



VAREC 3500B/3600B/3650B SERIES VACUUM OR PRESSURE RELIEF VALVES

Weight loaded vacuum breakers designed to provide superior seat tightness



FEATURES

- Designed to offer flexibility of installation.
- 3500B valves for tank top mounting.
- 3600B valves are side mounted.
- 3650B valves with flanged intake and discharge connections for 'in-line' applications.
- 3660B valves for either pressure (top mounted) or vacuum (side mounted) relief applications.
- Oversized port for maximum flow.
- Replaceable 'air cushion' PTFE seating for lowest available leakage for weight-loaded valves (1 SCFH [0.03 Nm³/hr] or less at 90% of setpoint).
- Pallet drip ring and self-draining housing protect the seating surface from condensate and freezing.
- Side-and-center guided pallet.
- Wide range of materials for service in most applications.
- 'All-weather' non-frosting and ice-resistant coating option available for valve seats and guides.
- Extended service options available for high temperature and chemical applications.

GENERAL APPLICATION

These vacuum breakers are designed to protect atmospheric and low pressure liquid storage vessels, vapor recovery and process systems from excessive vacuum. They utilize weights proportional to the seat surface area to achieve the desired setting.

TECHNICAL DATA

Materials: Aluminum, carbon steel, stainless steel

Sizes
 3500B/3600B: 2" to 12" (50 to 300 mm)
 3650B: 2" x 3" to 12" x 14" (50 x 75 mm to 300 x 350 mm)

Connections: Drilled flange

Vacuum settings: To 2 psig [0.14 barg]

VAREC 3500B/3600B/3650B SERIES VACUUM OR PRESSURE RELIEF VALVES

SPECIFICATIONS

Sizes

3500B and 3600B:

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

3650B:

- 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 face).
- Drilled to DIN 2633 [16 bar] dimensions (flat face).

CS and SS body

- Drilled to ANSI Class 150 dimensions (raised or flat face).
- Drilled to imperial DIN 2633 [16 bar] dimensions (raised or flat face).

Mounting studs

- Fractional (imperial).
- Metric.

Maximum working pressure

- 2 psig [0.138 barg] for low set range.
- 5 psig [0.345 barg] for high set range.

This is a function of pallet thickness. Operating above these pressures could cause valve damage. Higher working pressures available. Please consult factory.

Testing

Each valve is tested for proper setting and for a leakage rate of 1 SCFH or less of air at 90% of the set point. Each valve is tested for leak tightness at 75% of set point as required in API Standard 2000.

SETTING INFORMATION

Size	Minimum press/vac set		Low set range	High set range
	Aluminum	316 SS		
3500B				
2"	0.26 oz/in ²	0.62 oz/in ²	Λ 10 oz/in ²	10.01 oz/in ² to 2 psig
3"	0.21 oz/in ²	0.49 oz/in ²	Λ 10 oz/in ²	10.01 oz/in ² to 2 psig
4"	0.27 oz/in ²	0.56 oz/in ²	Λ 16 oz/in ²	16.01 oz/in ² to 2 psig
6"	0.26 oz/in ²	0.61 oz/in ²	Λ 16 oz/in ²	16.01 oz/in ² to 2 psig
8"	0.25 oz/in ²	0.55 oz/in ²	Λ 16 oz/in ²	16.01 oz/in ² to 2 psig
10"	0.25 oz/in ²	0.63 oz/in ²	Λ 16 oz/in ²	16.01 oz/in ² to 2 psig
12"	0.23 oz/in ²	0.59 oz/in ²	Λ 16 oz/in ²	16.01 oz/in ² to 2 psig
3501B				
2"	0.26 oz/in ²	0.62 oz/in ²	Λ 10 oz/in ²	10.01 oz/in ² to 2 psig
3"	0.21 oz/in ²	0.49 oz/in ²	Λ 10 oz/in ²	10.01 oz/in ² to 2 psig
4"	0.27 oz/in ²	0.56 oz/in ²	Λ 16 oz/in ²	16.01 oz/in ² to 2 psig
6"	0.26 oz/in ²	0.61 oz/in ²	Λ 16 oz/in ²	16.01 oz/in ² to 2 psig
8"	0.25 oz/in ²	0.55 oz/in ²	Λ 16 oz/in ²	16.01 oz/in ² to 2 psig
10"	0.49 oz/in ²	1.33 oz/in ²	Λ 16 oz/in ²	16.01 oz/in ² to 2 psig
12"	0.47 oz/in ²	1.28 oz/in ²	Λ 16 oz/in ²	16.01 oz/in ² to 2 psig
3600B				
2"	0.26 oz/in ²	0.62 oz/in ²	Λ 10 oz/in ²	10.01 oz/in ² to 2 psig
3"	0.26 oz/in ²	0.62 oz/in ²	Λ 10 oz/in ²	10.01 oz/in ² to 2 psig
4"	0.21 oz/in ²	0.49 oz/in ²	Λ 10 oz/in ²	10.01 oz/in ² to 2 psig
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12"	0.25 oz/in ²	0.63 oz/in ²	Λ 16 oz/in ²	16.01 oz/in ² to 2 psig
3601B				
2"	0.26 oz/in ²	0.62 oz/in ²	Λ 10 oz/in ²	10.01 oz/in ² to 2 psig
3"	0.26 oz/in ²	0.62 oz/in ²	Λ 10 oz/in ²	10.01 oz/in ² to 2 psig
4"	0.21 oz/in ²	0.49 oz/in ²	Λ 10 oz/in ²	10.01 oz/in ² to 2 psig
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10"	0.25 oz/in ²	0.55 oz/in ²	Λ 16 oz/in ²	16.01 oz/in ² to 2 psig
12"	0.49 oz/in ²	1.33 oz/in ²	Λ 16 oz/in ²	16.01 oz/in ² to 2 psig
3650B				
2"	0.26 oz/in ²	0.62 oz/in ²	Λ 10 oz/in ²	10.01 oz/in ² to 2 psig
3"	0.21 oz/in ²	0.49 oz/in ²	Λ 10 oz/in ²	10.01 oz/in ² to 2 psig
4"	0.27 oz/in ²	0.56 oz/in ²	Λ 16 oz/in ²	16.01 oz/in ² to 2 psig
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10"	0.25 oz/in ²	0.63 oz/in ²	Λ 16 oz/in ²	16.01 oz/in ² to 2 psig
12"	0.23 oz/in ²	0.59 oz/in ²	Λ 16 oz/in ²	16.01 oz/in ² to 2 psig
3651B				
2"	0.26 oz/in ²	0.62 oz/in ²	Λ 10 oz/in ²	10.01 oz/in ² to 2 psig
3"	0.21 oz/in ²	0.49 oz/in ²	Λ 10 oz/in ²	10.01 oz/in ² to 2 psig
4"	0.27 oz/in ²	0.56 oz/in ²	Λ 16 oz/in ²	16.01 oz/in ² to 2 psig
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10"	0.49 oz/in ²	1.33 oz/in ²	Λ 16 oz/in ²	16.01 oz/in ² to 2 psig
12"	0.47 oz/in ²	1.28 oz/in ²	Λ 16 oz/in ²	16.01 oz/in ² to 2 psig

Please consult factory for lower settings.

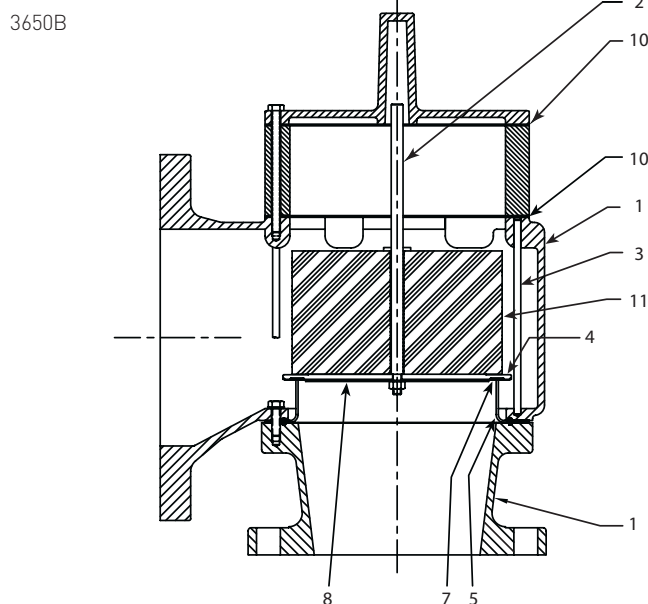
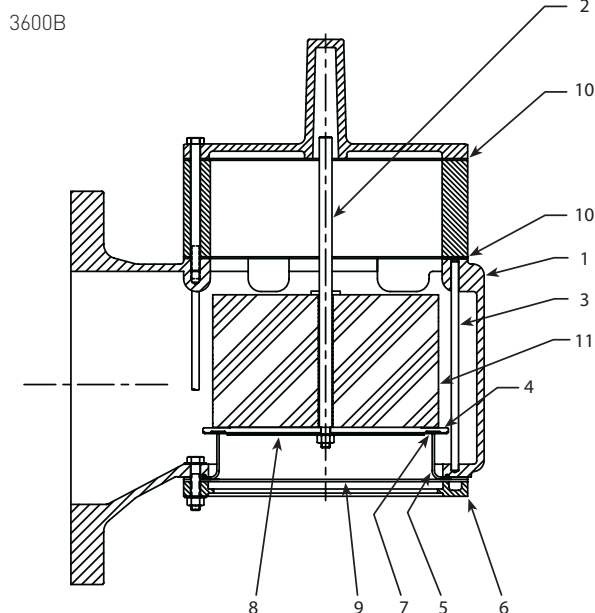
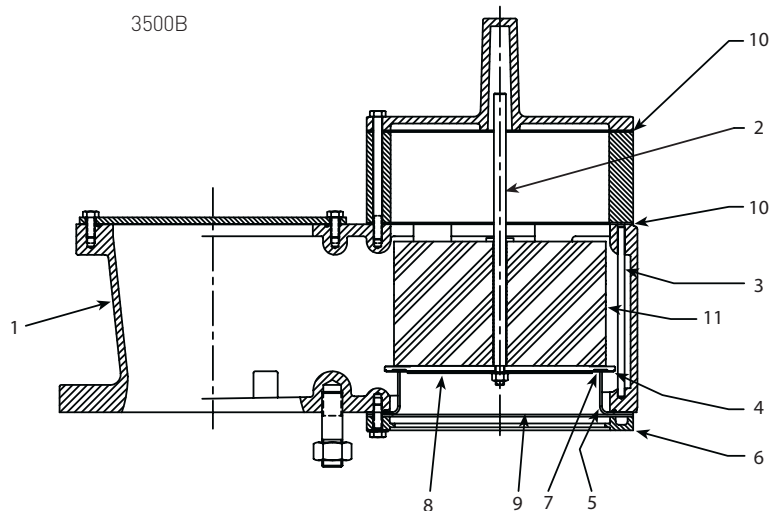
VAREC 3500B/3600B/3650B SERIES VACUUM OR PRESSURE RELIEF VALVES

SPECIFICATIONS

Available materials

- Aluminum
- Carbon steel
- Stainless steel
- Special materials on application.

