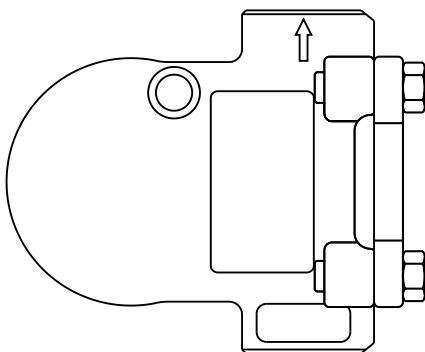


AES14, AES14S and AES14E
Austenitic Stainless Steel Automatic Air Vents
for Liquid Systems - ½" and ¾"
Installation and Maintenance Instructions



1. *General
safety information*
2. *General
product information*
3. *Installation*
4. *Commissioning*
5. *Operation*
6. *Maintenance*
7. *Spare parts*

--- *1. General safety information* ---

Safe operation of the unit can only be guaranteed if it is properly installed, commissioned and maintained by a qualified person (see Section 11 of the attached Supplementary Safety Information) in compliance with the operating instructions. General installation and safety instructions for pipeline and plant construction, as well as the proper use of tools and safety equipment must also be complied with.

Warning

The cover gasket contains a thin stainless steel support ring which may cause physical injury if not handled and disposed of carefully.

Isolation

Consider whether closing isolating valves will put any other part of the system or personnel at risk. Dangers might include; isolation of vents and protective devices or alarms. Ensure isolation valves are turned off in a gradual way to avoid system shocks.

Pressure

Before attempting any maintenance consider what is or may have been in the pipeline.

Temperature

Allow time for temperature to normalise after isolation to avoid the danger of burns and consider whether protective clothing (including safety glasses) is required.

Viton 'O' ring and valve cone:

If the Viton 'O' ring and valve cone have been subjected to a temperature approaching 315°C (599°F) or higher, it may have decomposed and formed hydrofluoric acid. Avoid skin contact and inhalation of any fumes as the acid will cause deep skin burns and damage the respiratory system.

Disposal

The product is recyclable. No ecological hazard is anticipated with the disposal of this product providing due care is taken, EXCEPT:

Viton 'O' ring and valve cone:

- Waste parts can be landfilled, when in compliance with National and Local regulations.
- Waste parts can be incinerated, but a scrubber must be used to remove Hydrogen Fluoride, which is evolved from the product and with compliance to National and Local regulations.
- Parts are insoluble in aquatic media.

— 2. General product information —

2.1 General description

The AES14, AES14S and AES14E are austenitic stainless steel ball float type air vents for liquid systems.

They are available with Viton, stainless steel and EPDM valve cones respectively.

The connections are in the vertical plane for flow upwards.

Body and cover castings are produced by a TÜV approved supplier in accordance with AD-Merkblatt WO/TRD100.


Available types

AES14 fitted with a viton valve cone.

AES14S fitted with a stainless steel valve cone.

AES14E fitted with an EPDM valve cone.

Standards

These products fully comply with the requirements of the European Pressure Equipment Directive 97/23/EC and carry the  mark when so required.

Certification

These products are available with certification to EN 10204 3.1.B. **Note:** All certification/inspection requirements must be stated at the time of order placement.

Note: For additional information see Technical Information Sheet TI-P149-14.

2.2 Sizes and pipe connections

½" and ¾"	Screwed BSP (BS 21 and DIN 2999) or NPT (ANSI B 1.20.1).
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½" and ¾"	Socket weld ends to ANSI B 16.11, BS 3799 Class 3000 and DIN 3239.
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Note: For alternative connections please consult Spirax Sarco.

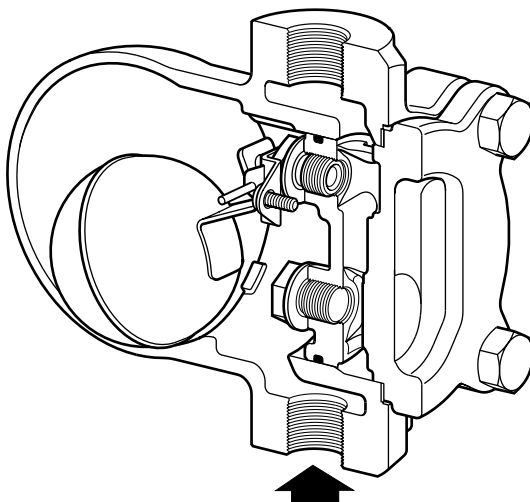
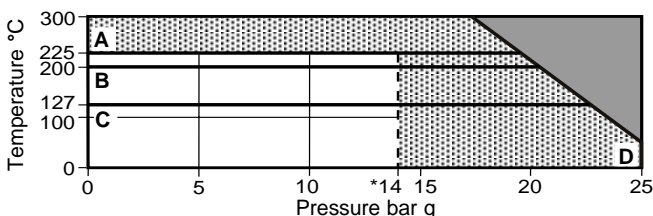



