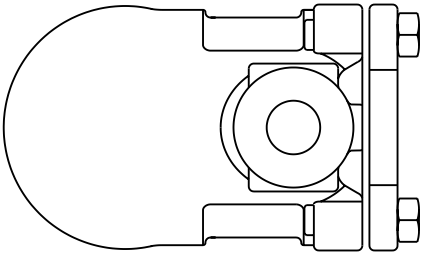
CAS14 and CAS14S Austenitic Stainless Steel Ball Float Air and Gas Traps - ½", ¾" and 1"

Installation and Maintenance Instructions



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. 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 '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 insoluable in aquatic media.**

2. General product information

2.1 General description

The CAS14 and CAS14S are austenitic stainless steel ball float gas/air drain traps. They provide efficient condensate drainage from compressed air and other gas systems, allowing the process to operate to its optimum potential.
The connections are in the vertical plane for flow downwards.
Body and cover castings are produced by a TÜV approved supplier in accordance with AD-Merkblatt WO/TRD100.

Available types

CAS14	fitted with a viton valve cone ½" and ¾"
CAS14S	fitted with a stainless steel valve cone ½", ¾" and 1"

Optional extra
An integral screen.

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
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-P148-38.

2.2 Sizes and pipe connections

½", ¾" and 1**"**	Screwed BSP (BS 21 and DIN 2999) or NPT (ANSI B 1.20.1).
½", ¾" and 1**"**	Socket weld ends to ANSI B 16.11, BS 3799 Class 3000 and DIN 3239.

Note: For alternative connections please consult Spirax Sarco.

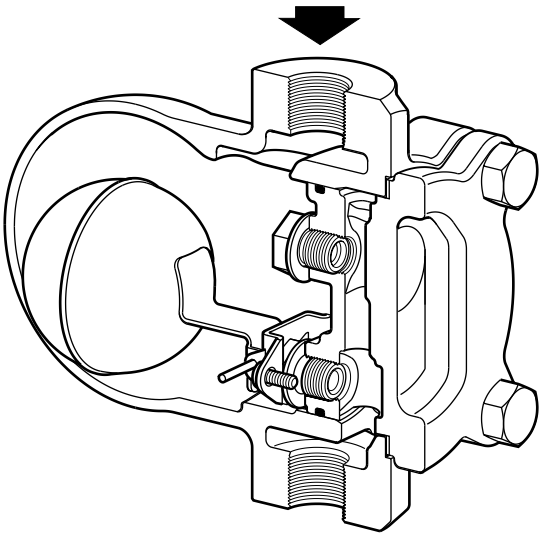


Fig. 1 CAS14 Screwed (vertical down)

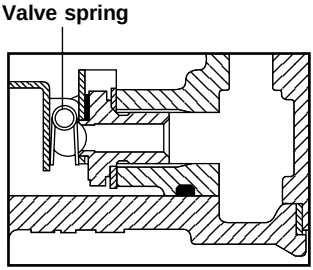
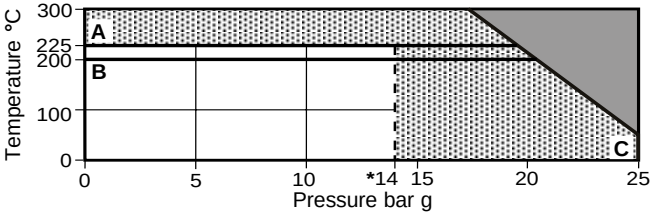


Fig. 2 Section of the main valve assembly - DN25 (1") only

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	**CAS14**	200°C	(392°F)
	CAS14S	225°C	(437°F)
Minimum operating temperature **Note:** For lower operating temperatures consult Spirax Sarco.		-20°C	(-4°F)
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 soft seat versions should not be used in this region as damage to the internals may occur.

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

A - C CAS14S
B - C CAS14

∆PMX - Maximum differential pressure
The maximum differential pressure depends on the specific gravity of the liquid being drained.

	Specific gravity				
Trap	**1.0**	**0.9**	**0.8**	**0.7**	**0.6**
	Maximum differential pressure bar (psi)				
CAS14	14.0 (203)	14.0 (203)	14.0 (203)	9.0 (130.5)	5.0 (72.5)
CAS14S	14.0 (203)	14.0 (203)	14.0 (203)	9.0 (130.5)	5.0 (72.5)

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	FDA approved viton to FDA regulation 177.2600	
Internals	Stainless steel	

3. Installation

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

Refering 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 media flow.

3.3 Remove plastic protective covers from connections.

3.4 If the trap 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).

3.5 The trap must be fitted with the float arm in a horizontal plane so that it rises and falls vertically, therefore the writing on the body (**1**) must be the correct way up with the edge marked 'TOP' uppermost. This applies to all installation flow directions.

3.6 Traps should be fitted below the outlet of the air/gas system with a small drop leg immediately preceding the trap - Typically 150 mm (6") see Figure 3 below.