The 3500B, 3600B and 3650B are part of Varec's 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 simply by replacing or adding components.



PARTS AND MATERIALS TABLE

Item	Material code			
	1	2	3	4
1 Body	Aluminum	Aluminum	Steel	316 SS
2 Guide stem	Aluminum	316 SS	316 SS	316 SS
3 Guide posts	316 SS	316 SS	316 SS	316 SS
4 Pallet	Aluminum	316 SS	316 SS	316 SS
5 Seat ring	Aluminum	316 SS	316 SS	316 SS
6 Seat ring retainer ⁽¹⁾	Polypropylene	Polypropylene	Polypropylene	Polypropylene
7 Insert ⁽¹⁾	PTFE	PTFE	PTFE	PTFE
8 Insert retainer	Aluminum	316 SS	316 SS	316 SS
9 Screen ⁽¹⁾	HDPE	HDPE	HDPE	HDPE
10 Gaskets ⁽¹⁾	Fiber	Fiber	Fiber	Fiber
11 Weights	Lead	Lead	Lead	Lead

NOTES

1. Materials are as standard. See model option code for other materials, and their associated temperature ranges.
2. PTFE coated aluminum may be supplied with material codes 2 thru 5 to achieve lower settings.
3. All nuts and cap screws are 316 SS.

VAREC 3500B/3600B/3650B SERIES VACUUM OR PRESSURE RELIEF VALVES

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]
3500B, 3501B							
A	13 ¹ / ₈ [333]	16 ¹ / ₈ [410]	16 ¹⁵ / ₁₆ [430]	21 ³ / ₁₆ [538]	26 ⁵ / ₁₆ [668]	32 ¹⁵ / ₁₆ [837]	38 ⁷ / ₈ [987]
B	6 ³ / ₁₆ [157]	7 ⁵ / ₈ [194]	8 [203]	10 ¹ / ₁₆ [256]	12 ⁷ / ₈ [327]	16 ¹ / ₈ [410]	19 ¹ / ₄ [489]
C	9 ⁷ / ₈ [251]	12 ³ / ₁₆ [310]	12 ⁷ / ₁₆ [316]	15 ⁷ / ₁₆ [395]	19 ⁷ / ₁₆ [497]	24 ¹⁵ / ₁₆ [633]	29 ³ / ₈ [746]
D*	5 ⁷ / ₁₆ [141]	6 ⁷ / ₁₆ [167]	11 ¹⁵ / ₁₆ [287]	11 ³ / ₁₆ [284]	13 ³ / ₁₆ [335]	16 ¹ / ₁₆ [408]	18 ³ / ₄ [476]
D**	10 ¹ / ₁₆ [256]	11 ³ / ₁₆ [284]	7 ¹¹ / ₁₆ [195]	14 ⁷ / ₁₆ [367]	15 ⁵ / ₈ [397]	17 ³ / ₄ [451]	18 ³ / ₄ [476]
3600B, 3601B							
A	5 ¹ / ₂ [140]	4 ¹⁵ / ₁₆ [125]	6 ³ / ₈ [162]	8 [203]	8 ³ / ₄ [222]	11 ³ / ₁₆ [284]	13 ³ / ₈ [346]
B	1 ¹¹ / ₁₆ [43]	2 ¹ / ₈ [54]	2 ⁵ / ₁₆ [59]	2 ³ / ₈ [60]	3 ³ / ₄ [95]	4 ¹ / ₈ [105]	5 ⁷ / ₁₆ [138]
C*	5 ⁷ / ₈ [149]	5 ¹⁵ / ₁₆ [151]	7 ³ / ₁₆ [183]	8 ⁵ / ₁₆ [211]	12 ¹ / ₂ [318]	14 ¹ / ₁₆ [357]	16 ⁷ / ₈ [429]
C**	10 ⁷ / ₁₆ [265]	10 ⁷ / ₁₆ [265]	11 ¹⁵ / ₁₆ [303]	12 ³ / ₈ [314]	15 ¹¹ / ₁₆ [398]	16 ¹ / ₂ [419]	18 ⁹ / ₁₆ [471]
D	8 ⁵ / ₈ [219]	8 [203]	10 ³ / ₁₆ [259]	12 ¹ / ₄ [311]	14 ³ / ₁₆ [360]	17 ¹⁵ / ₁₆ [456]	22 ³ / ₈ [568]
3650B, 3651B							
A	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]
B	5 ¹³ / ₁₆ [148]	6 ¹ / ₄ [159]	6 ⁵ / ₁₆ [160]	8 [203]	8 ⁵ / ₈ [219]	12 ⁵ / ₈ [321]	16 ⁷ / ₁₆ [421]
C*	9 ⁷ / ₁₆ [243]	11 ¹ / ₈ [283]	12 ¹ / ₄ [311]	16 ³ / ₄ [425]	18 ³ / ₁₆ [471]	24 ¹ / ₁₆ [611]	29 ¹³ / ₁₆ [757]
C**	14 ¹ / ₁₆ [357]	15 ⁷ / ₈ [403]	16 ⁵ / ₁₆ [414]	20 [508]	21 ¹ / ₁₆ [535]	25 ³ / ₄ [654]	29 ¹³ / ₁₆ [757]
D	8 [203]	10 ³ / ₁₆ [259]	12 ¹ / ₄ [311]	14 ³ / ₁₆ [360]	17 ⁵ / ₁₆ [440]	22 ³ / ₈ [568]	25 ³ / ₈ [645]

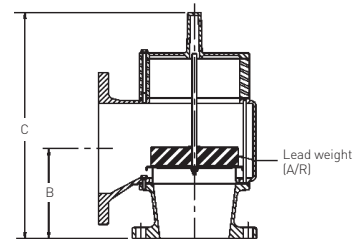
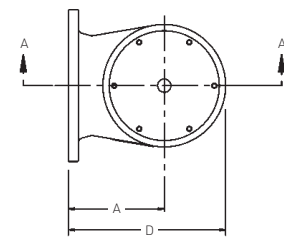
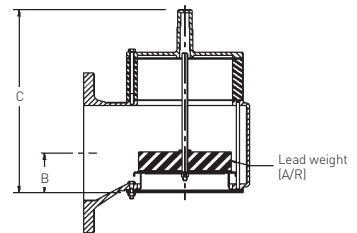
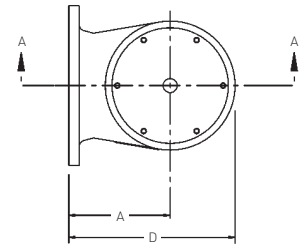
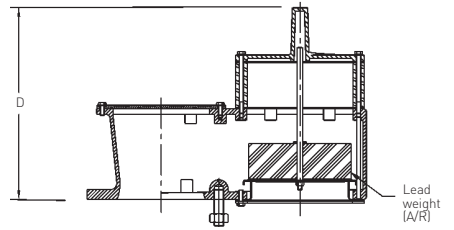
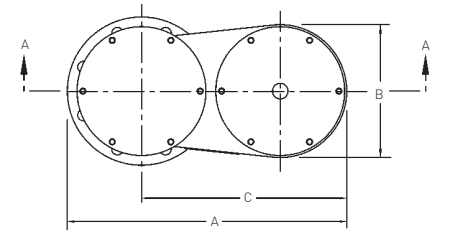
- * low set
- ** high set

2" x 2" [50 mm x 50 mm] available in Models 3650B and 3651B.

Dimensions shown are for high set option.

Dimensions are for preliminary general information and should not be used for construction purposes.

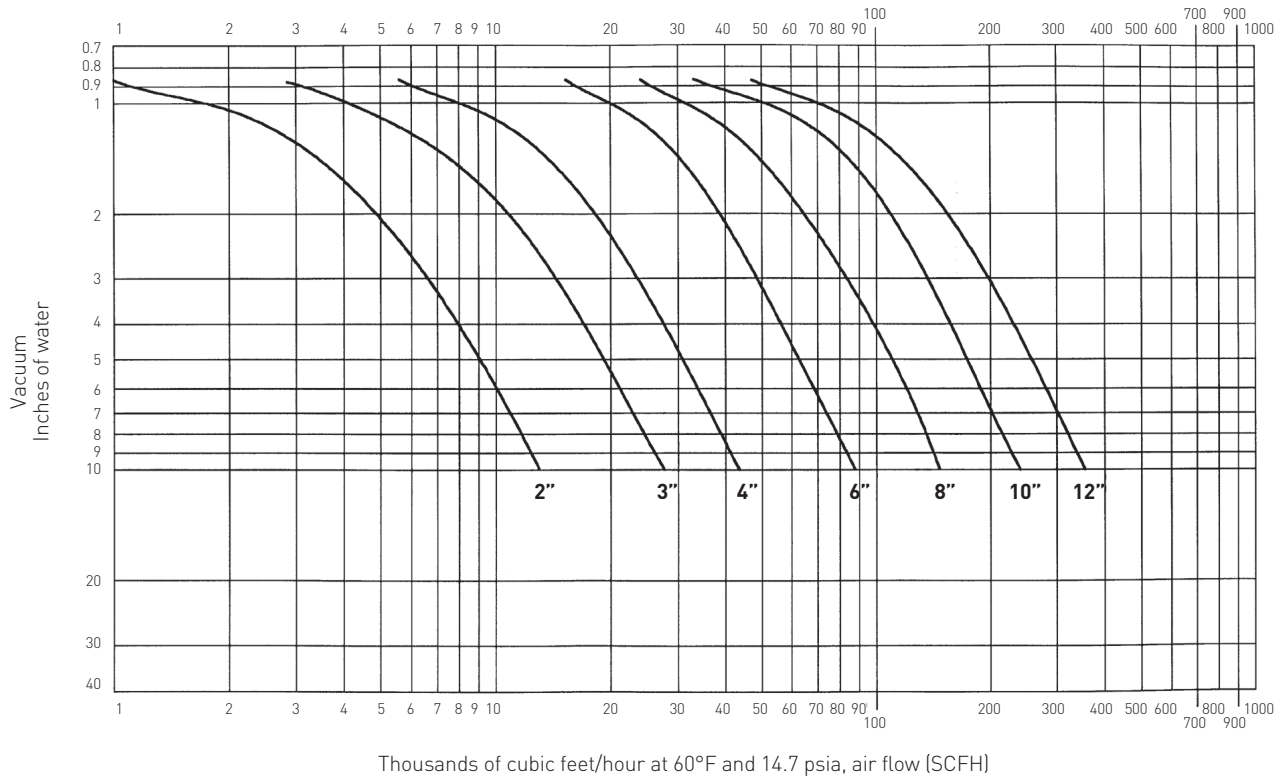
Certified dimensional drawings are available on request.



