SCI Series VB167L

Lead-Free(L) Cast Brass Hose-End, Vacuum Breaker Valve

Installation, Operation and Maintenance Instructions

Figure 1 – SCI Series VB167L Leadfree Brass Vacuum-Breaker Valve

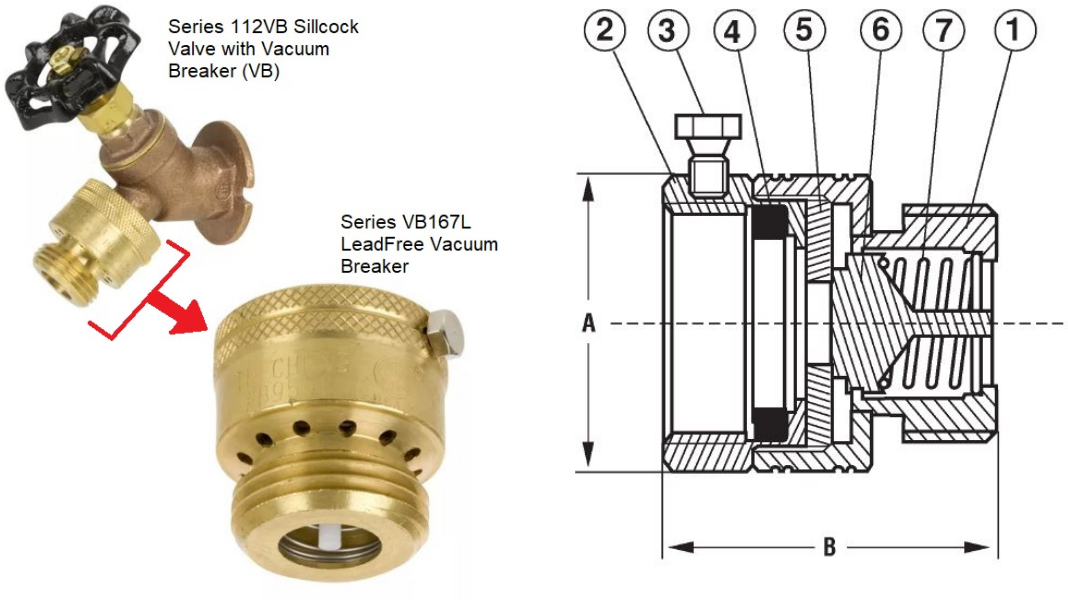

Table 1 – SCI Series VB167L List of Materials (See Figure 1 for items illustrated)

Item No.	Part Description	Material (CV30)
1	¾" MHT (Male Hose Thread) Cap	LeadFree Brass ASTM B584, C89550 (2)
2	¾" FHT (Female Hose Thread) Base	LeadFree Brass ASTM B584, C89550 (2)
3	Securing Screw	Steel SAE 12L14
4	Flat Washer	NBR (Buna-N) Rubber
5	Washer	NBR (Buna-N) Rubber
6	Piston	PolyOxyMethylene (POM) [Celcon®M90] Acetal Copolymer
7	Spring	Stainless Steel AISI 304

Notes: (1) All vacuum breaker valves rated to 125psig at 180°F.
(2) LeadFree (L) Brass – meets Federal Safe Drinking Water Act (SDWA) and California AB1953.
(3) UPC/IAPMO and ASSE 1011 Listed (Manufactured to ASSE-1011-95).

Table 2 – SCI Series VB167L Dimensions and Weights (See Figure 1 for items illustrated)

Valve Size	Weight, Lbs	Body Outside Diameter, A inches	Overall Length, B inches
¾" NHT	0.20	1.31	1.36

Valve Installation [See Figure 1 and Table 1 for part numbers listed in parentheses ( )]

The purpose of this valve is to prevent backflow into the upstream water system controlled by a globe-type valve such as sillcock, hose bib or similar type valve. The valve also helps to break the vacuum in a connected downstream hose, allowing the water to drain out of the hose or similar tube or pipe.

