PLAST-O-MATIC

PRODUCT DATA

CATALOG VBL

Compact, Self-Closing Vacuum Breakers Protect Against Hazards, Damage and Financial Losses Caused by Vacuum!

Series VBS

Series VBM

Features/Benefits with Proper Installation:

- Designed to protect enclosed tanks from collapse or structural damage during draining.
- Eliminates siphoning of dangerous fluids.
- Prevents vacuum which can cause damage to sensitive instruments and filters.
- Normally-closed design prevents fugitive emissions from leaving system.
- Insurance against replacement of damaged expensive equipment... avoids critical system downtime.
- Patented diaphragm design assures dependable, repetitive, bubble-tight sealing in VBM and VB; PFA encapsulated spring and special poppet provide identical performance in VBS design.
- For corrosive or ultra-pure liquid applications.
- Sizes: 1/2", 3/4", 1", 1 1/2", 2" and 3".

Materials of Construction:

Series VBM Vacuum Breakers are molded of type 1, grade 1, PVC (Polyvinyl Chloride), Glass-filled Polypropylene, Kynar® PVDF and Corzan® CPVC in sizes 1/2", 3/4" and 1". A machined version, Series VB is available in PTFE in sizes 3/4" and 1". Diaphragms are of EPDM or FKM (comparable to Viton® barnd). VBS Vacuum Breakers are available in standard PVC (Polyvinyl Chloride), Natural Polypropylene, Kynar® PVDF, and Corzan® CPVC in sizes 1 1/2", 2", and 3". Standard dust caps on PVDF models are natural polypropylene; PVDF is optional. Seals are EPDM or FKM. Threaded or socket connections are standard on all models.

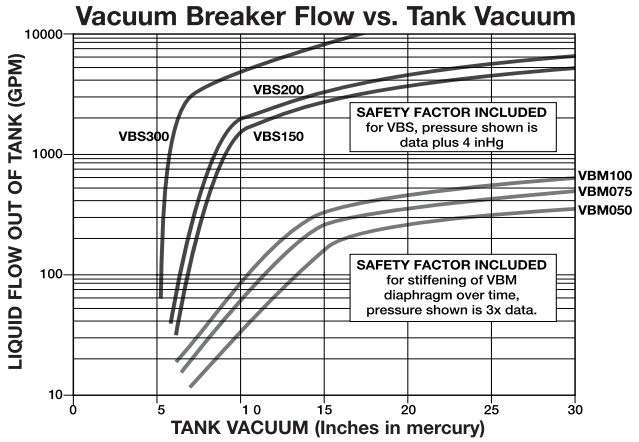
Design:

The Plast-O-Matic VBM Vacuum Breakers have only one moving part – the patented self-sealing diaphragm, and this provides both design simplicity and maximum operating dependability. This normally-closed design seals in the identical location every time producing a very dependable, long-life seal. Series VBS Vacuum Breakers feature a corrosion resistant PFA encapsulated spring which acts on a poppet seal that neither sticks nor chatters. Maximum working pressure is 100 PSI @ 75°F (6,9 bar @ 24°C). See pressure/temperature ratings on reverse side.

Operation and Installation:

Plast-O-Matic Vacuum Breakers feature a patented, normally-closed, design that can be mounted in any position; however, upright is recommended. For enclosed tank applications, mounting should be at the highest point of the tank.

These Vacuum Breakers will begin to break a vacuum at approximately 2 inches of mercury (1.0 PSI or 0,07 Bar negative pressure). Full vacuum is 29 inches of mercury. For applications either draining or pumping from enclosed tanks, the tanks must be able to withstand much more than 2 inches of mercury of vacuum, as illustrated in the chart below. The chart is based upon a 3.5 times safety factor, and it clearly shows that as the rate of liquid flow leaving the tank increases, the resulting vacuum in the tank also increases.



Explanation of Graph:

1. The above graph relates liquid flow leaving an enclosed tank to the resulting vacuum created in the tank as air is entering the tank through the Vacuum Breakers. A safety factor of 3.5 times is used in constructing the graph.
2. To use the graph determine the rate of flow when draining the tank and from that location on the vertical axis read across to the graph of the proper vacuum breaker size. At this intersection of the graph read down to the horizontal axis and determine the vacuum for the tank. This is the recommended vacuum rating of the tank which must be checked with the tank manufacturer's rating to be sure the tank is strong enough.

Anti-Siphon Applications:

For these applications the Vacuum Breakers must be installed in a "U-bend" at least 30 inches (2 1/2 feet or 76 cm) above the highest liquid level. Depending on the safety factor desired for Anti-Siphoning this height would become 60 inches (5 feet or 152 cm) at 2 times safety factor which is recommended by Plast-O-Matic.

Use Caution in Dangerous Applications:

In the event a diaphragm failure could cause spraying of a dangerous liquid onto nearby equipment or personnel, or simply into the atmosphere where breathing the vapors would be dangerous, it is strongly advised to use a Plast-O-Matic Check Valve in lieu of the Vacuum Breaker, and pipe the vent or inlet side of the check valve to a safe remote location. The Check Valve will have the same flow capabilities of the Vacuum Breaker, and contains the same design.