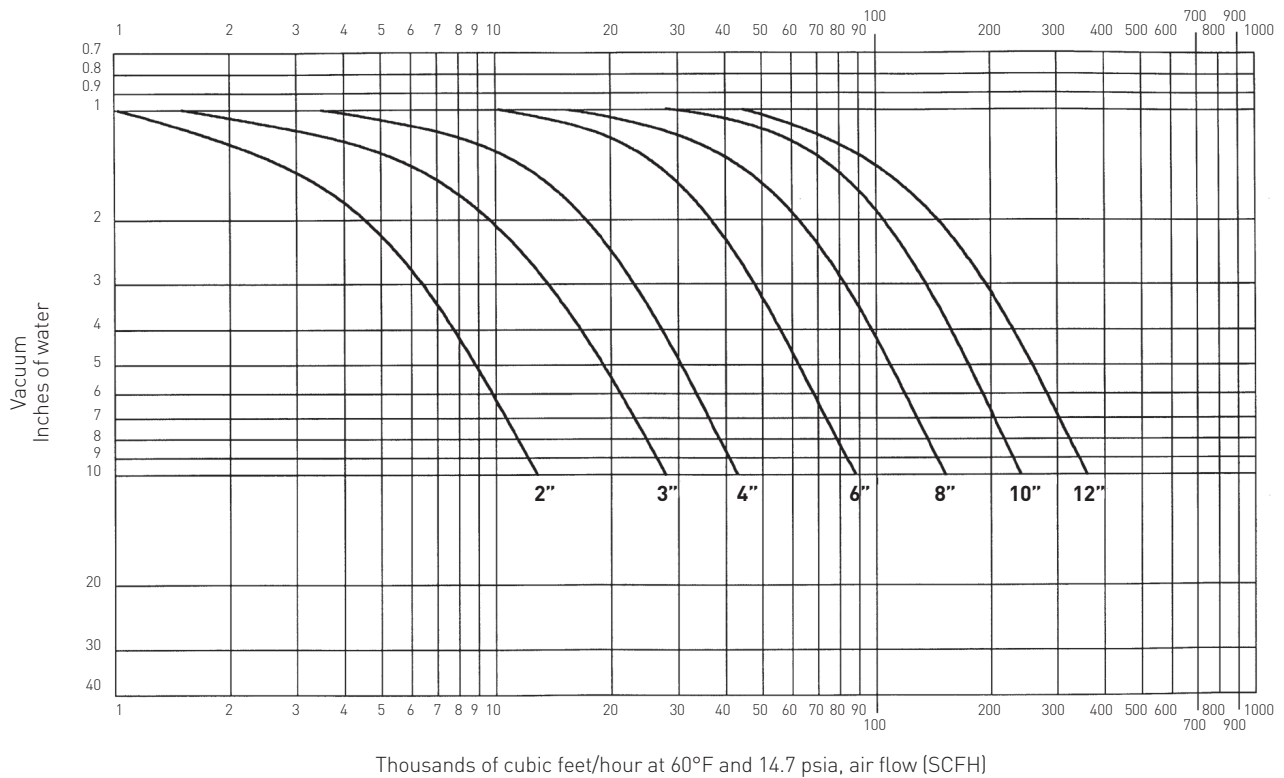
VAREC 3500B/3600B/3650B SERIES VACUUM OR PRESSURE RELIEF VALVES

FLOW CURVES

3500B SERIES RELIEF VALVE, SET AT 0.865 INCH OF WATER



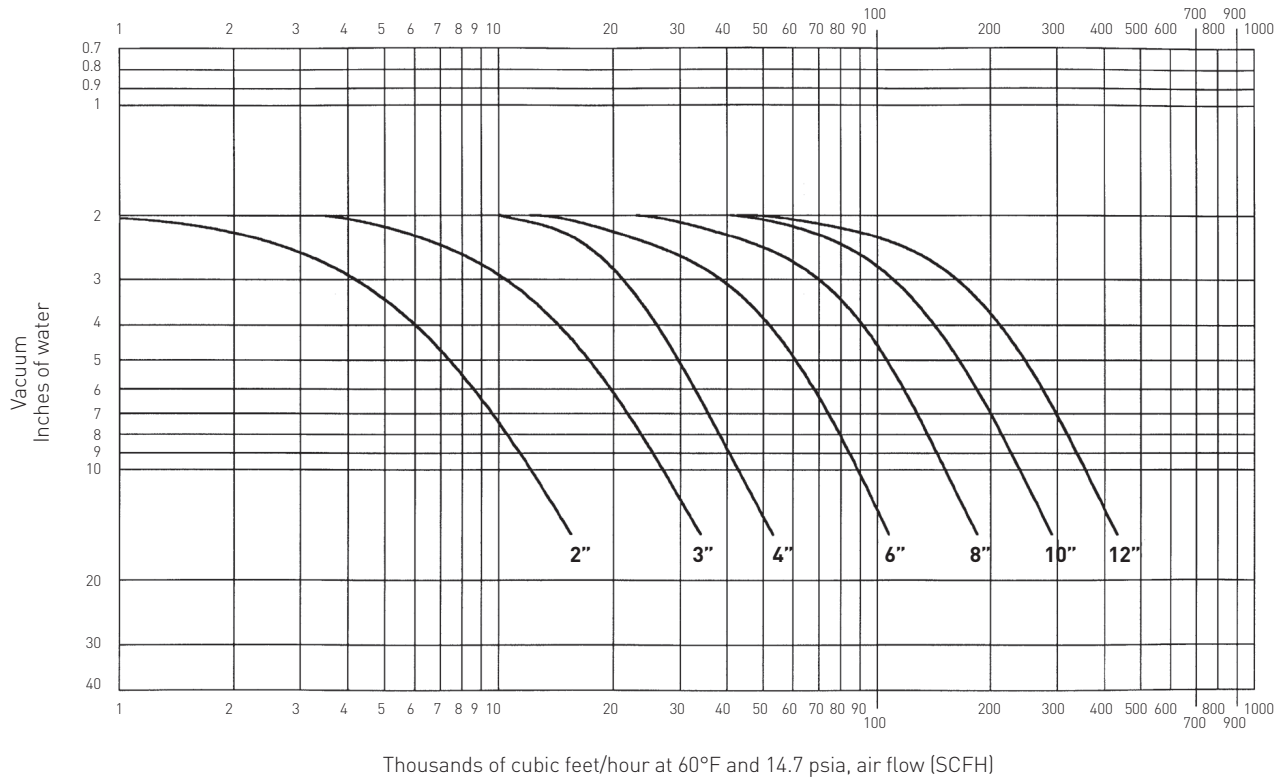
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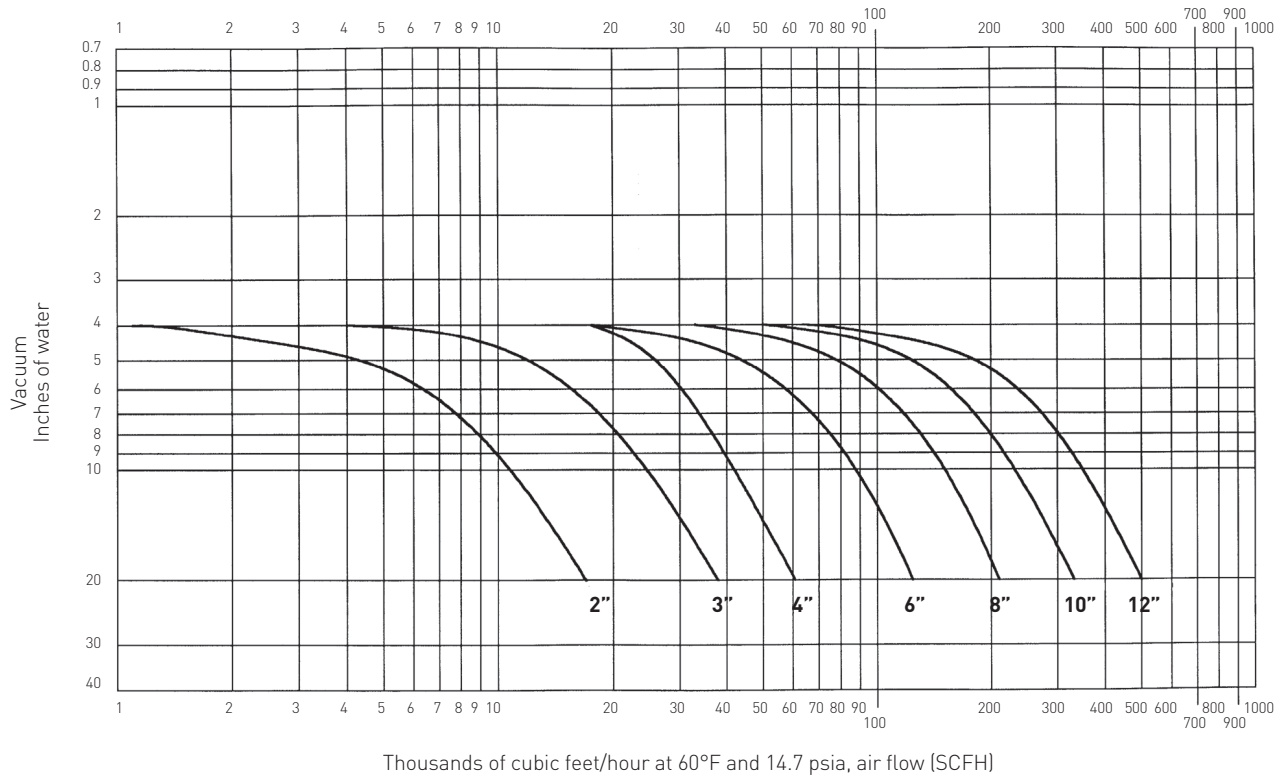
VAREC 3500B/3600B/3650B SERIES VACUUM OR PRESSURE RELIEF VALVES

