Pamphlet A3600

TLV®

AIR VENTS

Rapid Initial Air Vent
Automatic Air Vent

Free Float for Venting Air & Gas* from Liquid Piping

* Do not use for toxic, flammable or otherwise hazardous fluids.

No failure-prone levers or hinges. Only one moving part, the free float, eliminates concentrated wear and provides long, maintenance-free service life.

- **Rapid Initial Air Vent**
  VAS
  VA1/VA4/VA5
- **Automatic Air Vent**
  VC2/VC4
  VS1C

Precision-ground float with three-point seating provides the tightest seal at high water level.

- **Automatic Air Vent**
  VS1C

VAS

VA Series

VC Series

VS1C

Rapid Initial Air Vents

VAS / VA Series

Used for venting large amounts of initial air at system start-up. Once the valve closes after discharging initial air, it will not open again, even if air accumulates inside the product, until the internal pressure drops to near atmospheric pressure.

If air is expected to accumulate in the piping during operation, use together with an automatic air vent.

Automatic Air Vents

VC Series / VS1C

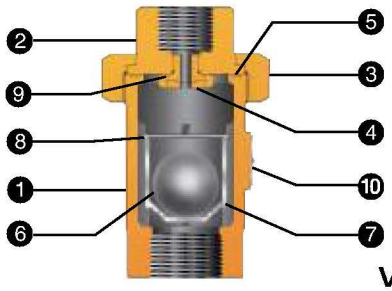
Discharge air or gas automatically as it enters the vent at start-up and during operation. Facilitates drainage of the system by introducing air at system shutdown.

If a large volume of air needs to be discharged at start-up, use together with a rapid initial air vent.

Rapid Initial Air Vents

■ Application Example

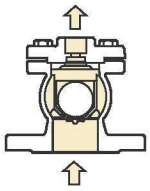
- Simple construction and trouble free operation
- Only one moving part, the free float, eliminates concentrated wear and provides long service life
- Precision-ground float and valve seat rubber contact assures seal tightness when vent is closed
- Also functions as a vacuum breaker



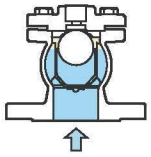
VAS

No.	Part Name	No.	Part Name
①	Body	⑥	Float
②	Union	⑦	Float Guide
③	Cap Nut	⑧	Snap Ring
④	Valve Seat	⑨	Union Gasket
⑤	Valve Seat Gasket	⑩	Nameplate

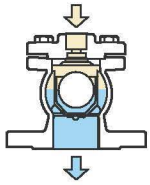
■ Rapid Initial Air Vent Operation: VA Series



1 Gas from inside the piping is very quickly pushed out around the float guide by liquid pressure.



2 After venting, the float rises with the rising liquid level, closing the valve. Once closed, the valve will not reopen, even if gas enters the vent and the water level drops.



3 When the pressure inside the piping drops to equal to or less than atmospheric pressure, the float drops opening the vent. Air is allowed to enter to facilitate the drainage of liquid from the piping.

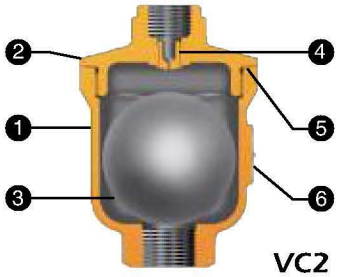
Automatic Air Vents

■ Application Example

- Simple construction and trouble free operation
- Only one moving part, the free float, eliminates concentrated wear and provides long service life
- Precision-ground float and valve seat rubber contact assures seal tightness when vent is closed
- Also functions as a vacuum breaker

VS1C

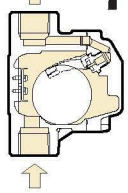
- Works in liquids with low specific gravity ($\rho \geq 0.8$)
- High corrosion resistance due to stainless steel body and fluorine rubber (FPM) valve seat
- Useable with high pressures and temperatures



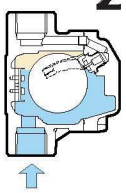
VC2

No.	Part Name
①	Body
②	Cover
③	Float
④	Valve Seat
⑤	Cover Gasket
⑥	Nameplate

■ Automatic Air Vent Operation: VS1C

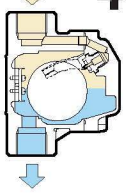


1 Gas from inside the piping is quickly pushed out around the float by liquid pressure.



2 After venting, the float rises with the rising liquid level, closing the valve.

3 When gas flows into the vent body, the liquid level decreases. The float drops, opening the vent and allowing gas discharge. When the liquid level rises after venting, the float again closes the vent.



