

VENT VALVE INSTALLATION AND MAINTENANCE



Vent check valve

The Vent Check is a sanitary bi-directional air relief valve. It allows air in and out while preventing product from leaking out. The Vent Check may be utilized in various manners, specifically:

High point vent – Installed vertically on the top of a pipeline or tank. This application can be used to bleed a pipeline of air pockets that have formed on account of new piping installation or other means of air entrainment in the process.

Check valve – This occurs when product flows into the valve body, moving the polypropylene ball upwards to form a tight seal with the O-ring.

Air Eliminator – To act as an air eliminator, the valve is installed ahead of a pump on top of the inlet pipe. This prohibits the pump from drawing a vacuum because of the spontaneous release of air on the suction side of the pump which prevents cavitation caused by air bubbles that would otherwise be drawn in by the pump.

Vacuum breaker/low CFM breather – The unique lower seat design allows the Vent Check to allow air into the pipeline preventing vacuum conditions. The airflow is equivalent to that of 1" tubing.

Operating conditions

Max. operating pressure: 10 barg

Operating temperature range: 90°C

Ball density: 913 kg/m³

Installation

Prior to installation verify the piping system is not pressurized and that the system has been completely drained. Ensure that the valve is clean and free from any packing material or preservative and that it is working correctly.

- Verification of the product density is greater than the ball density listed above.

- Vertical installation of the Vent Check valve assembly.

- Note: It is advised to use a short outlet tee for installation. Although this valve is designed to be Cleaned- Out-Of-Place (COP), the tee should be short to ensure proper cleaning during Clean-In-Place (CIP).

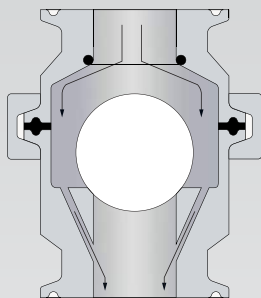


Figure A

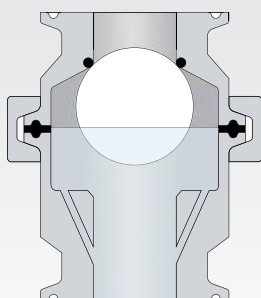


Figure B

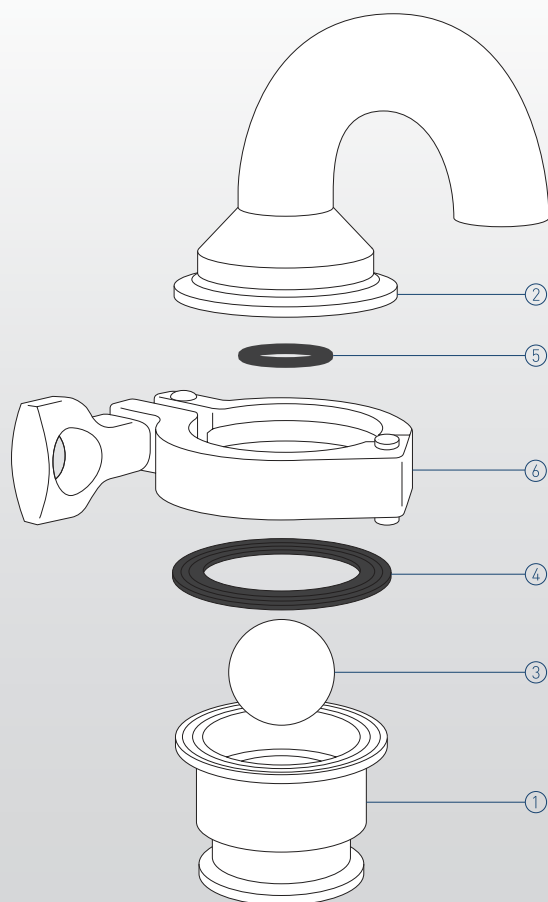
Working principle

The valve is composed of a vent top clamped to a vent bottom with a freely moving polypropylene ball. The ball seals or opens the vent depending on process conditions.

In figure A, the ball rests against the lower seat, air can flow in and out of the valve due to the specially designed vent bottom.

In figure B, the ball, which is lighter than water, closes against the upper seat when encountering product. This seals air from entering and product from escaping the vent.

VENT VALVE



Part	Description	
1	Inlet connection	316L stainless steel
2	Outlet connection	316L stainless steel
3	Ball	Polypropylene
4	Body seal	EPDM or Viton
5	O-ring	EPDM or Viton
6	Body clamp	Stainless steel

Available spares

Ball (3), body seal (4) and O-ring (5)

Maintenance

The valve assembly between the pipe flanges may be removed for inspection or replacement by following the instructions below.

1. Disconnect the valve from the piping system. To do this remove the process line clamp by turning the line clamp wingnut counter-clockwise, and remove the gasket connecting the valve to the process tubing.
2. Before disassembling, visually check the valve for any corrosion or damage.
3. Disassemble the valve by removing the valve body clamp (6). Turn the body clamp wingnut counter-clockwise until the clamp can be removed. Then remove the clamp (6) and body gasket (4).
4. Inspect the valve surfaces for damage. If there is damage to the surface, polishing or replacement maybe required depending on the severity of damage.
5. Remove the O-ring (5) from the groove in the outlet (2).
6. Inspect the gasket (4), O-ring (5) and ball (3). Replace them if there are any signs of damage.
7. Complete a final inspection, looking for corrosion or damage within the device.
8. Apply a food-grade FDA approved lubricant to the O-ring and install it in the proper O-ring groove inside the outlet (2) using the O-ring pick tool to assist with install.
9. Reassemble the valve.
10. Ensure the process is not operating and the area is safe.
11. Install the valve and line clamp back into the piping system.

Cleaning

The vent check valve is designed for COP cleaning only. Therefore, follow all steps outlined in the maintenance section above, paying special attention to the warning and caution. While the valve is disassembled, standard operation procedures at the respective facilities should be followed to clean the valve.

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