FLOW CURVES

3500B SERIES RELIEF VALVE, SET AT 2 INCHES OF WATER



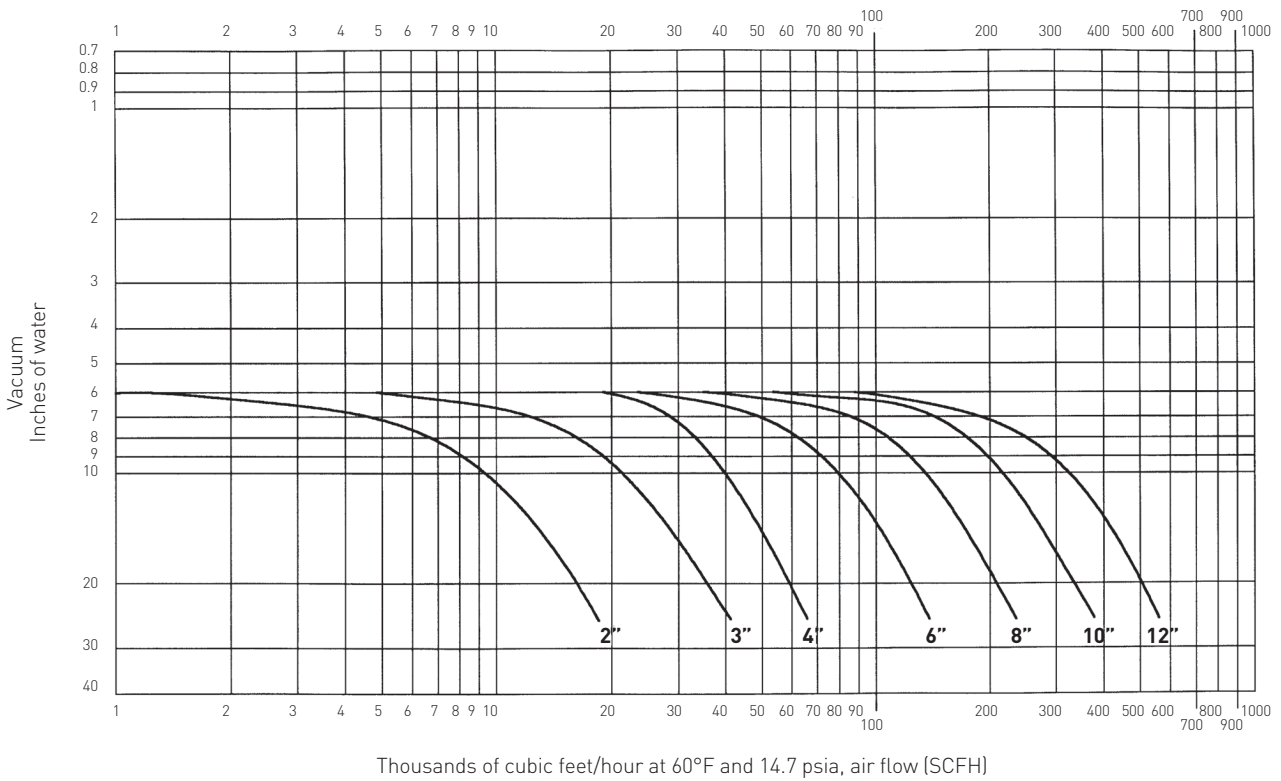
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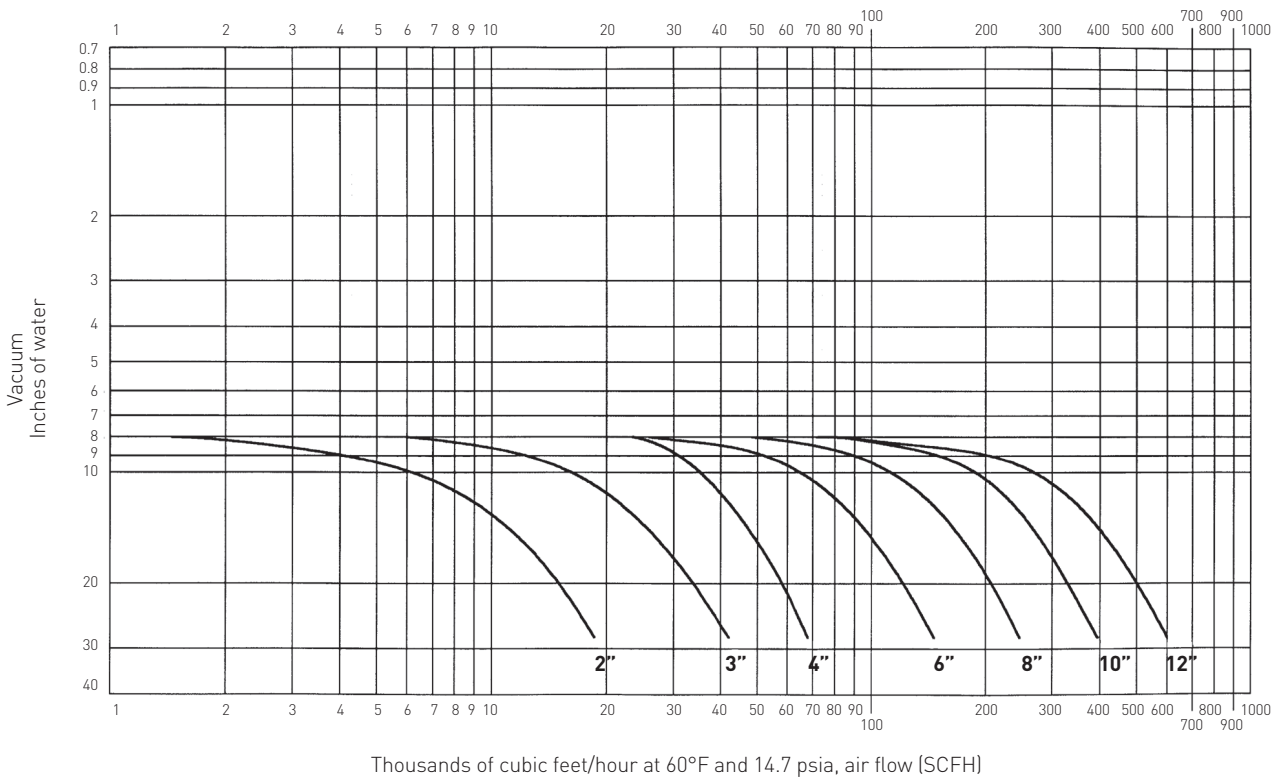
VAREC 3500B/3600B/3650B SERIES VACUUM OR PRESSURE RELIEF VALVES

FLOW CURVES

3500B SERIES RELIEF VALVE, SET AT 6 INCHES OF WATER



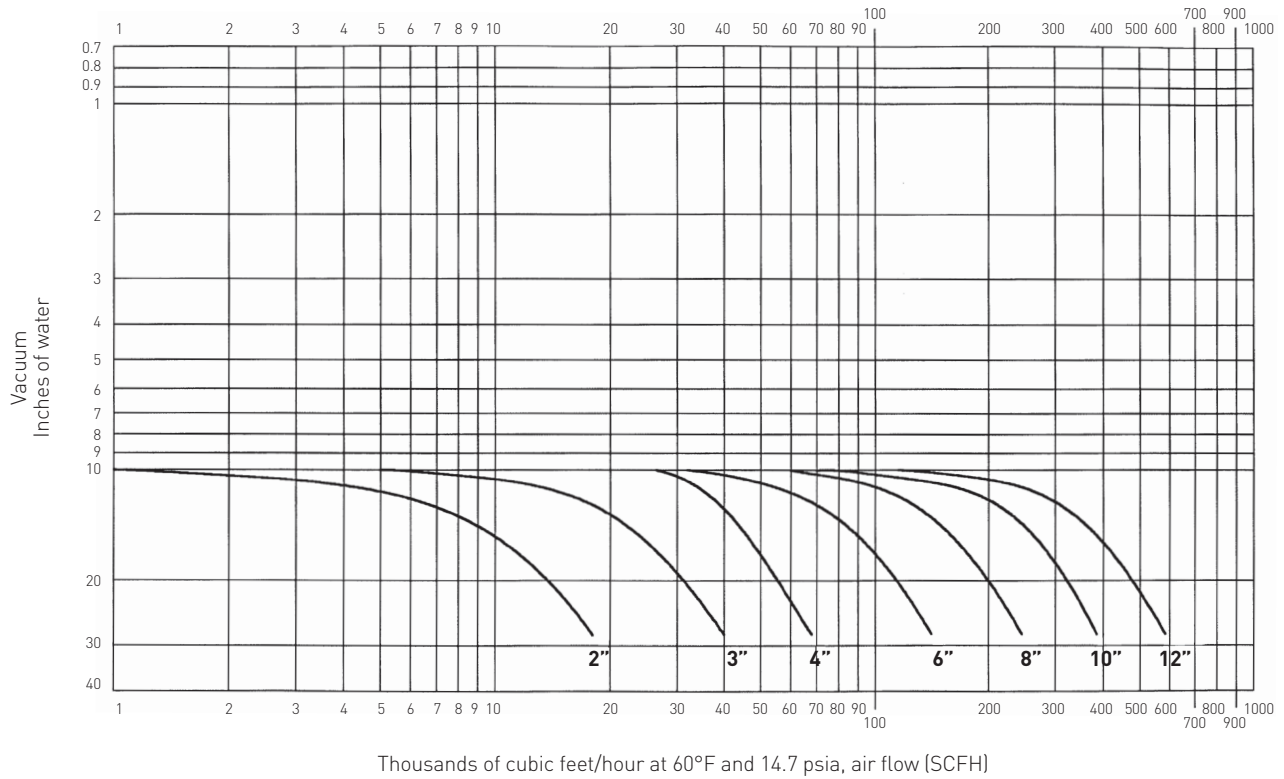
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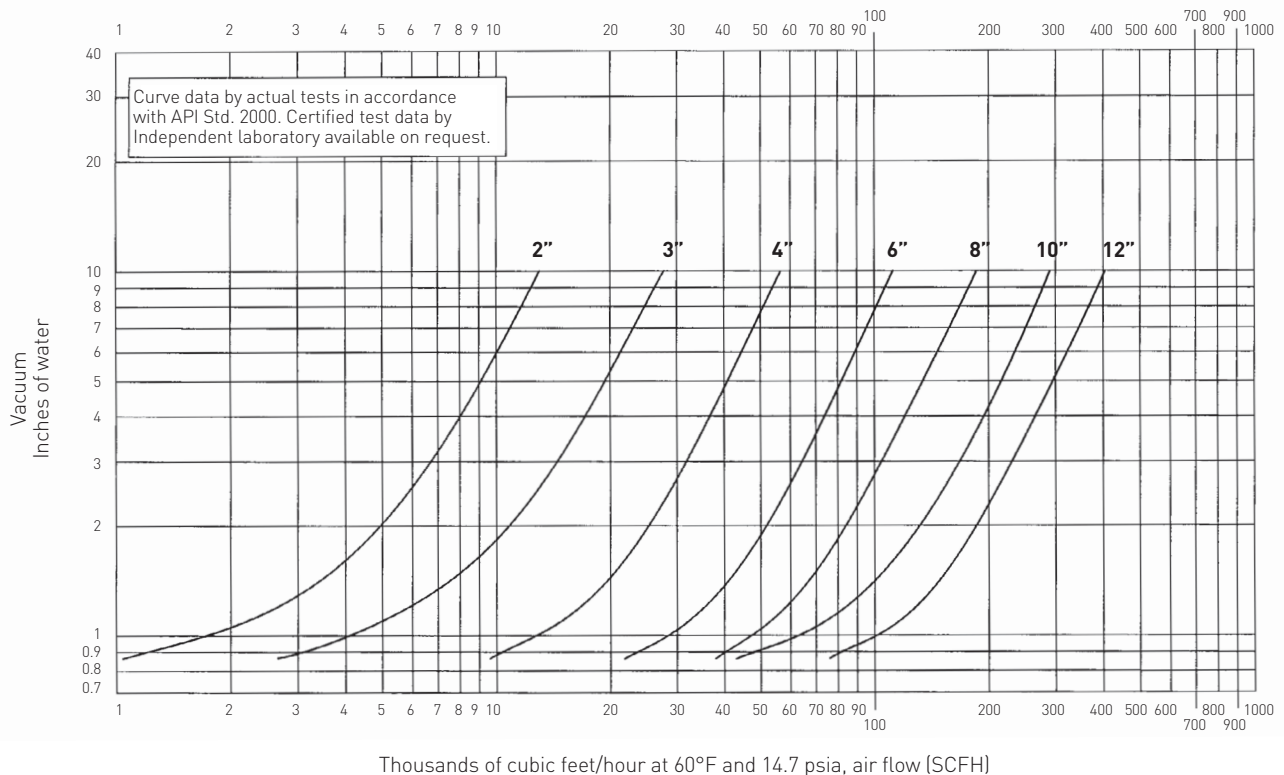
VAREC 3500B/3600B/3650B SERIES VACUUM OR PRESSURE RELIEF VALVES

