TECHNICAL DESIGN GUIDE

NEW

HepVO™

C IAPMO ®

Sanitary Waste Valve

- A HYGIENIC ALTERNATIVE TO CONVENTIONAL TRAPS

HepVO is a self sealing valve designed to close the waste connection below a sanitary fixture to prevent the escape of foul sewer air into the dwelling.

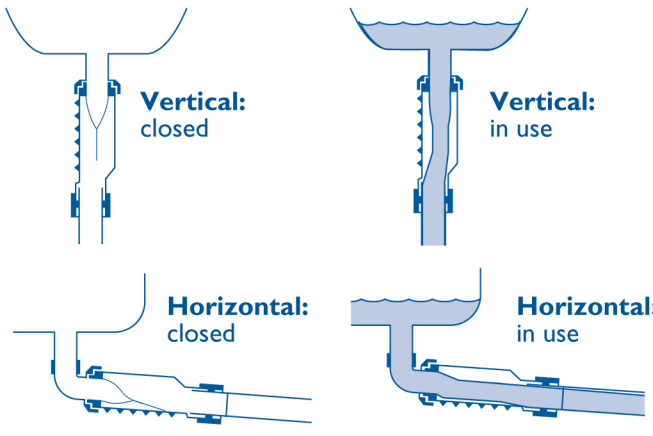
HepVO unlike conventional waste traps, does not rely on trapped water to create a seal. Water seals are prone to failure by Evaporation, Siphonage and other mechanisms. Instead, HepVO uses a self sealing membrane which performs the same function as a water seal trap but without the risk of depletion or freezing.

The HepVO Sanitary Waste Valve means enhanced plumbing design and system efficiency, without compromising performance or risking the escape of foul air into the living space from the drain or sewer.

HepVO - Operation

HepVO a Barrier between Living Space and the Drainage System.

Foul sewer gas must be prevented from entering the building. The loss of the water seal in a conventional trap can cause gurgling noises, objectionable smells, allow insect ingress, and has the potential to allow the spread of health hazards (such as SARS).



The HepVO Sanitary Waste Valve opens under the water pressure of a fixture emptying and closes to form a tight seal after the fixture has discharged.

HepVO - Product Features

- **Waterless - No Need For Trap Primer**
- **Admits Air - Auxiliary Venting Not Required**
- **One Way Valve - Prevents Foul Odors**

HepVO will out-perform a conventional trap by preventing the escape of foul air under excessive operating conditions up to 10 times greater than those normally experienced in a correctly designed Soil & Waste system. By comparison, conventional traps allow foul sewer air to bubble-through the seal at relatively low positive pressures.
In addition because HepVO does not trap water that may contain food scraps or other waste, microbiological growth of a fungal, bacterial or viral nature is less likely.

HepVO - Applications

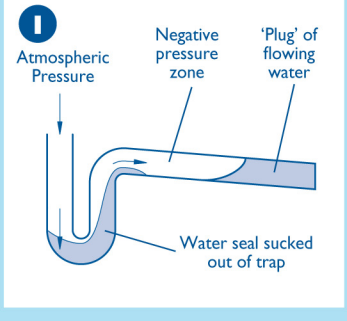
- Lavatories
- Bath Tubs
- Sink
- Bidet
- Washing Machine
- Garbage Disposal (Vertical Only)
- Urinal (Vertical Only)
- Boiler Condensate
- Air Conditioning Condensate
- Overflow
- Dishwasher
- Shower

Minimizes the space required behind a lavatory or beneath a bath tub/shower tray.

HepVO - Design and Performance

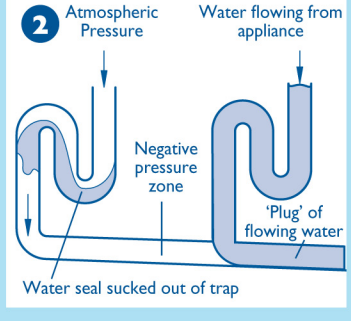
The PROBLEM: Conventional waste traps work by having a water seal to prevent foul odors entering buildings. However a water trap can fail under a number of conditions.
The following diagrams show several problems that result in loss of water seal, gurgling and foul smells.

Self Siphonage



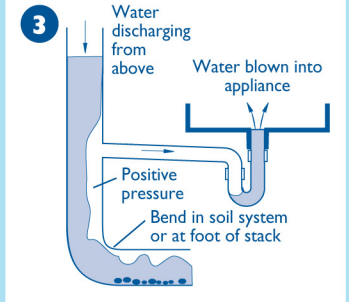
Self Siphonage: water flowing down the discharge pipe draws the water from the trap.

