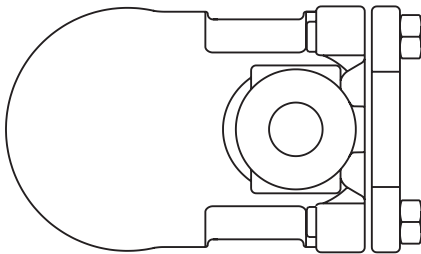


**CAS14 and CAS14S**  
**Austenitic Stainless Steel**  
**Ball Float Air and Gas Traps - 1/2", 3/4" and 1"**  
Installation and Maintenance Instructions

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

# 1. Safety information

Safe operation of these products can only be guaranteed if they are properly installed, commissioned, used and maintained by qualified personnel (see Section 11 on this document) 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.

## 1.1 Intended use

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

The products listed below comply with the requirements of the Pressure Equipment Directive (PED) and carry the  mark when so required.

### CA range

Product	Group 1 Gases	Group 2 Gases	Group 1 Liquids	Group 2 Liquids
CA10S	SEP	SEP	SEP	SEP
CA14/CA14S	DN15 - 20	SEP	SEP	SEP
	DN25 - 50	1	SEP	SEP
CA16/CA16S	DN15 - 20	SEP	SEP	SEP
	DN25	1	SEP	SEP
CA44/CA44S	DN15 - 20	SEP	SEP	SEP
	DN25 - 50	2	1	SEP
CA46/CA46S	DN15 - 20	SEP	SEP	SEP
	DN25 - 50	2	1	SEP
CAS14/CAS14S	DN15 - 25	SEP	SEP	SEP

### BRair, BRoil and Airodyn

Product	Group 2 Gases	Group 2 Liquids
BRair	SEP	SEP
BRoil	SEP	SEP
Airodyn	SEP	SEP

- i) The product has been specifically designed for use on compressed air which is in Group 2 of the above mentioned Pressure Equipment Directive.
- ii) BRair, Broil and Airodyn products have been designed for Group 2 only.
- iii) Check material suitability, pressure and temperature and their maximum and minimum values. If the maximum operating limits of the product are lower than those of the system in which it is being fitted, or if malfunction of the product could result in a dangerous overpressure or overtemperature occurrence, ensure a safety device is included in the system to prevent such over-limit situations.
- iv) Determine the correct installation situation and direction of fluid flow.
- v) Spirax Sarco products are not intended to withstand external stresses that may be induced by any system to which they are fitted. It is the responsibility of the installer to consider these stresses and take adequate precautions to minimise them.
- vi) Remove protection covers from all connections before installation.

## 1.2 Access

Ensure safe access and if necessary a safe working platform (suitably guarded) before attempting to work on the product. Arrange suitable lifting gear if required.

## 1.3 Lighting

Ensure adequate lighting, particularly where detailed or intricate work is required.

## 1.4 Hazardous liquids or gases in the pipeline

Consider what is in the pipeline or what may have been in the pipeline at some previous time. Consider: flammable materials, substances hazardous to health, extremes of temperature.

## 1.5 Hazardous environment around the product

Consider: explosion risk areas, lack of oxygen (e.g. tanks, pits), dangerous gases, extremes of temperature, hot surfaces, fire hazard (e.g. during welding), excessive noise, moving machinery.

## 1.6 The system

Consider the effect on the complete system of the work proposed. Will any proposed action (e.g. closing isolation valves, electrical isolation) put any other part of the system or any personnel at risk?

Dangers might include isolation of vents or protective devices or the rendering ineffective of controls or alarms. Ensure isolation valves are turned on and off in a gradual way to avoid system shocks.

## 1.7 Pressure systems

Ensure that any pressure is isolated and safely vented to atmospheric pressure.

Consider double isolation (double block and bleed) and the locking or labelling of closed valves. Do not assume that the system has depressurised even when the pressure gauge indicates zero.

## 1.8 Temperature

Allow time for temperature to normalise after isolation to avoid danger of burns.