FLOW CURVES

3500B SERIES RELIEF VALVE, SET AT 10 INCHES OF WATER



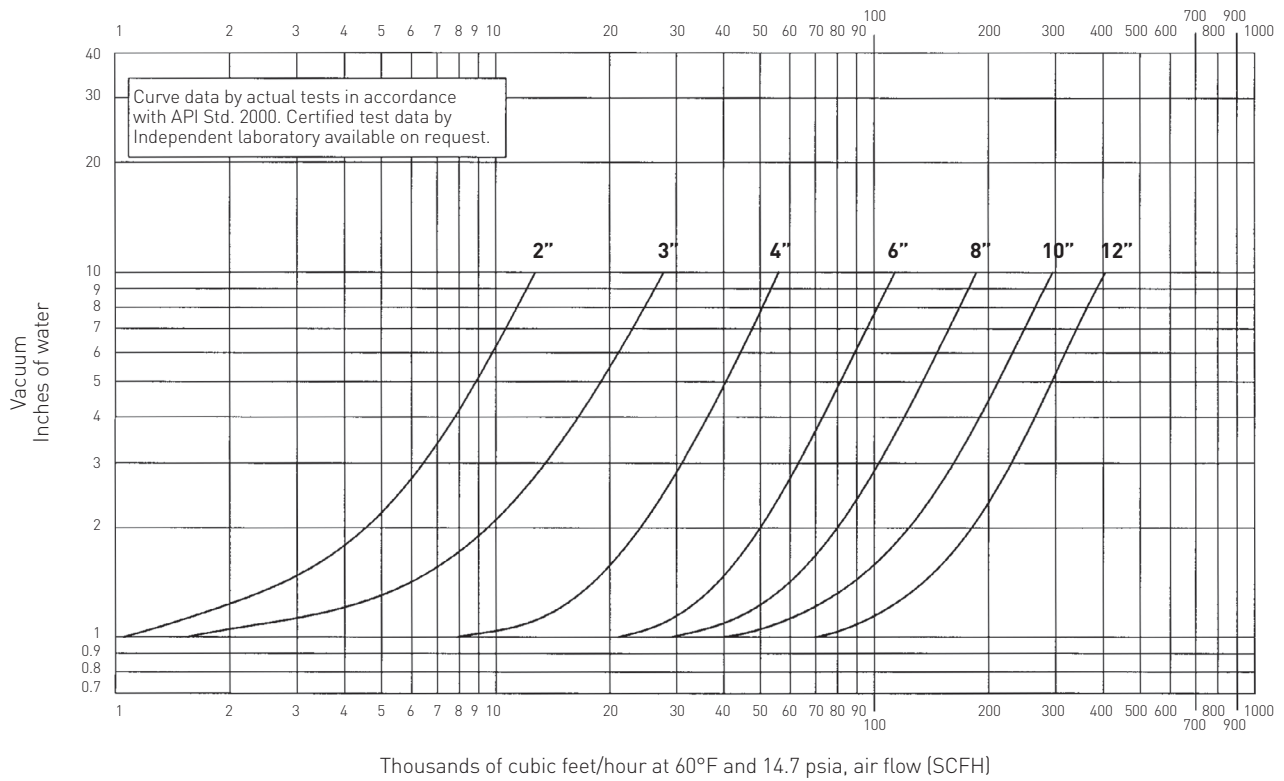
3600B SERIES RELIEF VALVE, SET AT 0.865 INCH OF WATER



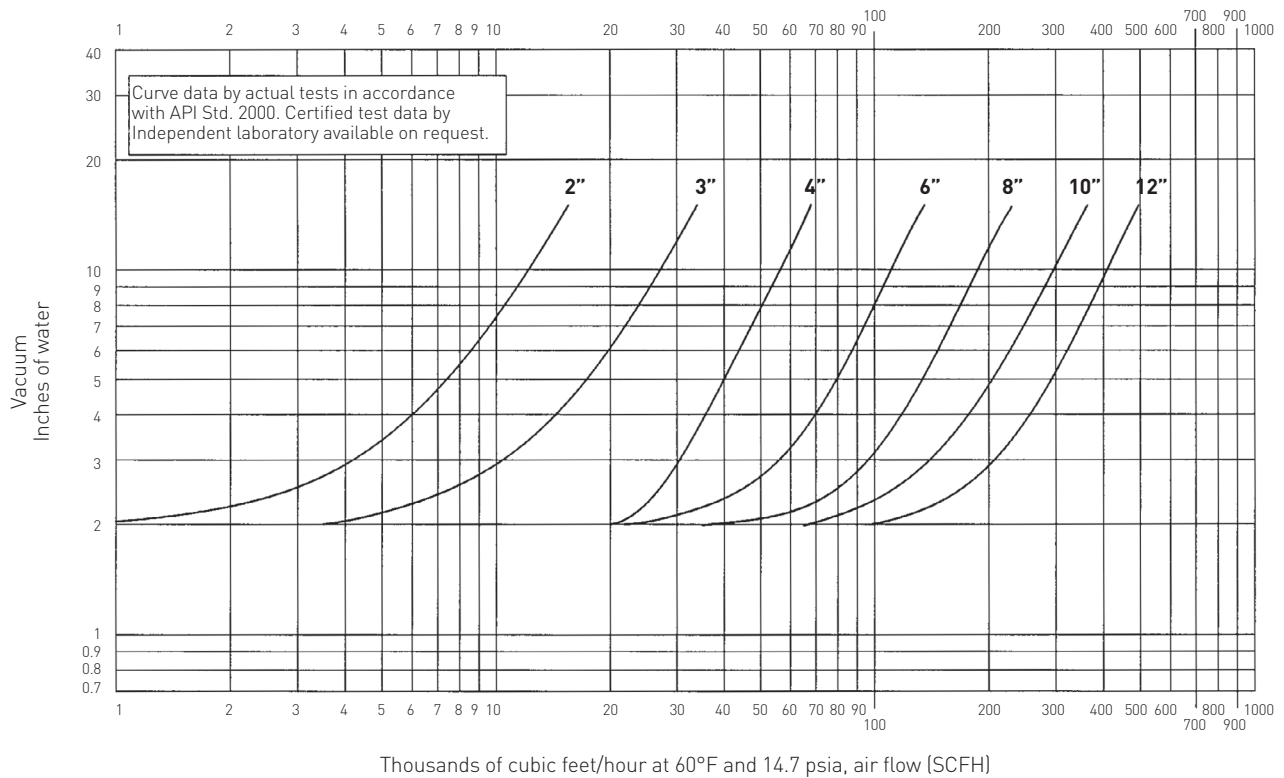
VAREC 3500B/3600B/3650B SERIES VACUUM OR PRESSURE RELIEF VALVES

FLOW CURVES

3600B SERIES RELIEF VALVE, SET AT 1 INCH OF WATER



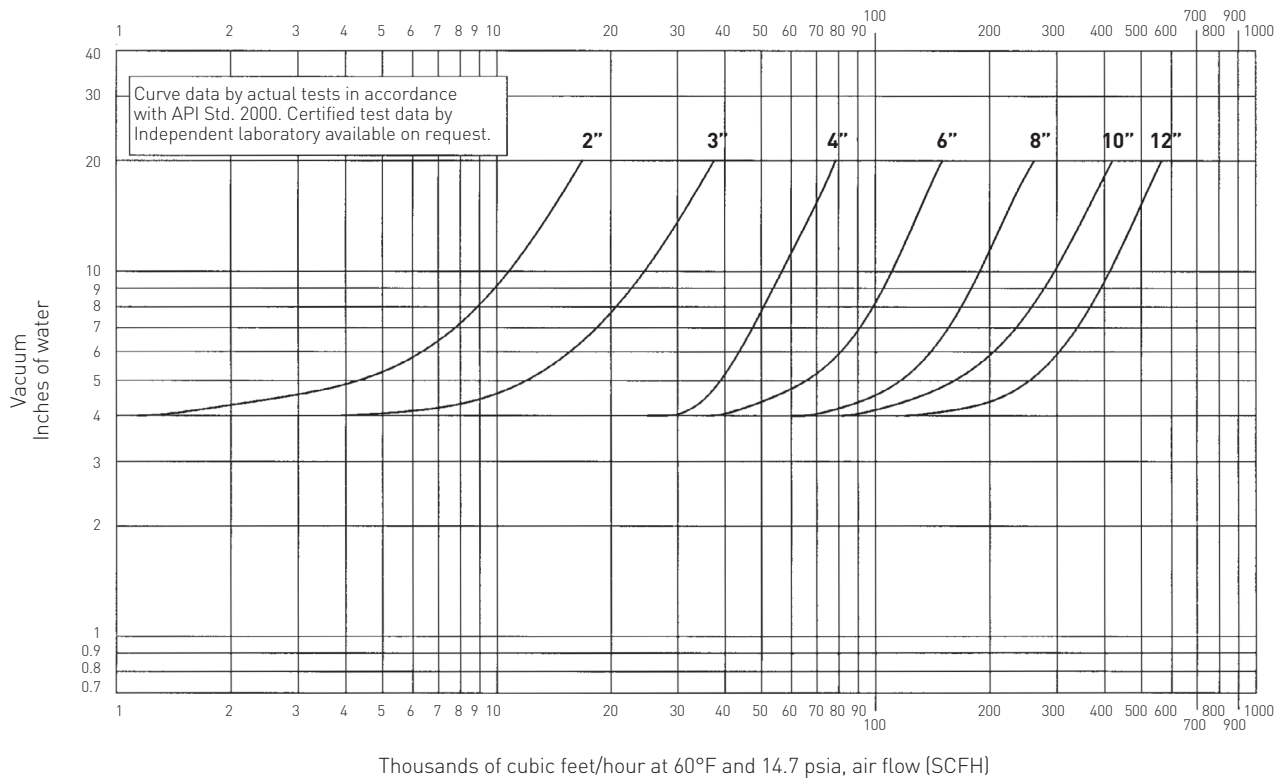
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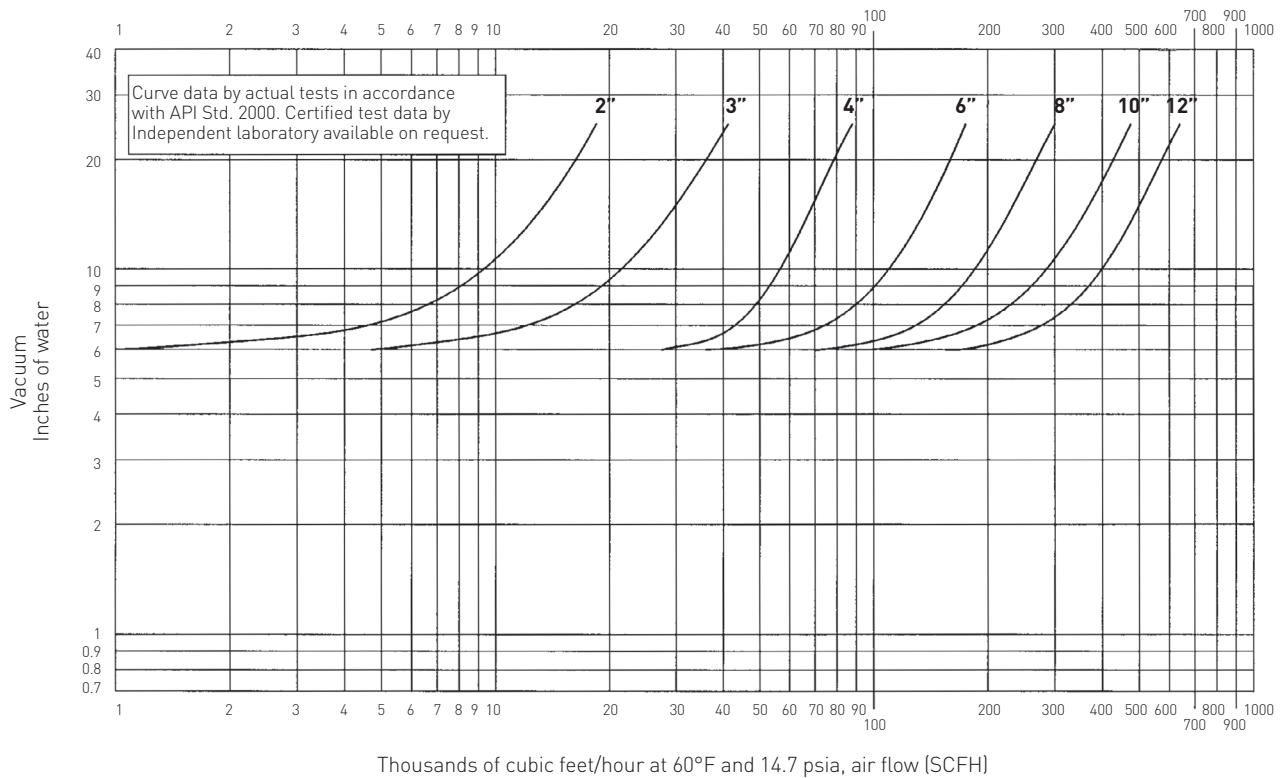
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FLOW CURVES