Induced Siphonage



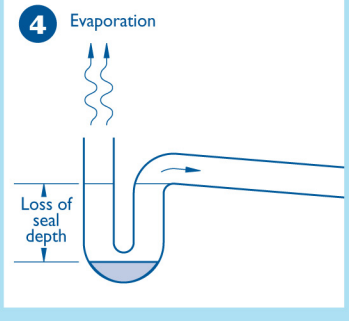
Induced Siphonage: the water seal is drawn out of the trap by water discharging from a fixture downstream (e.g. washing machine).

Compression



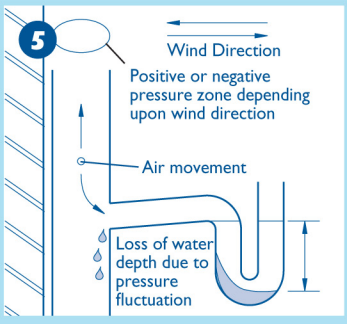
Compression: water is pushed out of the trap by a positive pressure caused by discharging of fixtures located above (e.g. WC).

Evaporation



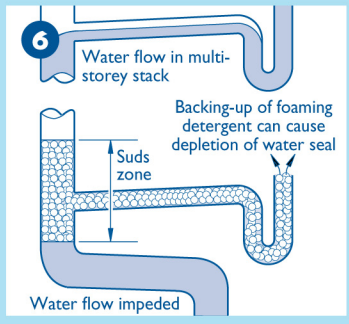
Evaporation: water in the trap evaporates during periods of non-use (e.g. during vacation or when fixtures are not being used).

Wind Effect (wavering out)



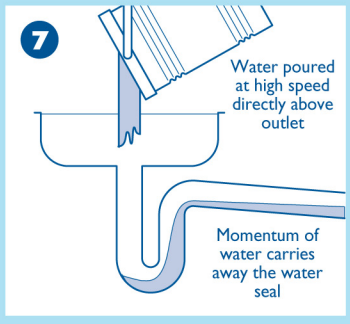
Wind Effect: air movement across the top of the Soil & Vent Pipe causes reciprocation of water in the trap and potential for loss of seal depth.

Foaming



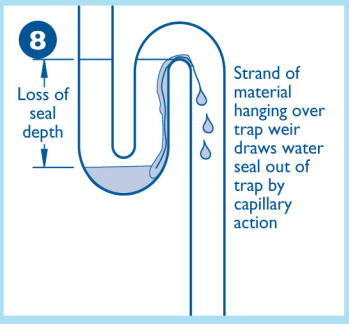
Foaming: agitation of waste water containing detergents in the Soil and Vent pipe creates foaming which pushes water out of the trap.

Momentum



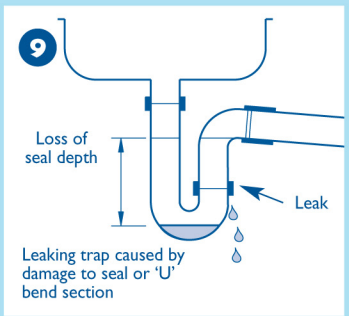
Momentum: waste water from a bowl or pail poured directly in to the waste outlet carries water out of the trap due to speed of discharge. This is also common with modern, funnel shaped basin designs.

Capillary Action



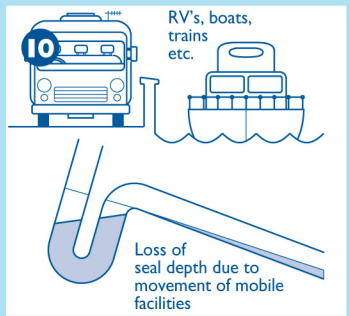
Capillary Action: fibrous material retained in the trap and hanging over the weir draws water out of the trap.

Leakage



Leakage: badly fitting or loose components and/or damaged seals can allow water to leak causing loss of seal depth.

Movement



Movement: In mobile facilities such as RV's and boats movement can cause potential for loss of water in the trap.

HepVO - The SOLUTION

When installed in accordance with manufacturers instructions the unique HepVO Sanitary Waste Valve is the solution to all these problems.

HepVO Sanitary Waste Valve actively eliminates negative pressure within the waste system by opening and allowing in fresh air until a state of equilibrium with atmosphere is reached. This means that localized or secondary venting of the waste system by the use of branch air admittance valves is no longer necessary.

HepVO Sanitary Waste Valve resists blockages, prevents nasty smells, gurgling sounds and stagnant water under all circumstances.

HepVO - Installation Benefits

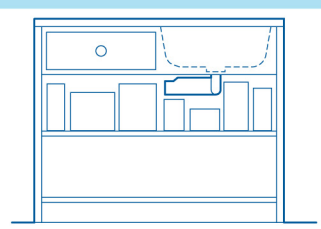
HepVO is a new concept in the prevention of foul air escaping into the building while actively eliminating negative pressure in soil and waste installations. It allows the designer to place a greater number of fixtures together on the same branch discharge pipe anywhere within the building without compromising the performance of their sanitary seals.