If parts made from Viton have been subjected to a temperature approaching 315 °C (599 °F) or higher, they 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.

## 1.9 Tools and consumables

Before starting work ensure that you have suitable tools and/or consumables available. Use only genuine Spirax Sarco replacement parts.

## 1.10 Protective clothing

Consider whether you and/or others in the vicinity require any protective clothing to protect against the hazards of, for example, chemicals, high/low temperature, radiation, noise, falling objects, and dangers to eyes and face.

## 1.11 Permits to work

All work must be carried out or be supervised by a suitably competent person.

Installation and operating personnel should be trained in the correct use of the product according to the Installation and Maintenance Instructions.

Where a formal 'permit to work' system is in force it must be complied with. Where there is no such system, it is recommended that a responsible person should know what work is going on and, where necessary, arrange to have an assistant whose primary responsibility is safety.

Post 'warning notices' if necessary.

## 1.12 Handling

Manual handling of large and/or heavy products may present a risk of injury. Lifting, pushing, pulling, carrying or supporting a load by bodily force can cause injury particularly to the back. You are advised to assess the risks taking into account the task, the individual, the load and the working environment and use the appropriate handling method depending on the circumstances of the work being done.

## 1.13 Residual hazards

In normal use the external surface of the product may be very hot. If used at the maximum permitted operating conditions the surface temperature of some products may reach temperatures of 200 °C (392 °F).

Many products are not self-draining. Take due care when dismantling or removing the product from an installation (refer to Section 6 'Maintenance instructions').

## 1.14 Freezing

Provision must be made to protect products which are not self-draining against frost damage in environments where they may be exposed to temperatures below freezing point.

## 1.15 Safety information - product specific

See the relevant Sections of the attached Installation and Maintenance Instructions for specific details relating to these products.

## 1.16 Disposal

Unless otherwise stated in the Installation and Maintenance Instructions, this product is recyclable and no ecological hazard is anticipated with its disposal providing due care is taken, EXCEPT:

### Viton:

- 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.
- Waste parts are insoluble in aquatic media.

## 1.17 Returning products

Customers and stockists are reminded that under EC Health, Safety and Environment Law, when returning products to Spirax Sarco they must provide information on any hazards and the precautions to be taken due to contamination residues or mechanical damage which may present a health, safety or environmental risk. This information must be provided in writing including Health and Safety data sheets relating to any substances identified as hazardous or potentially hazardous.

## 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

<b>CAS14</b>	fitted with a viton valve cone ½" and ¾"
<b>CAS14S</b>	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 Pressure Equipment Directive (PED) 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-P106-01-EN-ISS1.

### 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.

### 2.3 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

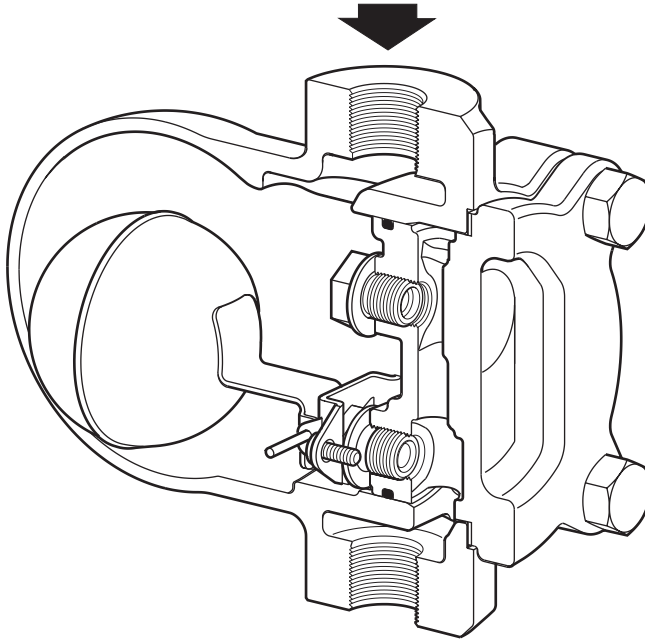


Fig. 1 CAS14 Screwed (vertical down)