3600B SERIES RELIEF VALVE, SET AT 4 INCHES OF WATER



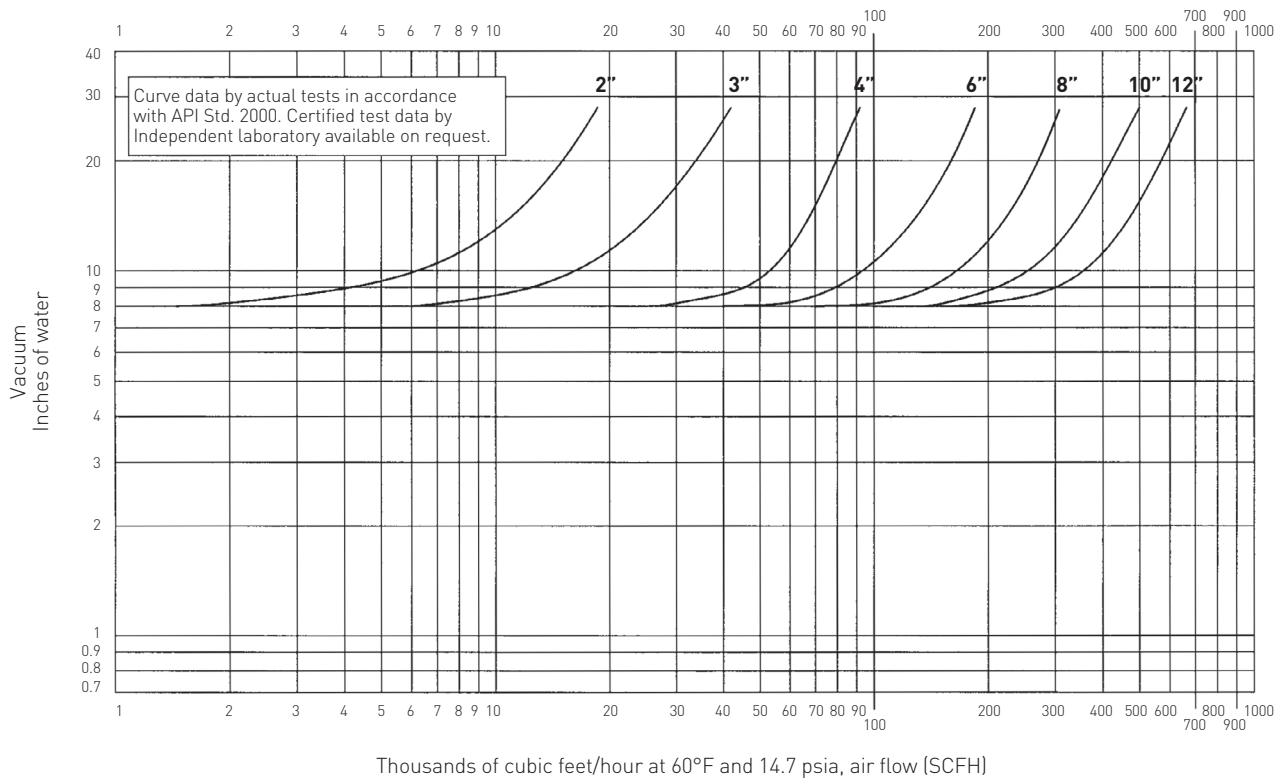
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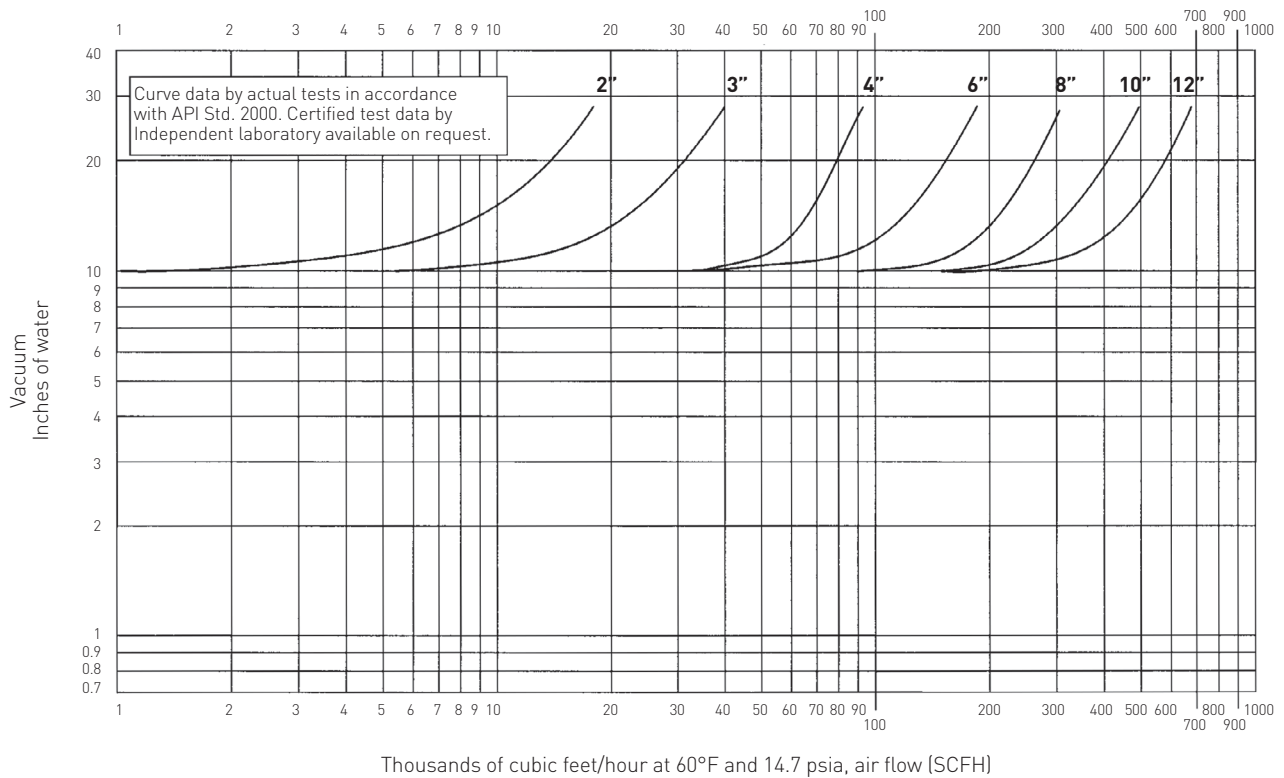
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FLOW CURVES

