



— MODEL — **33VB**

# Vacuum Breaker Valve

## INTRODUCTION

Designed to protect pipelines from vacuum collapse, the Cla-Val Model 33VB Vacuum Breaker Valve prevents damaging vacuum formation. The valve's large intake orifice freely admits air during pipeline draining or when pumps have been shut down.

Valve servicing is simple because the internal components can be replaced without removal of the valve body from the pipeline.

## RECEIVING AND STORAGE

Inspect valves for damage upon receipt. Valves should remain boxed and stored in doors until installed to prevent weather related damage



Threaded



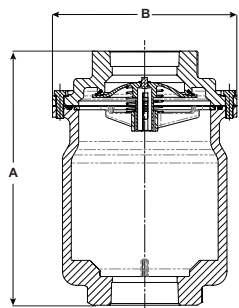
Flanged

## DESCRIPTION OF OPERATION

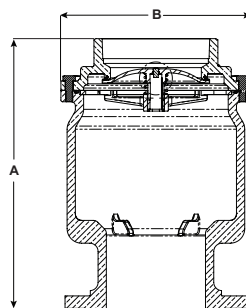
The Cla-Val 33VB Vacuum Breaker Valve is fully automatic and normally closed during positive system/pipeline pressure. Once the system experiences negative pressure, the vacuum breaker will open to allow air to be admitted into the system. Once positive pressure is restored, the vacuum breaker will return to its original closed position.

## Dimensions (in Inches)

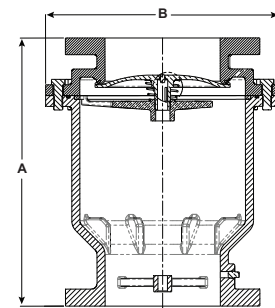
	33VB Pressure Class 300 Lb Threaded X Threaded				33VB Pressure Class 150 Lb Flanged X Threaded				33VB Pressure Class 150 Lb Flanged X Flanged	
Valve Size	1"	2"	3"	4"	2"	3"	4"	6"	8"	10"
A	9.10	12.44	12.75	12.75	13.88	15.56	15.75	16.38	18.62	20.50
B	6.25	7.50	9.00	9.00	7.50	9.25	9.25	11.00	16.25	18.25
Inlet (ANSI)	1" NPT	2" NPT	3" NPT	4" NPT	2"	3"	4"	6"	8"	10"
Outlet (NPT)	1" NPT	2" NPT	3" NPT	4" NPT	2" NPT	3" NPT	4" NPT	6" NPT	8"	10"
Number of Holes	—	—	—	—	4	4	8	8	8	12
Diameter of Bolts	—	—	—	—	.63	.63	.75	.75	.75	.88
Shipping Wt. (Lb.)	25	29	38	40	39	48	50	70	139	206



Threaded x Threaded



Flanged x Threaded



Flanged x Flanged

## MODEL 33VB - 1", 2", 3", 4", 6", 8", and 10" Vacuum Breaker Valve

### Pressure Ratings

Valve Body & Cover		Pressure Class			
		Flanged			Threaded
Grade	Material	ANSI Standards*	150 Class	300 Class	End† Details
ASTM A536	Ductile Iron	B16.42	250	400	400
---	All Other Materials	---	285	400	400
Note: * ANSI standards are for flange dimensions only. Flanged valves are available faced but not drilled. † End Details machined to ANSI B2.1 specifications.					

### Specifications

#### Standard Internals

**Seals:** Nitrile Rubber or Optional Viton®

**Remainder of Internal Components:**  
Stainless Steel and Delrin

#### Temperature Range

Water to 180° F

#### Optional:

1. Hood / Screen Assembly
2. Goose Neck available 1" - 4"

### Available Materials

- Epoxy Coated Ductile Iron ASTM A536 65-45-12
- Epoxy Coated Cast Steel ASTM A216WCB
- ASTM B61 Naval Bronze
- ASTM B 148 NI Aluminum Bronze
- 316 Stainless Steel
- Duplex Stainless Steel
- Super Duplex Stainless Steel
- Bronze

### Problems / Solutions

- 1. Leakage at Inlet Connection:**  
Tighten valve threaded connection. If leaks persist, remove valve and seals threads with pipe sealant or tape.
- 2. Leakage at Cover/Body joint:**  
Tighten bolts per Table 2, replace gasket.
- 3. Poppet Leakage:**  
Flush valve to remove debris. Disassemble and inspect the poppet assembly for damage. Replace as needed with a repair kit.

### Disassembly

The valve can be disassembled without removing it from the pipeline, or it may be removed from the line. All work on the valve should be performed by a skilled mechanic. Special tools are NOT required.

**CAUTION:** Drain the valve and de-pressurized before removing the cover or pressure may cause injury.

1. Close inlet shut-off valve. Slowly open drain valve or remove drain plug. Remove the covers bolts slowly.
2. Pry cover loose and lift off valve body.
3. Remove poppet assembly and inspect for damage.
4. Clean and inspect parts.

**NOTE:** Repair Kit includes cover gasket

### Reassembly

1. All parts must be cleaned and gaskets surfaces cleaned with a stiff wire brush in the direction of the serration or machine marks. Worn parts, gaskets and seal should be replaced during reassembly.
2. Apply Loctite or similar Compound to threaded Connections
3. Stand valve body vertically. Insert entire poppet assembly.
4. Lay new cover gasket on clean surface and apply a gasket compound such as Permatex #80065 to both surfaces. Assemble gasket and cover over bolt holes in body.
5. Insert lubricated bolts and tighten to the torques listed in Table 2.
6. Place valve back in service. Refer to the installation instruction. Slowly open inlet isolation valve.

Table 2. Valve Cover Bolt Torques

Bolt Size	Torque (ft. lbs.)
1/4"-20	6
5/16"-18	11
3/8"-24	19
7/16"-32	30

### Parts and Service

Parts and service are available from your local representative or the factory. Make note of the valve Model No. and Working Pressure located on the valve nameplate.