System Simplification - *Design Freedom and Economic Benefits*

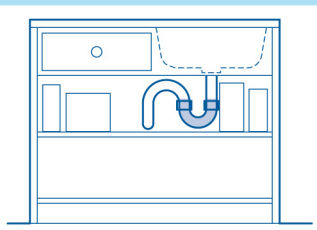
Regulations for waste system design set limits on length and slope of pipes and the number of fixtures which can be connected to a waste pipe in order to keep pressure fluctuations to a minimum, this may be rectified by the incorporation of vent pipes at appropriate design locations.

The incorporation of HepVO increases the designers scope for the reasons listed below, while providing a good sanitary system offering minimum resistance to flow.

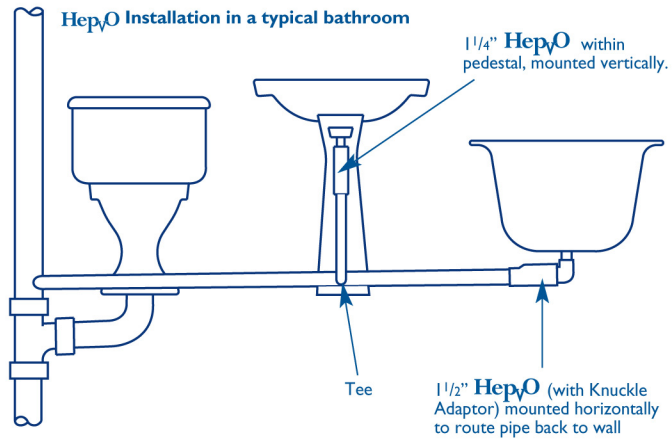
1. Compact design, flexibility of location and ability to actively eliminate negative pressure allows the installation of greater numbers of fixtures on fewer discharge pipes anywhere in the building.
2. Full bore flow will no longer cause siphonage where HepVO is fitted to all fixtures. Full bore flow provides better self cleansing which means that smaller diameter waste pipe branches can be considered in many applications.
3. Anti-siphon piping, trap primers, auxiliary venting and other valves are not required on a waste branch where waste fixtures or a range of fixtures are installed.
4. No maximum limit on waste pipe slopes or pipe length.
5. Branches connecting waste fixtures to a common pipe do not need to be swept at 45 degrees.
6. Where necessary tight radius bends can be used, without fear of siphonage or compression.
7. Waste pipe configurations, such as parallel branches, will not cause siphonage or compression problems, therefore there is no need to increase pipe size.



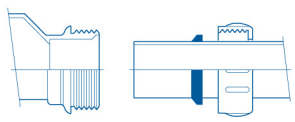
Sink Cupboard with HepVO installed horizontally



Sink Cupboard with water seal trap



HepVO - Installation & Maintenance



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

INSTALLATION

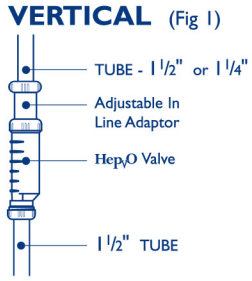
1. Cut the tube to length, allowing for the full compression socket depth, (preferably using an appropriate tube cutter).
2. If using plastic tube remove any loose material from the end. If using metallic tube remove any 'burr', and file if necessary to remove any external sharp edges. Mark the socket 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.
6. Threaded connections can be made to the inlet or outlet of the HepVO valve. At the outlet 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 connection to DWV adaptors) PTFE/TEFLON tape should be applied to the thread prior to assembly.

MAINTENANCE

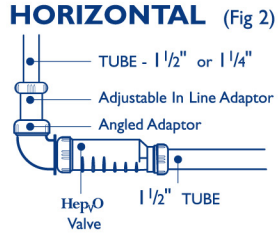
If mechanical devices such as spiral cables, rippers or water jetters are required to clear blockages in the waste system, the HepVO valve must be removed first.

It is good practice to rinse the HepVO valve with a little clean water before replacing it in the system.