Elimination of Vacuum in a System:

To prevent instrument or system malfunction, the same considerations are involved as in the tank application. The vacuum breaker should be installed at the highest location in the system. Plast-O-Matic Vacuum Breakers can be mounted in any position since they are self-sealing and do not rely on gravity to operate; however, upright is preferred. Also see Anti-Siphon section.

Dimensions and Material Availability:

Series VBM – Molded Models: PVC, GPP, PVDF & CPVC

Pipe Size	A		B		C		D	
	In.	mm	In.	mm	In.	mm	In.	mm
1/2	4.3	110	1.3	33	2.4	62	1.9	48
3/4	4.6	117	1.6	39	2.8	72	2.3	59
1	5.1	130	1.9	48	2.8	72	2.5	64

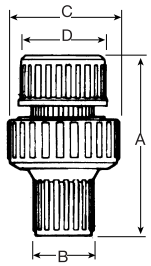
Series VB – Machined Models: PTFE

3/4	4.5	114	1.9	48	3.0	76	2.0	51
1	4.5	114	1.9	48	3.0	76	2.0	51

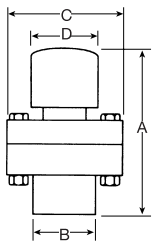
Series VBS – PVC, PP, PVDF & CPVC

1-1/2	7.9	193	2.5	64	4.1	104	3.5	89
2	8.5	209	3.0	76	4.1	104	3.5	89
3	10.5	267	4.3	109	5.5	140	5.5	140

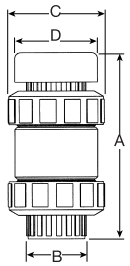
Series VBM



Series VB



Series VBS



Pressure/Temperature Rating:

Series VBM – Molded Models: PVC, GPP, PVDF & CPVC

Valve Body Material	Valve Diaphragm Material	Maximum Working Pressure						
		75°F (24°C)	110°F (43°C)	140°F (60°C)	180°F (82°C)	220°F (104°C)	240°F (115°C)	284°F (140°C)
PVC	EPDM	100	100	40	NR	NR	NR	NR
	FKM	100	100	40	NR	NR	NR	NR
GPP	EPDM	100	100	100	80	NR	NR	NR
	FKM	100	100	100	80	NR	NR	NR
PVDF	EPDM	100	100	100	100	NR	NR	NR
	FKM	100	100	100	100	60	30	10
CPVC	EPDM	100	100	80	40	NR	NR	NR
	FKM	100	100	80	40	NR	NR	NR

Series VB – Machined PTFE Models

PTFE	EPDM	100	90	80	70	NR	NR	NR
	FKM	100	90	80	70	40	20	10

Series VBS – PVC, PP, PVDF, & CPVC

PVC	EPDM	100	100	40	NR	NR	NR	NR
	FKM	100	100	40	NR	NR	NR	NR
PP	EPDM	100	80	50	30	NR	NR	NR
	FKM	100	80	50	30	NR	NR	NR
PVDF	EPDM	100	100	100	100	NR	NR	NR
	FKM	100	100	100	100	60	30	10
CPVC	EPDM	100	100	80	40	NR	NR	NR
	FKM	100	100	80	40	NR	NR	NR

Ordering Information for Series VBM & VB

Pipe Size	Series VBM-PVC FKM Seals	Series VBM-GPP FKM Seals	Series VBM-PVDF FKM Seals	Series VBM-CPVC FKM Seals	Series VB-TF FKM Seals
1/2"	VBM050V-PV	VBM050V-PP	VBM050V-PF	VBM050V-CP	N.A.
3/4"	VBM075V-PV	VBM075V-PP	VBM075V-PF	VBM075V-CP	VB075V-TF
1"	VBM100V-PV	VBM100V-PP	VBM100V-PF	VBM100V-CP	VB100V-TF

Ordering Information for Series VBS

Pipe Size	PVC FKM Seals	Natural Polypro FKM Seals	Corzan CPVC FKM Seals	Kynar PVDF FKM Seals
1-1/2"	VBS150V-PV	VBS150V-PP	VBS150V-CP	VBS150V-PF
2"	VBS200V-PV	VBS200V-PP	VBS200V-CP	VBS200V-PF
3"	VBS300V-PV	VBS300V-PP	VBS300V-CP	VBS300V-PF

Notes: Threads are standard. Socket ends available on VBM models in PVC.
For other body material consult factory. Above shown with FKM seals.
For EPDM Seals, change "V" to "EP" (ex. VBS150EP-PV).

1. For socket end connectors specify "S" in part number (ex. VBS150VT-PV).
2. For threaded ends connectors specify "T" in part number (ex. VBS150VT-PV).* Natural Polypro is non-filled, non-pigmented 100% virgin resin