3600B SERIES RELIEF VALVE, SET AT 8 INCHES OF WATER



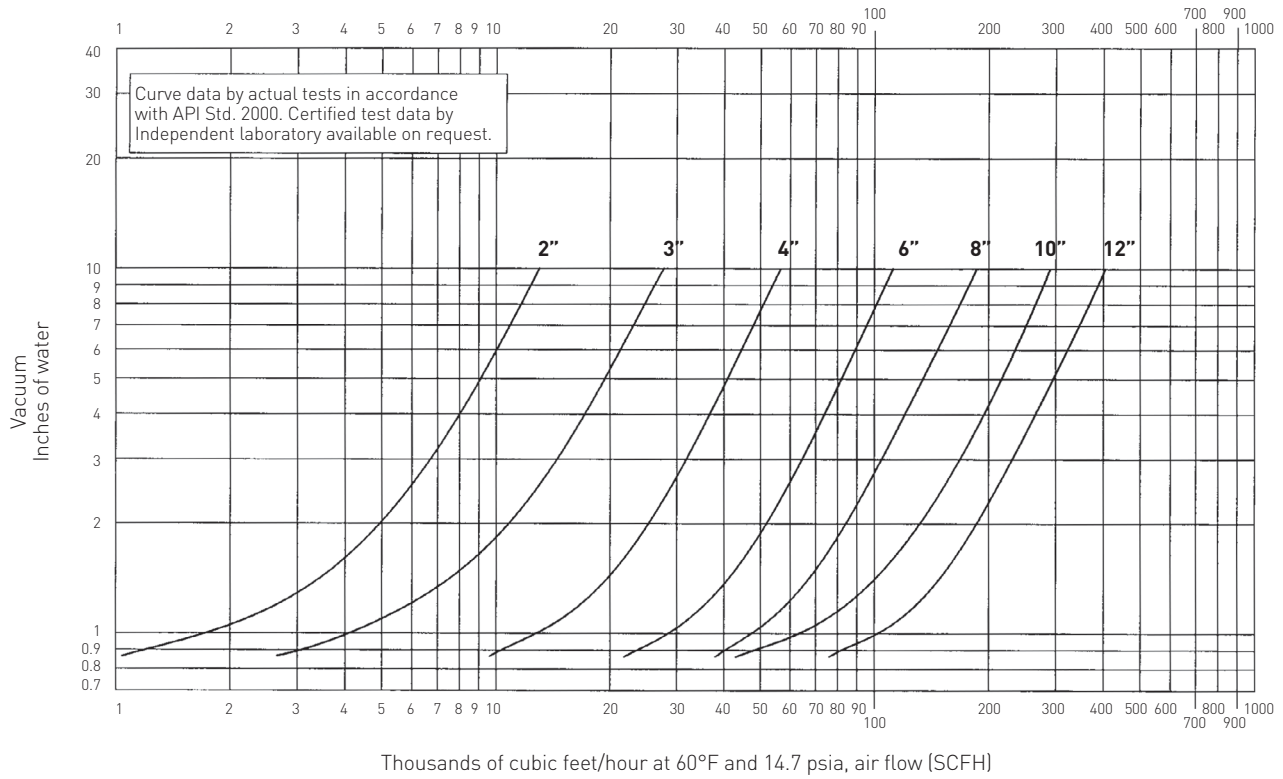
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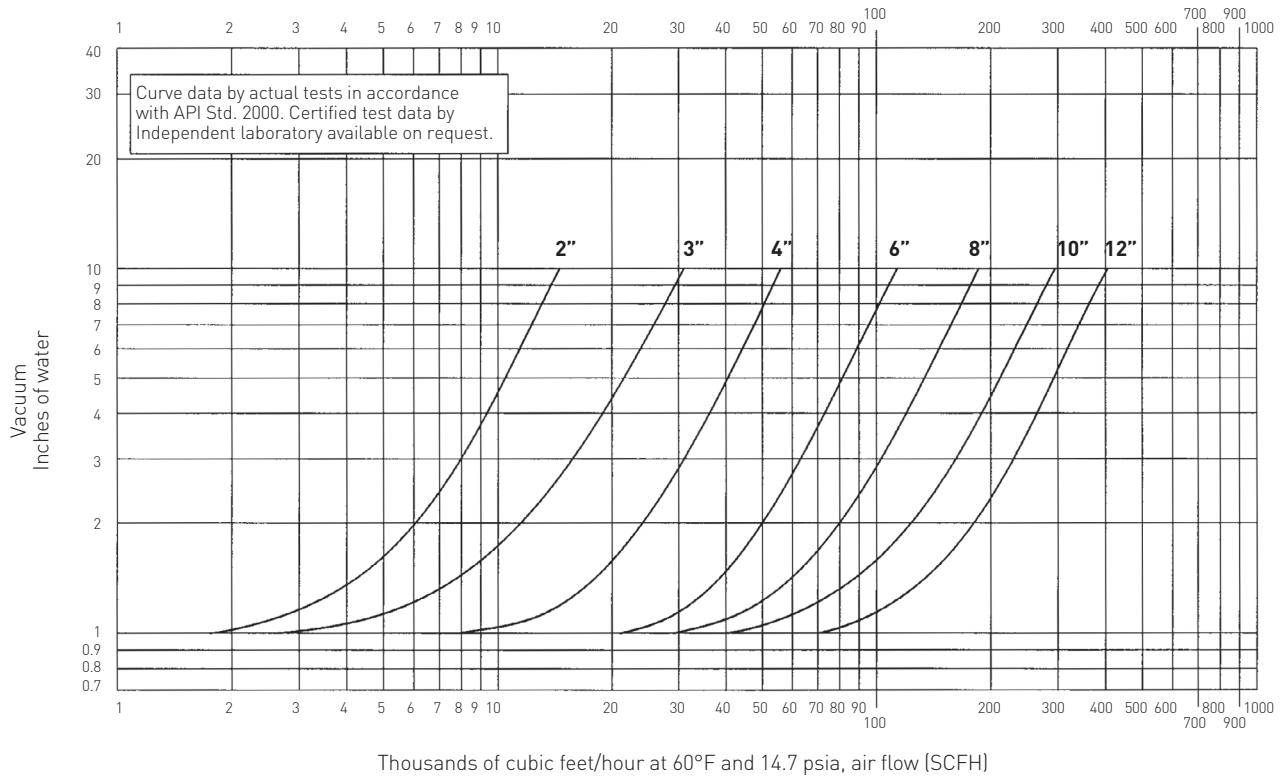
VAREC 3500B/3600B/3650B SERIES VACUUM OR PRESSURE RELIEF VALVES

FLOW CURVES

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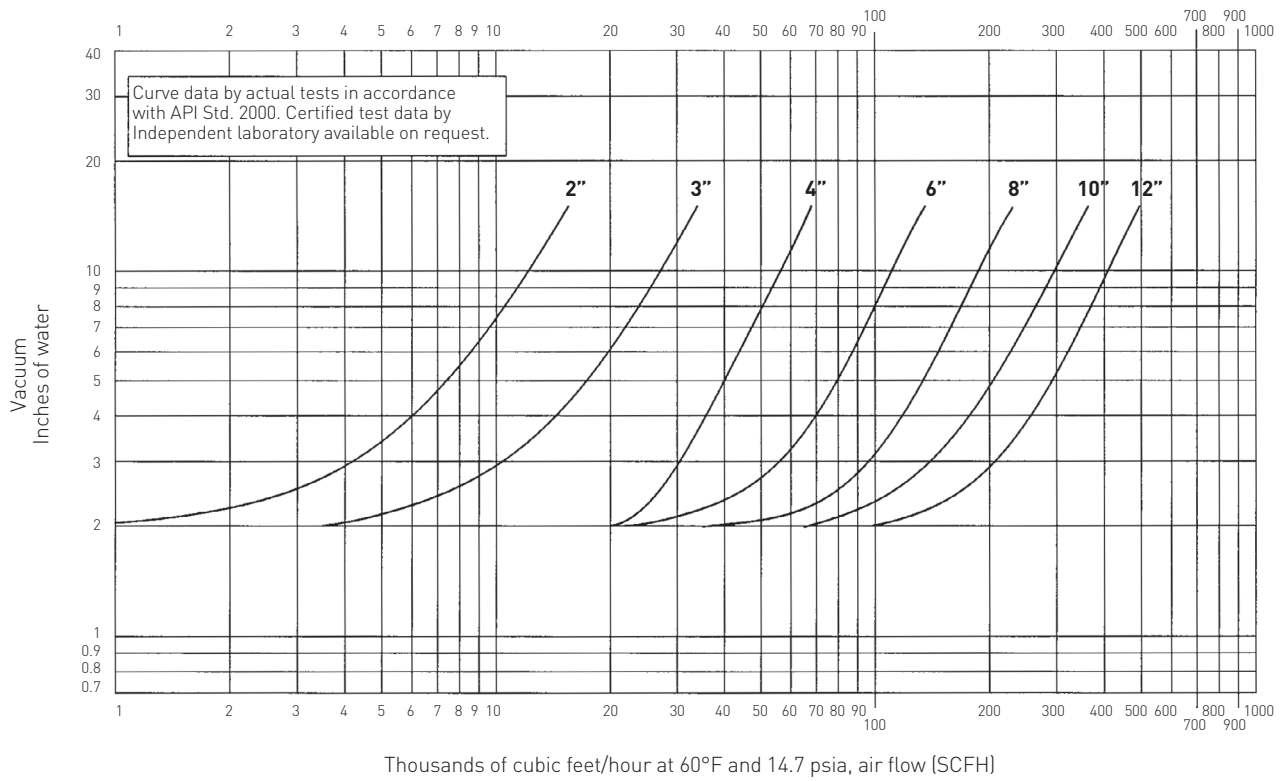
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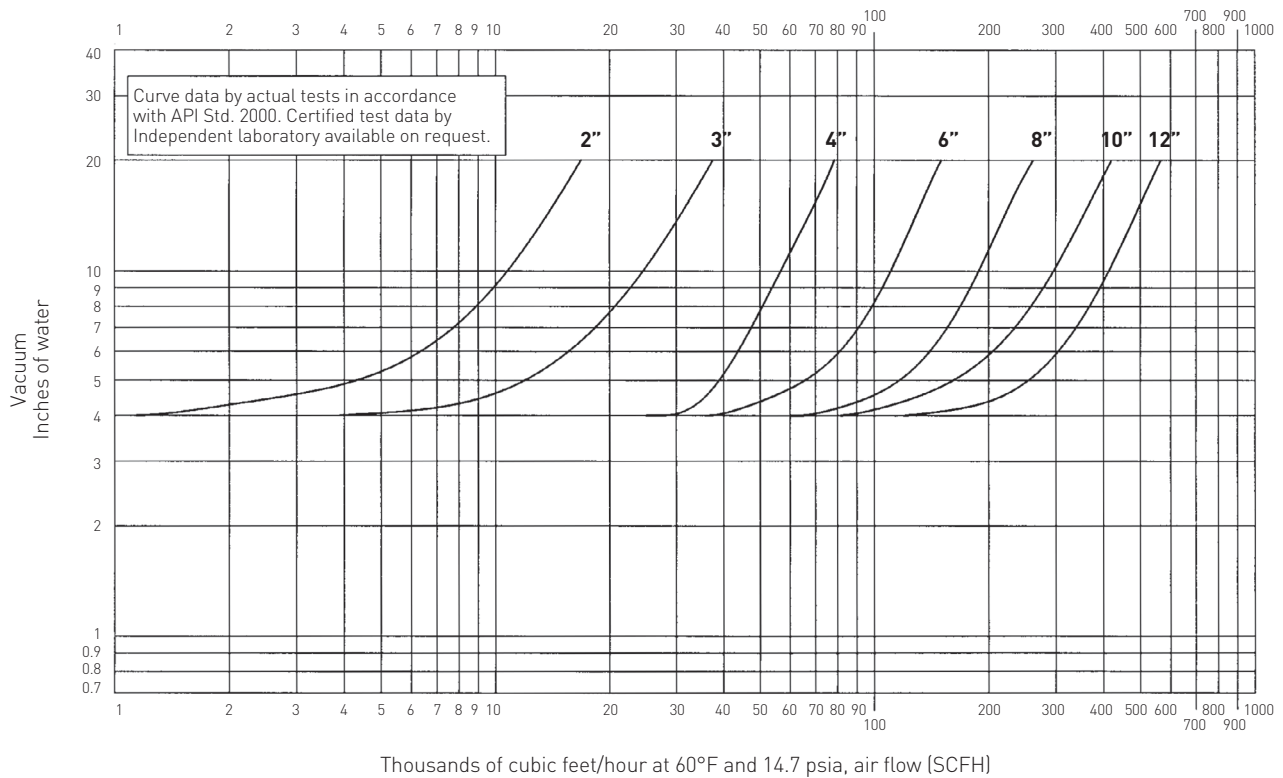
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FLOW CURVES