3.7 If the trap is to be welded into the line this should be done using the electric arc method. If this method is used the internals need not be removed. If any other welding method is employed it may cause distortion of the trap body or damage to the internals

3.8 Ensure adequate space is left to remove the body from the cover for maintenance. Minimum withdrawal distance distance for the CAS14 ½" and ¾" is 135 mm (5.6") for the 1" it is 145 mm (5.8").

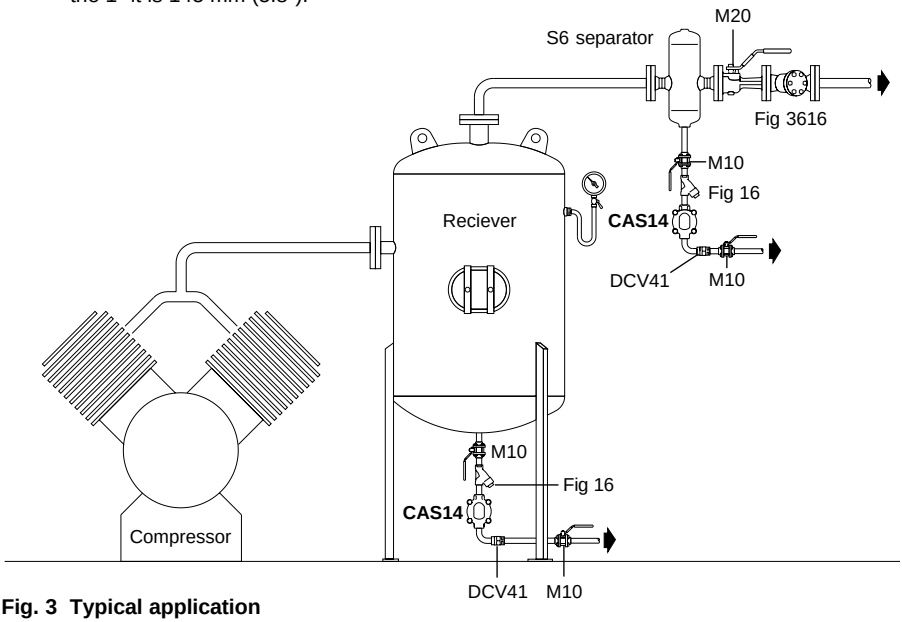


Fig. 3 Typical application

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 compressed air ball float drain trap is a continuous discharge trap, removing condensate the instant it forms. As soon as condensate enters the main chamber of the trap, the float rises and the lever mechanism attached to it opens the main valve - keeping the system drained of condensate at all times. When all condensate has been removed, the float drops and closes the main valve. Float type traps are renowned for their high start-up load handling capability, clean tight shut-off and resistance to waterhammer and vibration.

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 both the supply line and return line and any pressure allowed to safely normalise to atmosphere. The trap 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 5, page 8.

6.2 How to fit the main valve assembly

- 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).
  Note: A valve spring (**16**) is fitted to the DN25 (1") traps only.
- Refit the pivot frame (**12**) by tightening the assembly set screws (**7**) to the recommended torque (see Table 1, page 8). 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 valve 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	**CAS14**	**3**, **5**, **6**, **7** (2 off), **8**, **9**, **12**, **14**, **15**
	CAS14S	**3**, **5**, **6**, **7** (2 off), **8**, **9**, **12**, **14 + 16** (1" only), **15**
Seal set		**3, 9**, **15**

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" CAS14 austenitic stainless steel ball float air and gas trap.

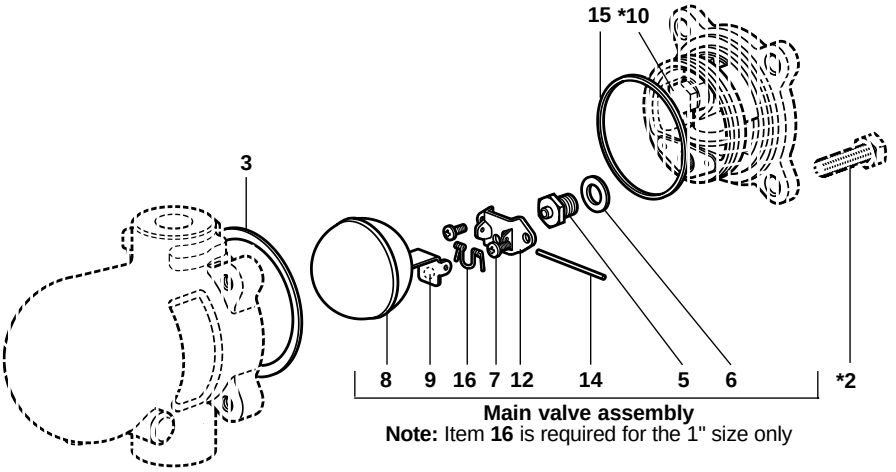


Fig. 4

***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 bolt	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)