4 At system shutdown, when the pressure inside the piping drops to equal to or less than atmospheric pressure, air is allowed to enter to facilitate the drainage of liquid from the piping.

X-element for Venting Air & Gas from Steam Systems

LA Series

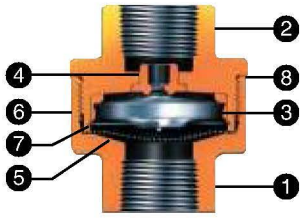
Remove air from steam systems and shorten start-up time. Facilitates drainage of the system by introducing air at system shutdown, preventing the formation of a vacuum as steam condenses.

What is the X-element?

A multi-diaphragm valve mechanism filled with a thermoliquid which opens and closes the vent at a temperature approximately 40 °F less than saturated steam temperature, allowing the discharge of any air or gas.

■ Application Example

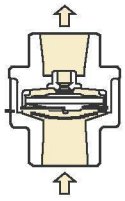
- Vents hot air up to approx. 40 °F below saturated steam temperature
- Fail-open mechanism
- High heat resistance
- Compact with large venting capacity
- Also functions as a vaccuum breaker



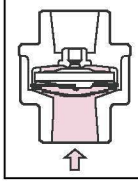
LA21

No.	Part Name
①	Body
②	Cover
③	X-element
④	Valve Seat
⑤	Screen
⑥	Nameplate
⑦	Snap Ring
⑧	Cover Gasket

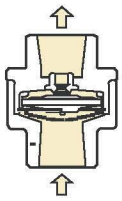
■ Automatic Air Vent for Steam Operation: LA Series



1 Initially, the X-element is open and gas from inside the piping is quickly vented, significantly shortening equipment start-up time.



2 When steam flows in, the increased temperature causes the X-element to close immediately. If ambient temperature is near steam saturation temperature, the vent will remain closed.



3 When the temperature of the X-element decreases due to inflowing gas, the X-element contracts opening the vent and allowing further gas discharge.

Selection Guide

Air Vent Class	Medium	Piping Direction	Operating Pressure Range (psig)	Max. Operating Temp. (°F)	Max. Venting Capacity (scfm)*	Body Material	Model
Rapid Initial Air Vent	Water, Hot Water	Vertical Piping	1.5 – 150	212	18	Cast Iron	VAS
					140		VA1
					620		VA4
					1190		VA5
Automatic Air Vent	Water, Hot Water	Vertical Piping	7 – 75	194	0.9	Bronze	VC2
			15 – 150		14	Cast Iron	VC4
	Special Fluids (Non-Toxic and Non-Flammable)		1.5 – 150	302 (428 with optional metal valve seat)	6.0	Cast Stainless Steel	VS1C-10
			1.5 – 300		4.4		VS1C-21
Automatic Air Vent	Steam	Vertical Piping	1.5 – 300	455	70	Cast Stainless Steel	LA21

* Capacities are equivalent capacities of air at 68°F under atmospheric pressure. Pressure differential is 15 psi for rapid initial air vents, and maximum operating pressure for automatic air vents.

Full product details (sizes, pressures, capacities and materials) are included in the individual specification data sheets (SDS).

⚠ CAUTION To avoid abnormal operation, accidents or serious injury, DO NOT use this product outside of the specification range. Local regulations may restrict the use of this product to below the conditions quoted.

⚠ CAUTION DO NOT DISASSEMBLE OR REMOVE THIS PRODUCT WHILE IT IS UNDER PRESSURE. Allow internal pressure of this product to equal atmospheric pressure and its surface to cool to room temperature before disassembling or removing. Failure to do so could cause burns or other injury. READ INSTRUCTION MANUAL CAREFULLY.

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Member of FCI Fluid Controls Institute, Inc.

Manufacturer
TLV CO., LTD.
Kakogawa, Japan
is approved by LRQA Ltd. to ISO 9001/14001

ISO 9001/ISO 14001