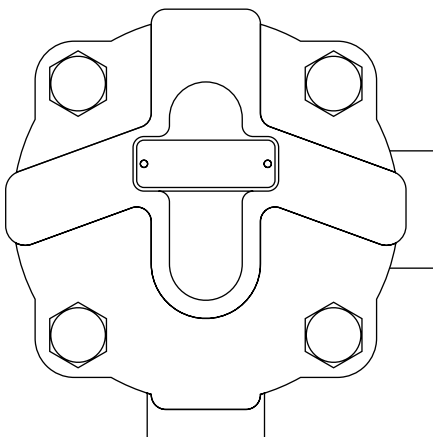


**AE14**

**Automatic Air Vents for Liquid Systems**  
**Installation and Maintenance Instructions**

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- 1. General  
safety information*
- 2. General  
product information*
- 3. Installation*
- 4. Commissioning*
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# --- *1. General safety information* ---

Safe operation of these units can only be guaranteed if they are 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 and the main valve assembly gasket on the AE14 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. Ensure that any pressure is isolated and safely vented to atmospheric pressure before attempting to maintain the product, this is easily achieved by fitting Spirax Sarco depressurisation valves type DV (see separate literature for details). Do not assume that the system is depressurised even when a pressure gauge indicates zero.

## **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 - AE14 valve head:**

If the the main valve cone (made of Viton) has 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**

These products are recyclable. No ecological hazard is anticipated with the disposal of these products providing due care is taken, EXCEPT;

### **Viton - AE14 valve head:**

- 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

#### AE14

The AE14 is a range of float type air vents for liquid systems. The body and cover are manufactured in SG iron and the complete unit is readily maintainable. The standard version with a viton valve cone is designated AE14. This model is also available with an inbuilt stop valve fitted to the inlet port designated AE14SV and AE14ESV.

#### AE14E

The AE14E is a Water Research Centre (WRC) approved version with an EPDM valve cone. This model is also available with an inbuilt stop valve fitted to the inlet port designated the AE14ESV.

#### AE14S

The AE14S is a stainless steel valve cone version.

#### Available types

<b>AE14</b>	Fitted with a viton valve head (standard version)
<b>AE14E</b>	Fitted with an EPDM valve head
<b>AE14S</b>	Fitted with a stainless steel valve head
<b>AE14SV</b>	Fitted with a viton valve head and stop valve
<b>AE14ESV</b>	Fitted with an EPDM valve head and stop valve

#### Standards

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

#### Certification

The product is available with material certification to EN 10204 2.2.

**Note:** All certification/inspection requirements must be stated at the time of order placement.

### 2.2 Sizes and pipe connections

½" and ¾" screwed BSP or NPT.

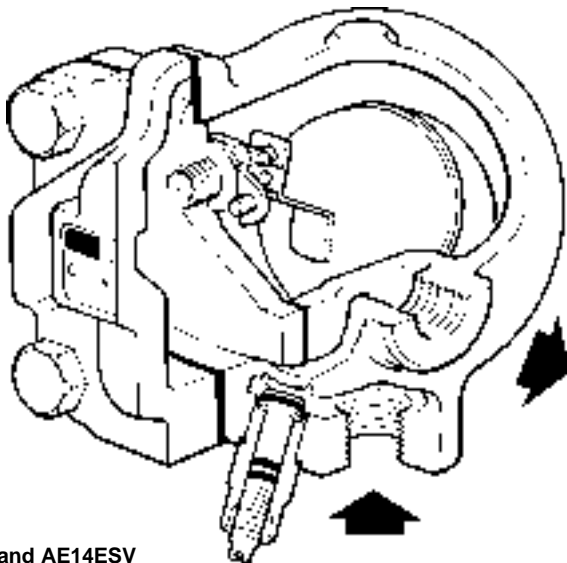
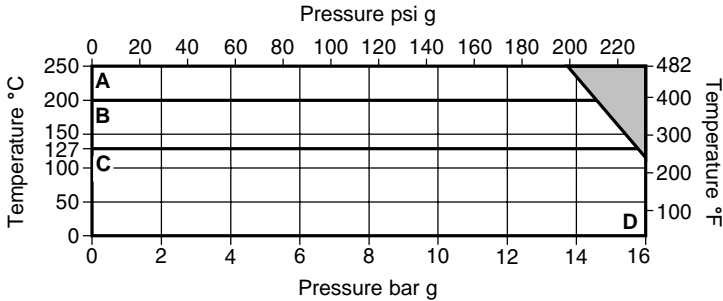


Fig. 1 AE14SV and AE14ESV

### 2.3 Pressure/temperature limits



 The product **must not** be used in this region.

