

Hep_VO Sanitary Waste Valve Installation on Recreational Vehicles



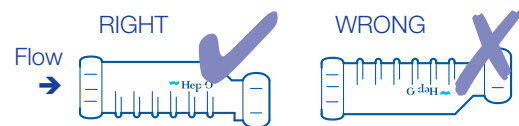
The purpose of this document is to provide instructions for the installation and use of the Hep_VO Sanitary Waste Valve on Recreational Vehicles

1. General

- Hep_VO is used instead of a P-Trap to protect the living space from foul odors from the grey water tank, black water tank or campground sewer system
- Each Hep_VO is approved to protect one sanitary fixture, which can be a Lavatory, Shower, Bathtub, Single or Double sink, Washing Machine, Dishwasher or Bidet. A single Hep_VO may only be used to protect multiple fixtures under strictly defined conditions - see Section 5.
- Hep_VO does not require any type of Anti-Siphon Venting. A Hep_VO installation does not require each fixture to be individually vented. Note: It is important to ensure that the holding tank(s) still have their required vent(s)

2. Installation (Orientation/Location)

- Hep_VO can be installed vertically or 'horizontally', or any angle in-between. When installing 'horizontally' a minimum allowable slope of 1/8" (3.175mm) per foot (30.48cm) must be maintained to ensure good drainage. This can be achieved by using the Hep_VO Angled Adapter ref CV11/U.
- When installed at any angle other than vertically, the Hep_VO must have 'ribs down' to ensure correct drainage



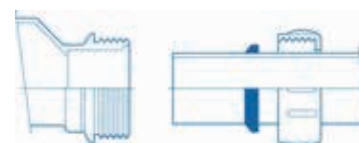
- Hep_VO valves must be installed in the correct direction of flow which is clearly marked on the body of the product
- Hep_VO must be installed either immediately at the exit of each Fixture, or in-line up to a maximum distance of 6ft from the exit of the Fixture. Note that when used to protect a single fixture Hep_VO must always be installed upstream of any tees or branch connections to other waste pipes.
- Hep_VO must be installed in an accessible location

3. Installation Method

- At the inlet side Hep_VO can be installed using a 1 1/2" Threaded Connection or via a slip joint connection onto Tubular pipe using In-Line Adapters CV7A/U (1 1/4") or CV7B/U (1 1/2")
- At the outlet side Hep_VO can be installed using a 1 1/2" Threaded Connection or via a slip joint connection onto 1 1/2" Tubular pipe.
- Do not use jointing compounds or chemical sealants on any Hep_VO connections

A Connections to Tubular Pipe

1. Cut the tube to length, allowing for the full compression socket depth (using an appropriate tube cutter).
2. If using plastic tube remove any loose material from the end. If using metallic tube remove any 'burr', and file if necessary to remove any external sharp edges. Mark the socket depth on the tube, and check that the tube section to be joined is free of any surface damage which may affect the joint seal.
3. Unscrew the cap from the outlet/inlet adaptor and slide the cap and rubber seal onto the tube.
4. Insert the tube end fully into the socket.
5. Slide the rubber seal and screwed cap up against the face of the socket, and tighten the cap by hand, (check that the cap is square to the body and does not 'cross-thread'). Hand tight should be adequate to form a proper seal.



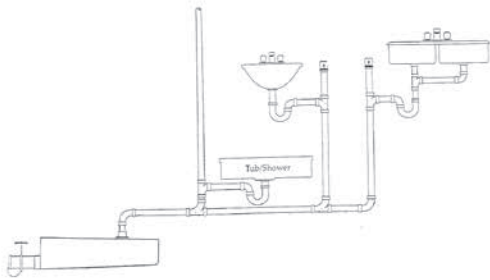
Capnut and sealing cone on pipe end ready for insertion of pipe into compression socket.

B Threaded Connections

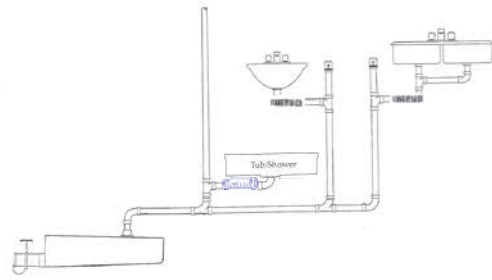
Threaded connections can be made to the inlet or outlet of the Hep_VO valve. At the outlet (for Valve type BV1B/U) it is first necessary to remove the cap and rubber seal. If making connections to threaded components that do not have an integral seal (for example connections to DWV adaptors) PTFE/TEFLON tape should be applied to the thread prior to assembly.

4. Illustrations / Examples

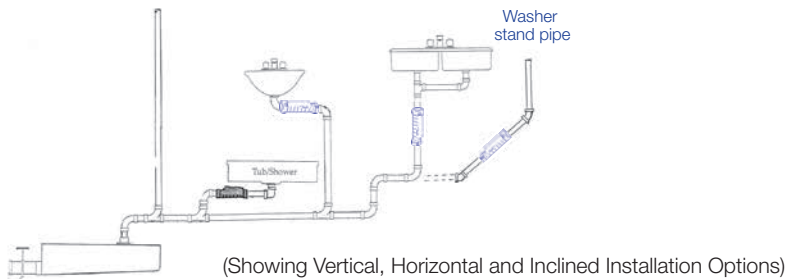
A Typical RV Plumbing – Previous Practice



B Potential Aftermarket upgrade with Hep_VO



C Typical New RV Plumbing Design using Hep_VO



5. Multiple Fixture Installations

A single Hep_VO can be used to protect two fixtures but only under the following strict conditions:

- No more than two fixtures should be connected to a single Hep_VO valve which must remain accessible for service if required.
- Installations for a Washing Machine, Dishwasher or Double Sink must each be protected by their own individual Hep_VO - these must NOT be included in any two fixture installation.
- The maximum distance from any fixture outlet to the inlet of the Hep_VO valve should be no more than 6ft.
- The Hep_VO should be installed as far upstream as possible ie as close as possible to the Y or T piece where the waste lines from the two fixtures converge. Hep_VO must always be installed with its outlet located more than 12" from the holding tank.
- It is important to ensure that the holding tank(s) still have their required vent(s). All such vent connections must be located downstream of the Hep_VO valve.

6. Maintenance

No routine or seasonal maintenance is required. However, should you blow-out your drainage lines do not exceed 80-100 psi.

- In the event of a blockage in the Waste System, regular drain cleaning chemicals may be used directly without the need to remove Hep_VO.
- If mechanical drain cleaning devices are to be used it is necessary to first remove Hep_VO from the Waste System. This provides a useful access point for servicing downstream pipework
- It is good practice to rinse the Hep_VO valve with a little clean water before replacing in the system.

7. Parts List

A New Build

BV1B/U = Hep_VO Waste Valve – 1 ½" Tubular Slip Joint Outlet
BV1B/U1 = Hep_VO Waste Valve – 1 ½" Threaded Outlet
CV11/U = 87.5° Angled Adapter for Horizontal Installation
CV7A/U = In-Line Adapter for 1 ¼" Slip Joint Connection at Inlet
CV7B/U = In-Line Adapter for 1 ½" Slip Joint Connection at Inlet

B Aftermarket

BV1B/UA = 1 ¼" Kit comprising BV1B/U, CV11/U and CV7A/U
BV1B/UB = 1 ½" Kit comprising BV1B/U, CV11/U and CV7B/U

8. Technical Support