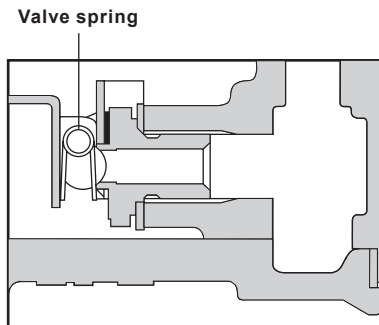
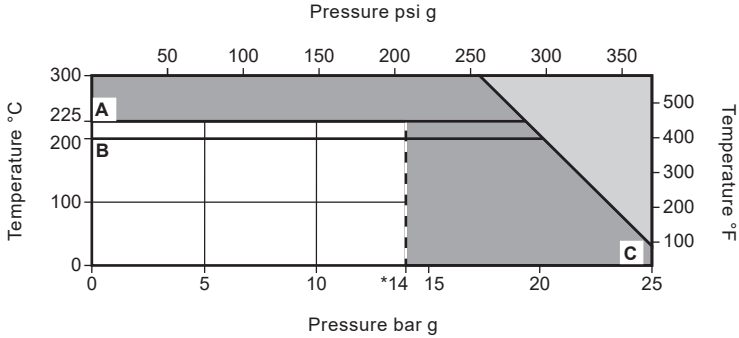


Fig. 2 Section of the main valve assembly - DN25 (1") only

## 2.4 Pressure/temperature limits (ISO 6552)



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.

**A - C** CAS14S

**B - C** CAS14

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

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	<b>CAS14</b>	200 °C (392 °F)
		<b>CAS14S</b>	225 °C (437 °F)
Minimum operating temperature		-20 °C (-4 °F)	
<b>Note:</b> For lower operating temperatures consult Spirax Sarco.			
Designed for a maximum cold hydraulic test pressure of:		37.5 bar g (544 psi g)	

### ΔPMX - Maximum differential pressure

The maximum differential pressure depends on the specific gravity of the liquid being drained.