- A - D** AE14S
- B - D** AE14 and AE14SV
- C - D** AE14E and AE14ESV

Body design conditions		PN16	
PMA	Maximum allowable pressure @ 110°C (230°F)	16 bar g	(232 psi g)
TMA	Maximum allowable temperature @ 13.6 bar g (197.3 psi g)	250°C	(482°F)
Minimum allowable temperature		0°C	(32°F)
PMO	Maximum operating pressure	16 bar g	(232 psi g)
TMO	Maximum operating temperature	<b>AE14E and AE14ESV</b> @ 15.5 bar g (224.5 psi g)	127°C (261°F)
		<b>AE14 and AE14SV</b> @ 14.5 bar g (210 psi g)	200°C (392°F)
		<b>AE14S</b> @ 13.6 bar g (197.3 psi g)	250°C (482°F)
Minimum operating temperature		0°C	(32°F)
ΔPMX	Maximum differential pressure	14 bar	(203 psi g)
Designed for a maximum cold hydraulic test pressure of:		24 bar g	(348 psi g)
Minimum specific gravity of liquid		0.6	

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## 3. Installation

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### Note:

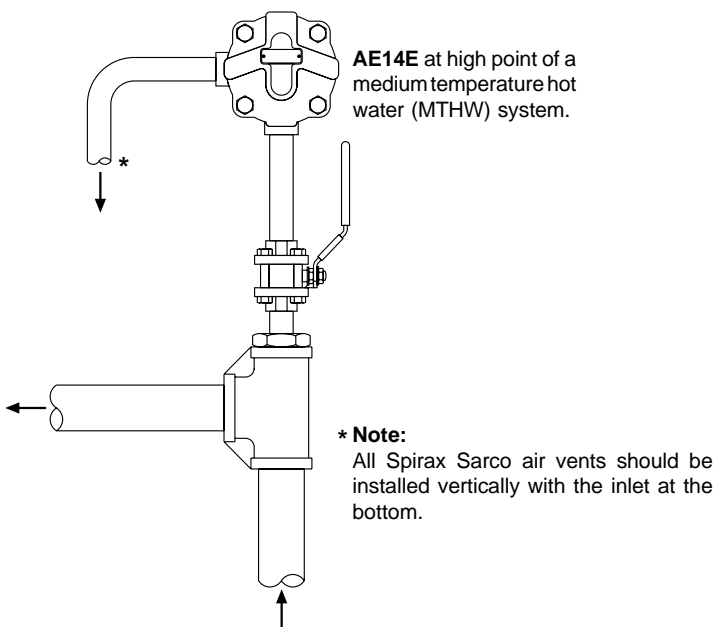
Before actioning any installation observe the 'Safety information' in Section 1.

### Warning

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

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.
- 3.3** Remove protective covers from all connections.
- 3.4** 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 falls and rises vertically. Point the arrow on the name-plate downwards.  
We recommend piping the discharge from the air vent to a suitable safe point.



### Note:

If the trap is to discharge to atmosphere ensure it is to a safe place, the discharging air or gas may be at a temperature of 100°C (212°F).

**Fig. 2**

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## 4. Commissioning

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

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## 5. Operation

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The AE14 automatic air vent utilises a simple but well proven, float lever valve assembly which opens to air and gases and closes tightly to water.

Once fitted they require no adjustment, either on start-up or subsequent running. There operation is totally automatic over a variety of light or heavy duty applications.

Float type traps are renowned for their instantaneous load handling capability, clean tight shut-off and resistance to waterhammer and vibration.

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## 6. Maintenance

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### **Note:**

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

### **Warning**

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

### **6.1 General Information**

All work must be carried out by a suitably competent person. Before starting work ensure that suitable tools are available. Use only Spirax Sarco replacement parts. Before attempting work on the trap, ensure that the trap is isolated from the rest of the pressurised system. With the AE14SV and AE14ESV this is simply carried out by using the inbuilt stop valve.

Ensure that any pressure within the isolated section is safely vented to atmosphere. Allow time for the temperature of the trap to normalise after isolation to avoid the danger of burns. When reassembling make sure that all joint faces are clean. After maintenance ensure that the system is fully functioning.

### **6.2 How to fit the main valve:**

- Undo the cover bolts (2) and lift off the cover (4).
- Withdraw the pivot pin (11) to release the float and lever (8) from the pivot frame (10).
- Push out the main valve head (9) and replace with a new one. Reassemble the float and lever (8).
- Check operation by raising and lowering the float several times making sure that the valve head is centring properly on the seat.
- Refit the cover (4) using a new cover gasket (3).
- Tighten cover bolts (2) uniformly to the recommended tightening torque (see Table 1).
- Open up the isolating valves slowly until full system pressure is achieved.
- Check for leaks.

### 6.3 How to replace the main valve assembly:

- Undo the cover bolts (2) and lift off the cover (4).
- Withdraw pivot pin (11) and release the float and lever (8) from the pivot frame (10).
- Undo main valve assembly screws (7) and remove pivot frame (10).
- Unscrew main valve seat (5) and gasket (6).
- Replace with new and tighten main valve seat (5) to recommended torque (see Table 1)
- Re-assemble the float and lever (8)
- Check operation by raising and lowering the float several times making sure that the valve head is centring properly on the seat.
- Refit the cover (4) using a new cover gasket (3).
- Tighten cover bolts (2) uniformly to the recommended tightening torque (see Table 1).
- Open up the isolating valves slowly until full system pressure is achieved.
- Check for leaks.