These valves are intended to be installed on the male outlet threads of a sillcock or hose bib valve into the cap (2) as shown in Figure 1. The valve already has a rubber flat washer (4) which will seal against the outlet end of a sillcock or hose bib valve, so no additional tape or thread sealant is normally necessary on the female hose thread (FHT) end of the valve. Furthermore, the end of the male hose thread (MHT) on the vacuum breaker outlet cap (1) typically seals against a rubber flat washer or gasket that is supplied with the hose. The hose threads on the inlet and outlet can typically be tightened hand-tight or with a wrench or pliers to provide enough force to seal the joints effectively.

The vacuum breaker valves come equipped with a securing screw (3) which can be tightened into the threads of the upstream valve until it breaks off making the connection tamper-proof.

After installation (if possible) it would be advisable to ensure the fluid flows freely in the normal direction (into the base end (2)) and completely restricts flow in the opposite direction (from the cap end (1)) – which also breaks the hose vacuum on this side.

Valve Operation [See Figure 1 and Table 1 for part numbers listed in parentheses ( )]

These vacuum breaker valves are uni-directional, with the intended flow direction to match the flow direction as permanently marked or cast into the body – or into the base [female thread] (2) side and out the opposite end cap (1) [male hose thread] side. The primary flow direction can also be with the highest pressure of the flow into the base (2) side – with prevention of backflow into the cap (1) end [male thread] of the valve.

Any media that might solidify, crystallize, or polymerize should not be allowed to be used in this type of vacuum breaker valve as it will interfere with the internal seat mechanisms to allow free flow in the primary direction, and stop flow in the opposite direction.

In the normal flow direction, the spring (7) loaded piston (6) should begin lifting after minimal differential pressure is developed across the valve. The valve should restrict any backflow in the opposite direction, regardless of reverse pressure.

Valve Maintenance [See Figure 1 and Table 1 for part numbers listed in parentheses ( )]

It is recommended that the following steps be taken for safe removal of the vacuum breaker valve from the end of another valve (e.g., hose bib), the hose, or any subsequent disassembly.

- Relieve or secure the pressure in the upstream valve or line and unthread any connections slowly to vent internal pressure.
- All personnel involved in removal and/or disassembly of the valve should wear protective clothing and eyewear such as safety glasses or face shields, gloves, aprons, and safety shoes as required by the type of fluid in the system.

⚠ **CAUTION** –Do not attempt to perform maintenance on valves in pressurized lines. Doing so may result in injury if there is an uncontrolled release of system pressure.

It is only recommended to perform minor refurbishment of any part of the valve internals, unless a kit containing the piston (6), spring (7), seal washer (5) and hose thread washer (4) is available.

Dismantling the valve assembly and refurbishing internals:

Note: If the tamper-proof screw (3) has been broken off and not removable, it may be necessary to replace the entire vacuum breaker – and possibly the upstream hose bib.

To dismantle the valve assembly to get access to the internals (washers, piston and spring), the valve should be moved to a clean work area first.

Remove the end cap (1) from the base (2) by unthreading it – making sure that the spring (7) has unloaded before removing any support from behind the cap (1). Remove the piston (6), spring (7) and seal washer (5) and inspect each part for wear or damage. Using a hooked tool or flat screwdriver blade, remove the hose thread flat washer (4) from inside the base (2) and inspect it for wear or damage.

Replacement of the valve internals and reassembly:

If necessary to replace, place the new spring (7), piston (6) and washer (5) inside the end of the cap (1) and completely tighten against the base (2) – using caution not to misalign the internals while tightening. Check to ensure the piston (6) still moves freely against the spring when assembled.

If necessary, replace the rubber washer (4) in the base (2) with a new one. The securing screw (3) in the base should only be reused if it was never torqued or broken.

Before installing onto a valve or into a system, pressure test the assembly with maximum system pressure (up to 125psig max) to ensure it is leak tight at the base (2) to cap (1) connection. And if possible, check the male hose end of the cap (1) to ensure it prevents backflow in the opposite direction.