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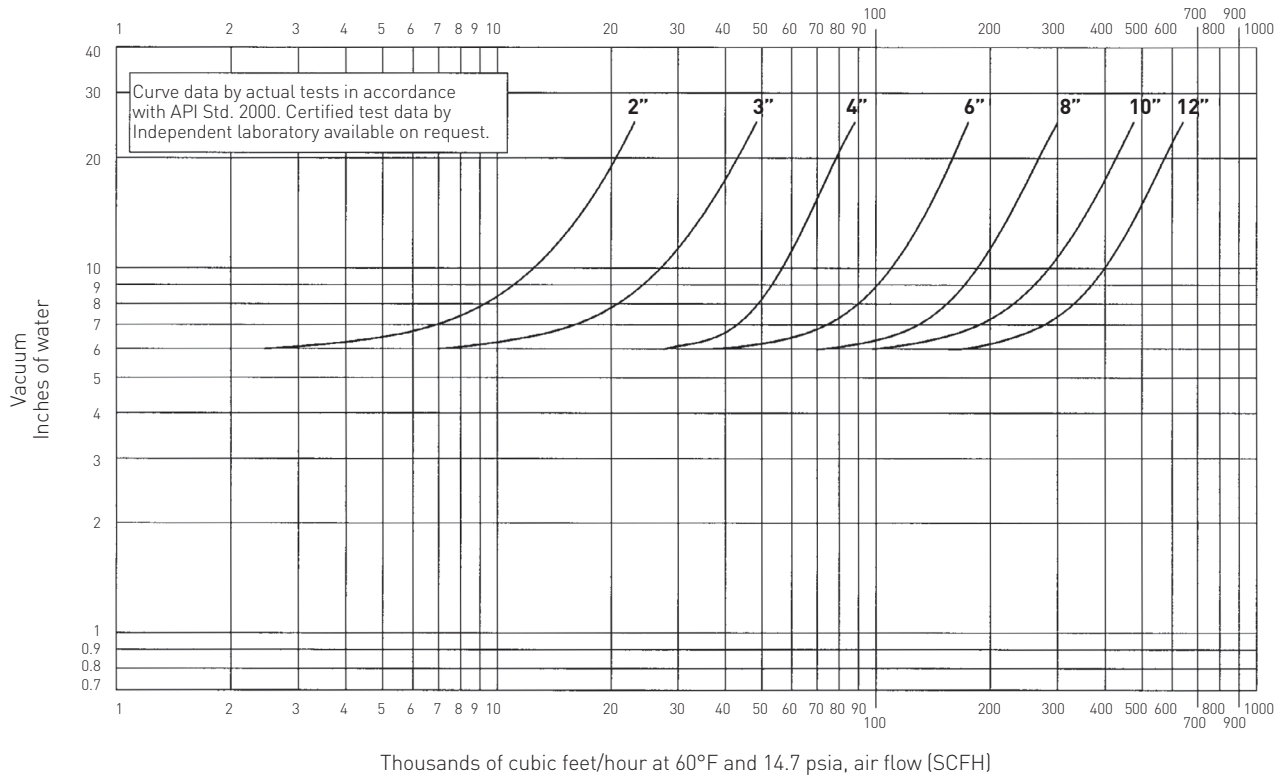
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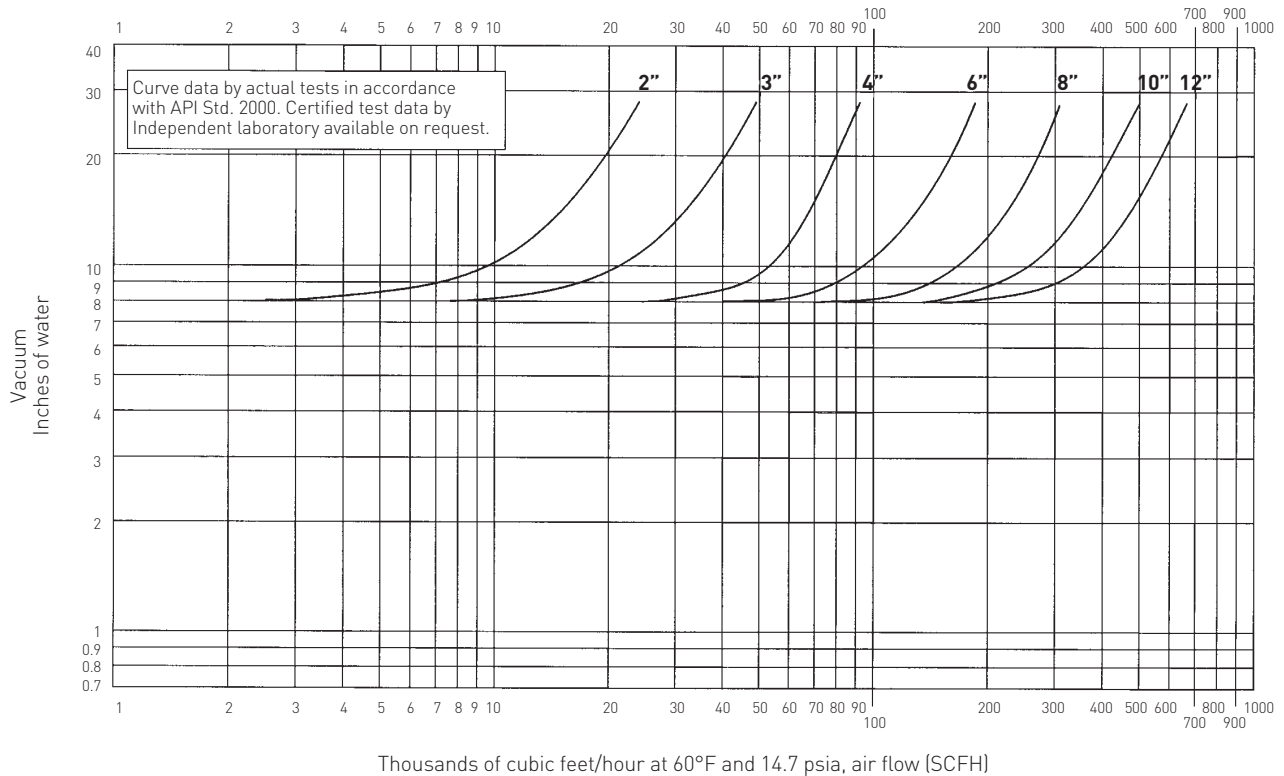
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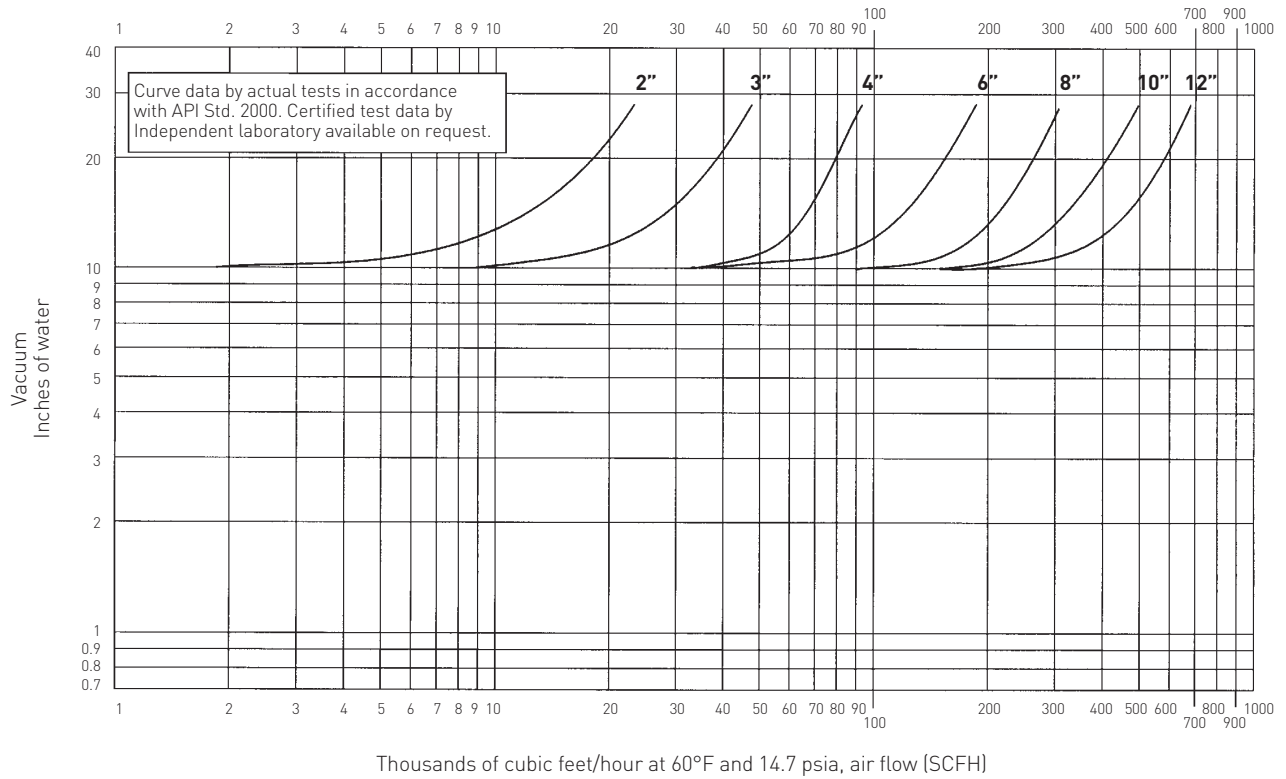
3650B SERIES RELIEF VALVE, SET AT 8 INCHES OF WATER



VAREC 3500B/3600B/3650B SERIES VACUUM OR PRESSURE RELIEF VALVES

FLOW CURVES

3650B SERIES RELIEF VALVE, SET AT 10 INCHES OF WATER



VAREC 3500B/3600B/3650B SERIES VACUUM OR PRESSURE RELIEF VALVES

SELECTION GUIDE

Example:	3	50	0B	2	1	T	FF	0P	02
3 Air cushion vacuum relief valve									
Model									
50 Top mounted vacuum relief valve									
60 Side mounted vacuum relief valve									
65 'In-line' pressure or vacuum relief valve									
Configuration									
0B Standard									
1B 'All weather type' (-25°F to 200°F)									
Code	Size	3650B/3651B vacuum connection size							
2	2"	3"							
3	3"	4"							
4	4"	6"							
6	6"	8"							
8	8"	10"							
0	10"	12"							
1	12"	14"							
Body/trim material									
1 Aluminum/aluminum (-20°F to 250°F)									
2 Aluminum/316 stainless steel (-20°F to 250°F)									
3 Carbon steel/316 stainless steel (-20°F to 350°F)									
4 Stainless steel/316 stainless steel (-65°F to 350°F)									
Insert material									
T PTFE (-65°F to 400°F)									
B NBR (-40°F to 250°F)									
V FKM (-15°F to 400°F)									
Flange finish									
FF Flat face flange drilled to ANSI 150 with fractional studs									
MF Flat face flange drilled to ANSI 150 with metric studs									
FR Raised face flange drilled to ANSI 150 with fractional studs (not available on aluminum)									
MR Raised face flange drilled to ANSI 150 with metric studs (not available on aluminum)									
DF DIN flat face flange drilling									
DR DIN raised face flange drilling (not available on aluminum)									
Gasket/O-ring and retainer/screen material⁽¹⁾									
0P Standard (fiber/NBR) and plastic (-40°F to 250°F)									
OS Standard (fiber/NBR) and stainless steel (-40°F to 250°F)									
TP PTFE and plastic (-65°F to 250°F)									
TS PTFE and stainless steel (-65°F to 350°F)									
BP NBR and plastic (-40°F to 250°F)									
BS NBR and stainless steel (-40°F to 250°F)									
VP FKM and plastic (-15°F to 250°F)									
VS FKM and stainless steel (-15°F to 350°F)									
Setting range (see table, page 2)									
02 Low setting - max. W.P.: 2 psig (see page 2)									
04 High setting - max. W.P.: 2 psig (see page 2)									

1. Model 3650B/3651B does not have a retainer or screen.

[Example: 2" top mounted vacuum relief valve, aluminum body with aluminum trim, PTFE insert, flat faced flange, standard fiber/NBR gaskets, low vacuum set range, temperature range: -20°F to 250°F.]

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