further details.

### Flow data

- Consult your sales representative for flow data information. Valve sizing programs are also available on request.

### Settings

- Pressure and vacuum settings: available up to 1 psig.

## MATERIALS

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- 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: PTFE
- 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: zinc-plated steel (standard)  
(nuts, bolts, etc): 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]

### Flame arrester 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" (50, 75, 100, 150 and 250 mm) sizes.

## APPLICATIONS

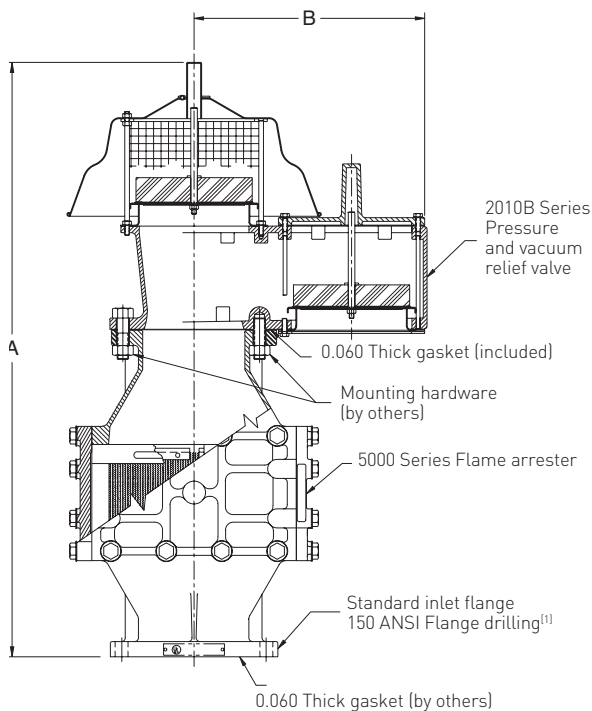
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The arresters are designed to stop the propagation of flame (Group "D" gases) from external sources. They can be mounted up to 15 feet (4.6 m) upstream of the ignition source in accordance with UL approval, or 10 pipe diameters in accordance with FM approval requirements.

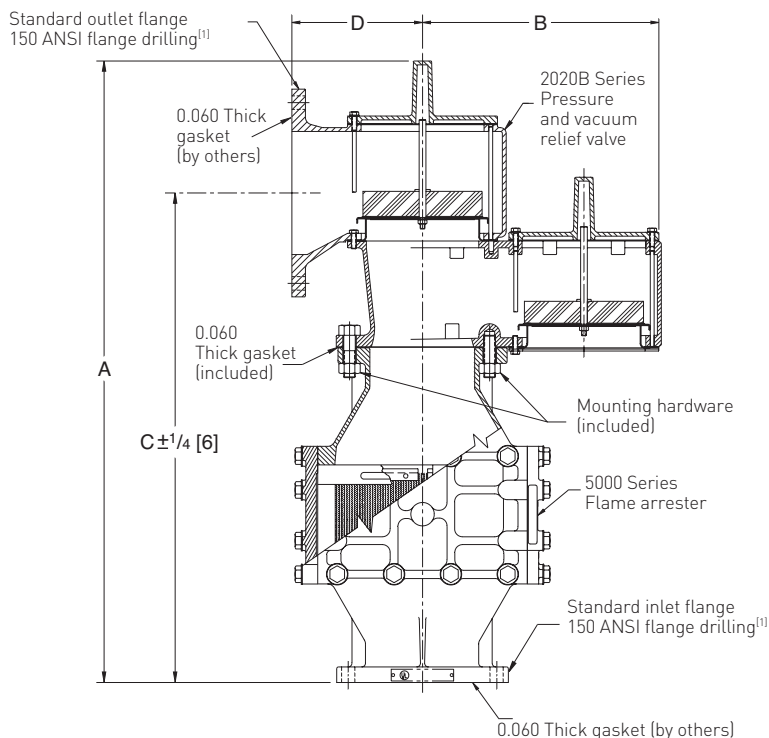
# VAREC 5810B AND 5820B SERIES RELIEF VALVE WITH FLAME ARRESTER

## DIMENSIONS

### 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 Inlet	Outlet	A	B	C ± 1/4 [6]	D
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>7</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>3</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]

# VAREC 5810B AND 5820B SERIES RELIEF VALVE WITH FLAME ARRESTER

## ORDERING INFORMATION

### SELECTION GUIDE

Example:	58	1	0B	8	2	S
<b>Model</b>						
<b>58</b>	Relief valve and flame arrester					
<b>Configuration</b>						
<b>1</b>	Vent to atmosphere					
<b>2</b>	Pipe-away					
<b>Model</b>						
<b>0B</b>	Air cushion type					
<b>1B</b>	'All weather' type					
<b>Size (Pipe-away option)</b>						
<b>2</b>	2" (x 3")					
<b>3</b>	3" (x 4")					
<b>4</b>	4" (x 6")					
<b>6</b>	6" (x 8")					
<b>8</b>	8" (x 10")					
<b>0</b>	10" (x 12")					
<b>1</b>	12" (x 14")					
<b>Relief valve and flame arrester material (must specify one)</b>						
<b>1</b>	All-aluminum construction Aluminum body and trim on valve, aluminum housing, extensible frame and sheets on flame arrester, FF flange connections drilled to ANSI 150					
<b>2</b>	Aluminum/stainless steel construction Aluminum body and stainless steel trim on valve; aluminum housing and extensible bank, stainless steel sheets on flame arrester, FF flange connections drilled to ANSI 150					
<b>3</b>	All-stainless steel construction <sup>[1]</sup> 316 SS body and trim on valve, stainless steel housing, frame and sheets on flame arrester, RF flange connections drilled to ANSI 150					
<b>Flame arrester hardware material</b>						
<b>*</b>	Leave blank when ordering standard zinc plated steel					
<b>S</b>	Stainless steel (optional)					

**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. Specify pressure and vacuum settings.

### NOTE

1. Carbon steel available on request.

## VAREC 5810B AND 5820B SERIES RELIEF VALVE WITH FLAME ARRESTER

### SHIPPING WEIGHTS

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#### 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)