Fig. 1 AES14 screwed (vertical up)


2.3 Limiting conditions (ISO 6552)

Body design conditions	PN25	
PMA - Maximum allowable pressure	25 bar g	(363 psi g)
TMA - Maximum allowable temperature	300°C	(572°F)
PMO - Maximum operating pressure	14 bar g	(203 psi g)
TMO - Maximum operating temperature	AES14	200°C (392°F)
	AES14S	225°C (437°F)
	AES14E	127°C (260°F)
Minimum operating temperature	-20°C	(-4°F)
Note: For lower operating temperatures consult Spirax Sarco.		
Designed for a maximum cold hydraulic test pressure of:	37.5 bar g	(544 psi g)

2.4 Operating range



 The product must not be used in this region.

 The Viton and EPDM soft seat versions should not be used in this region or beyond their maximum operating temperature as damage to the internals may occur.

*PMO Maximum operating pressure 14 bar g (203 psi g).

A - D AES14S - Maximum operating temperature 225°C

B - D AES14 - Maximum operating temperature 200°C

C - D AES14E - Maximum operating temperature 127°C

2.5 Materials

Part	Material	
Body and cover	Austenitic stainless steel (316)	EN 10213-4 (1.4408) ASTM A351 CF8M
Cover bolts	Stainless steel	BS EN 3506 A2-70
Cover gasket	Reinforced exfoliated graphite	
'O' ring	Grey Viton complies with FDA CFR Title 21, Para 177, Section 2600	
Internals	Stainless steel	

3. Installation

Note: Before actioning any installation observe the 'Safety information' in Section 1.

Referring to the Installation and Maintenance Instructions, name-plate and Technical Information Sheet, check that the product is suitable for the intended installation.

- 3.1** Check materials, pressure and temperature and their maximum values. If the maximum operating limit of the product is lower than that of the system in which it is being fitted, ensure that a safety device is included in the system to prevent overpressurisation.
- 3.2** Determine the correct installation situation and the direction of fluid flow. All Spirax Sarco air vents should be installed vertically with the inlet at the bottom.
- 3.3** Remove plastic protective covers from connections.
- 3.4** If the trap is is to discharge to atmosphere ensure that it's to a safe place, the discharging fluid may be at a temperature of 100°C (212°F). **Note:** Dribbling may occur if the valve becomes fouled with dirt.
- 3.5** The automatic air vent must be fitted into a vertical plane above the point being vented with the direction of flow as indicated so that the float arm rises and falls vertically. Ensure that the edge marked 'TOP' is facing uppermost. Because of the way automatic air vents operate they all dribble liquid when discharging air. This is perfectly normal. Because of this we recommend piping the discharge to a drain via an air break.
- 3.6** Ensure adequate space is left to remove the body from the cover for maintenance. Minimum withdrawal distance distance for the AES14 series is 135 mm (5.3").

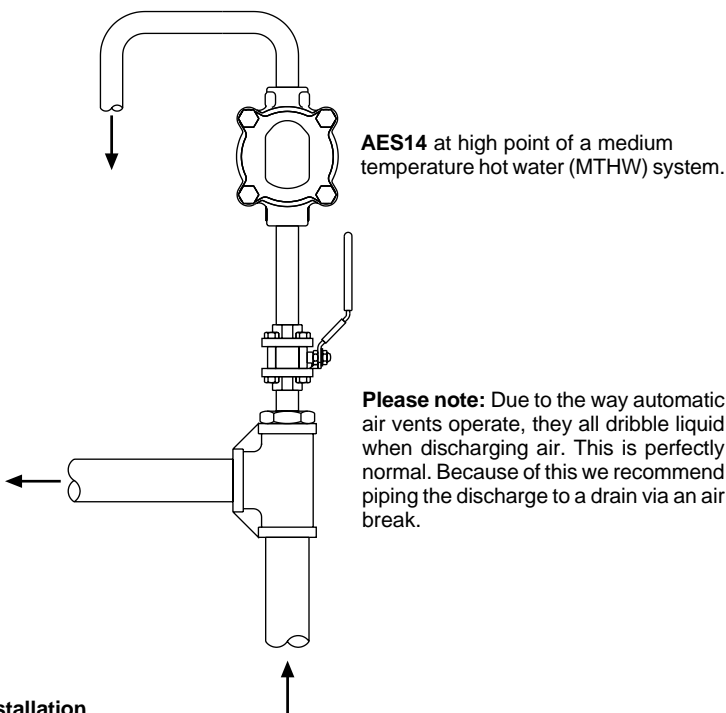


Fig. 2 Typical installation

4. Commissioning

After installation or maintenance ensure that the system is fully functioning. Carry out tests on any alarms or protective devices.