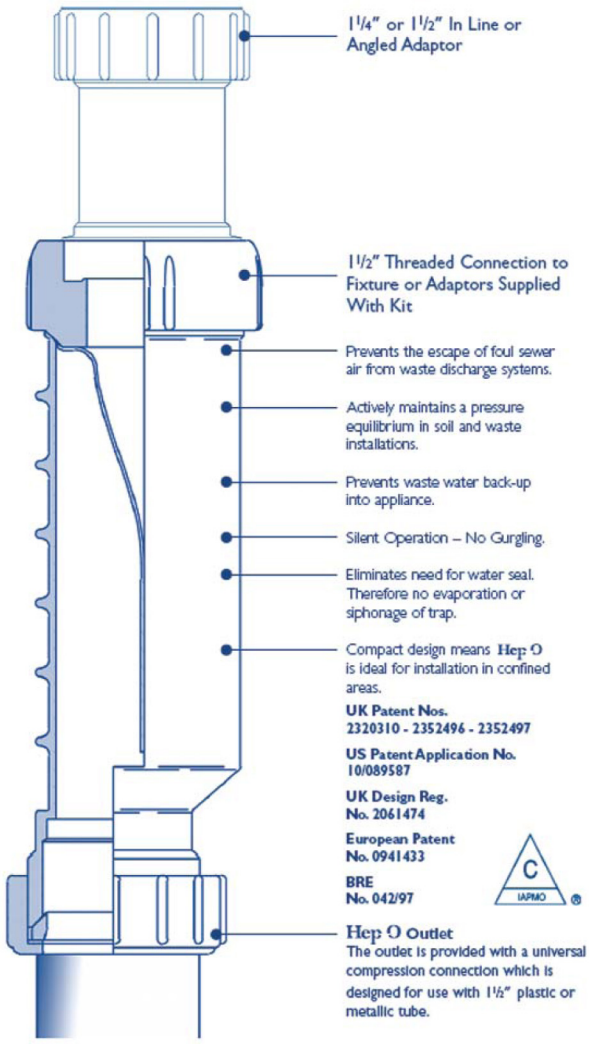
VERTICAL (Fig 1)



HORIZONTAL (Fig 2)



HepVO Valve Components



For further information on HepVO and other Hepworth products visit:
www.hepworth.co.uk

For technical assistance and inquiries email:
info123@drainmaster.com

Hepworth
Building Products

EDLINGTON LANE EDLINGTON
DONCASTER DN12 1BY ENGLAND UK
TEL +44 (0)1709 856300 FAX +44 (0)1709 856301

Frequently Asked Questions

1 Is HepVO used in addition to a conventional trap?

NO, unlike other products which prevent foul odors entering the living space, HepVO is used instead of a conventional water-seal trap.

2 Will I still need to install auxiliary venting on waste pipe branches?

NO, HepVO acts as a highly effective local air admittance device, removing the need for secondary venting.

3 Can I use acidic drain cleaning chemicals?

YES, the HepVO valve is manufactured from a highly inert material and has passed extensive testing with a very wide range of chemicals including both acid and alkaline products.

4 Do I still need to connect each fixture on its own dedicated waste branch?

NO, HepVO prevents induced siphonage between adjacent fixture traps so it is now possible to make multiple connections on the same branch. This can save yards of tubing or piping and gives great flexibility for locating fixtures and designing waste systems.

5 HepVO is a new product to me - how can I be confident that it will give a good installed performance?

HepVO is new to the North American market but it is not a new product. It has been in volume production in the UK since 1997 and it is widely used in Europe, Australia and the Far East. It has attained numerous international approvals against very demanding standards and has achieved an enviable track record of trouble-free performance.

6 Will HepVO promote better hygiene by stopping the escape of foul sewer air into habitable spaces?

YES - The valve has been proven to perform under conditions in which traditional water seal traps are vulnerable to failure. It will continue to perform under back pressures 10 times greater than those experienced in correctly designed soil and waste systems.

7 Does the air tight seal break down if a strand of cloth or hair collects in the strainer and falls down between the faces of the valve?

NO - HepVO has undergone extensive foreign body testing (IAPMO IGC203-04). Tests show that the valve will maintain an air tight seal around an obstruction such as hair, fabric strands or spaghetti.

8 What is the life expectancy of HepVO ?

Installed correctly HepVO can be expected to have a life expectancy at least equivalent to current water sealed traps. In addition HepVO is guaranteed against defects in materials or manufacturing for a period of 3 years.

9 Will HepVO block easily for example if fat is discharged through it?

NO - Extensive testing has shown that HepVO is less prone to blockage than traditional water seal traps. ***Note: because the 'straight through' design of HepVO does not trap debris discharged through the waste fixture care should be taken with jewelry and other valuables.***

10 Will the seal be maintained even when the fixture hasn't been used for some time?

YES - HepVO does not depend on a water seal and so it will continue to maintain a seal whether a fixture never gets used or is used very infrequently.

11 Does the valve make a noise?

Under normal conditions HepVO operates silently, unlike normal traps that are prone to 'gurgle'

12 Will HepVO support microbiological growth?

NO - The materials used to manufacture HepVO will not support microbiological growth for example mold and mildew.

For Toll-free technical help call
877-787-8833
M-F 7:30 AM - 4:30 PM Pacific