### 6.4 How to fit the stop valve assembly (AE14SV and AE14ESV):

**Warning:** Before attempting this operation it is essential to isolate the automatic air vent other than by its inbuilt stop valve and to lower the water level.

- Remove the complete stop valve assembly by unscrewing the housing (12)
- Replace with a new stop valve assembly (12, 13, 14), fitting new seals (15) and gaskets (16) tighten to the recommended tightening torques (see Table 1).
- After re-commissioning ensure that the new inbuilt stop valve is in the open position.

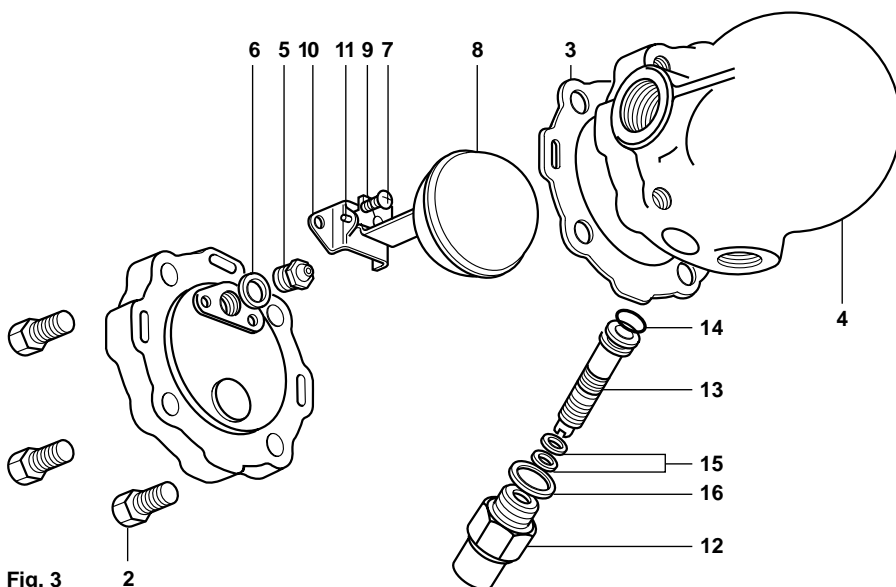




Fig. 3

Table 1 Recommended tightening torques

Item	Part	 or  mm	N m	lbf ft
2	Cover bolts	17 A/F	47 - 50	35 - 37
5	Main valve seat	17 A/F	50 - 55	33 - 40
7	Main valve assembly screws	Pozidrive	2.5 - 3.0	1.8 - 2.2
12	Stop valve housing	21 A/F	30 - 35	22 - 26

## 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 **3, 5, 6, 7 (2 off), 8, 9, 10, 11, 14, 15 (2 off), 16**

**Note:** Item **9** is attached to item **8** when supplied for the AE14S.

Seal kit **3, 5 (EPDM), 14, 15 (2 off), 16**

Valve head (not available for the AE14S) packet of **3**

**9**

**Note:** 1 off EPDM and Viton valve head is 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 automatic air vent.

**Example:** 1 - Maintenance kit for a Spirax Sarco ½" AE14ESV automatic air vent.

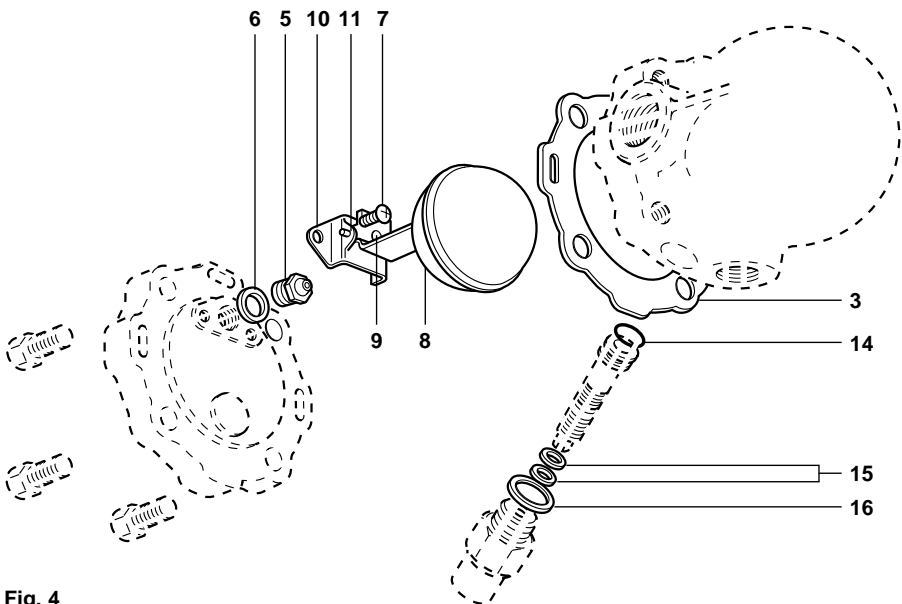


Fig. 4