5. Operation

The AES14 is a ball float type air vent for liquid systems. Any air which is trapped within the system will migrate to the high points of the system and collect, where the AES14 should be installed.

The air will enter the body and pass through the open valve to atmosphere as the air and any other gases are released, the system liquid enters the body, lifting the ball float, drawing the valve head to the seat via the action of the lever mechanism, thus closing the valve.

6. Maintenance

Note: Before actioning any maintenance programme observe the 'Safety information' in Section 1.

Warning

The cover gasket contains a thin stainless steel support ring which may cause physical injury if not handled and disposed of carefully.

6.1 General information

Before undertaking any maintenance on the trap it must be isolated from the supply line and any pressure allowed to safely normalise to atmosphere. The air vent should then be allowed to cool. When reassembling, ensure that all joint faces are clean.

Note: The following Sections need to be read in conjunction with Figure 3, page 7.

6.2 How to fit the main valve assembly - maintenance kit

- Undo the cover bolts (2). Place two screwdrivers between the body and cover on either side and lever off the body, keeping bolt holes aligned.
- Remove the pivot pin (14) and float assembly (8).
- Remove the two main valve assembly screws (7) and pivot frame (12).
- Remove the main valve seat (5) and replace with a new seat supplied with new gasket and tighten to the recommended torque (see Table 1, page 8).
- Refit the pivot frame (12) by tightening the assembly set screws (7) to the recommended torque (see Table 1, page 7). Replace float assembly (8) and pivot pin (14).
- Fit a new 'O' ring (15) onto the body ensuring that the 'O' ring contact surfaces are all clean and in good condition. Care must be taken to ensure that the 'O' ring is not damaged during assembly. A suitable lubricant may be used to ease assembly.
- Refit the cover using a new gasket (3) and tighten the cover bolts (2). Ensure that the word 'TOP' is uppermost on the body edge. This is relevant to all configurations.

Note: If only the float cone is being replaced, remove the worn part and push the new cone into the hole in the float lever carefully, insuring the lever does not become distorted.

7. Spare parts

The spare parts available are shown in heavy outline. Parts drawn in broken line are not supplied as spares.

Available spares

Maintenance kit	AES14	3, 5, 6, 7 (2 off), 8, 9, 12, 14, 15
	AES14S	3, 5, 6, 7 (2 off), 8, 9, 12, 14, 15
	AES14E	3, 5, 6, 7 (2 off), 8, 9, 12, 14, 15
Seal kit	(packet of 3)	3, 15, 9†

† **Note:** One of each EPDM and Viton valve cones are supplied to fit as required.

How to order spares

Always order spares by using the description given in the column headed 'Available spares' and state the size and type of trap.

Example: 1 - Maintenance kit for a Spirax Sarco ½" AES14 austenitic stainless steel automatic air vent.

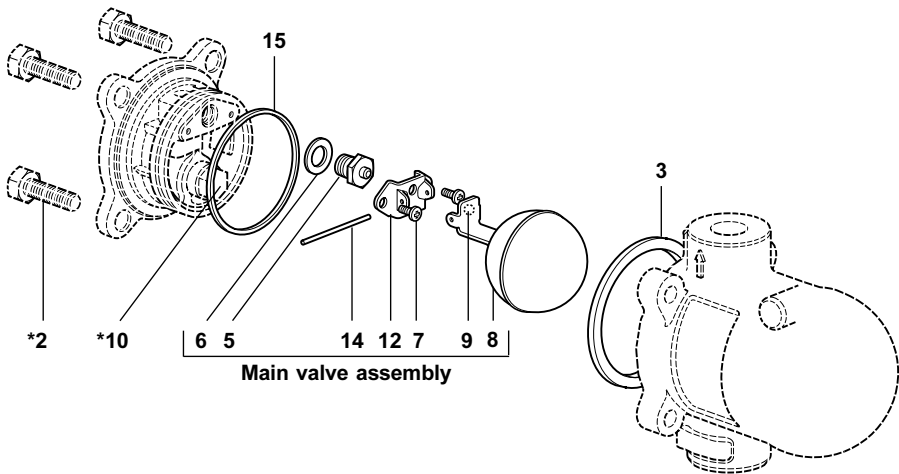




Fig. 3

* **Note:** Items 2 and 10 are not available as spares

Table 1 Recommended tightening torques

Item	Part	 or  mm	N m	(lbf ft)
2	Cover bolts	M10 x 30	20 - 25	(15 - 18)
5	Main valve seat	17 A/F	50 - 55	(37 - 40)
7	Main valve assembly screws	Pozidrive M4 x 6	2.5 - 3.0	(1.8 - 2.2)
10	Blanking plug	11 A/F	50 - 55	(37 - 40)