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

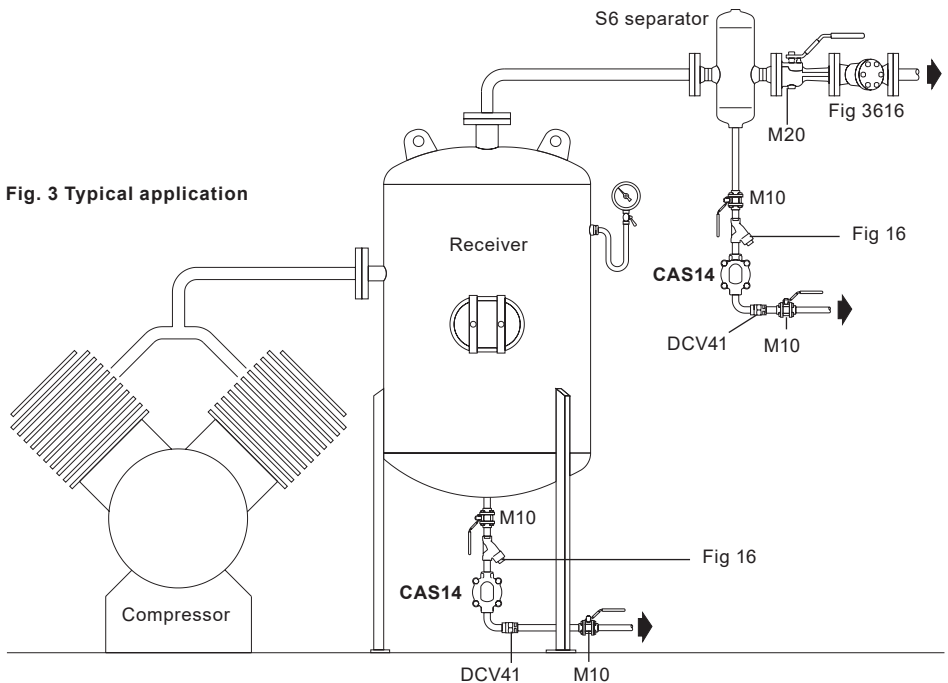


# 3. Installation

**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 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.

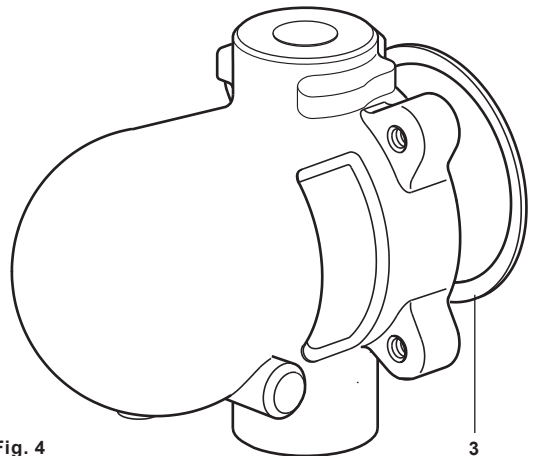


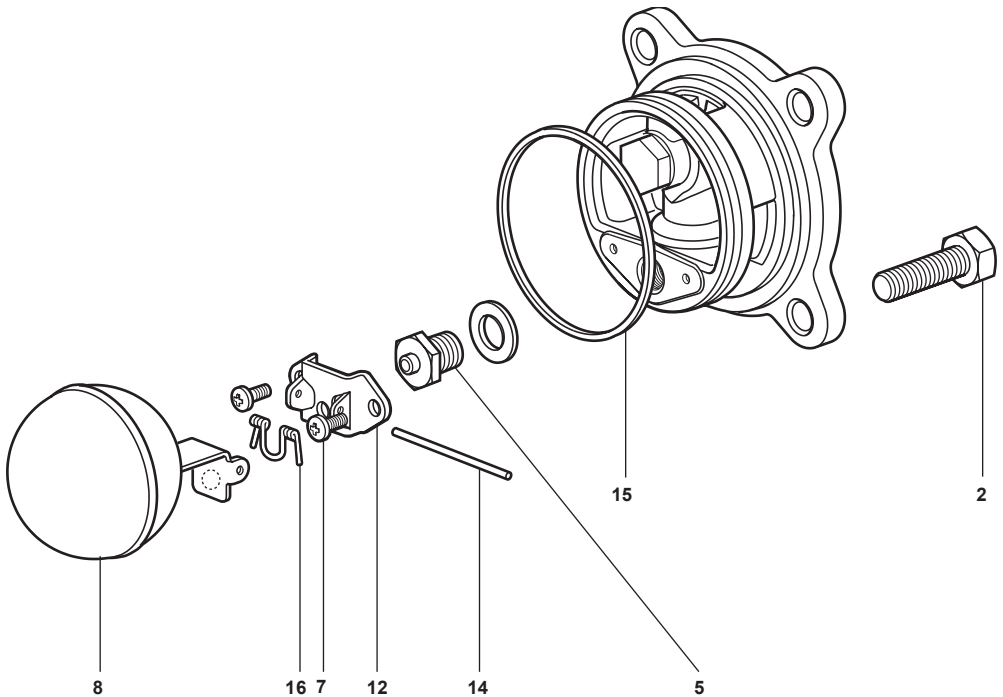
Fig. 4

3

## 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 13).  
**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 13). 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 a grey line are not supplied as spares.

## Available spares

Maintenance kit	<b>CAS14</b>	<b>3, 5, 6, 7 (2 off), 8, 9, 12, 14, 15</b>
	<b>CAS14S</b>	<b>3, 5, 6, 7 (2 off), 8, 9, 12, 14 + 16 (1" only), 15</b>
Seal set		<b>3, 9, 15</b>

## 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 1/2" CAS14 austenitic stainless steel ball float air and gas trap.

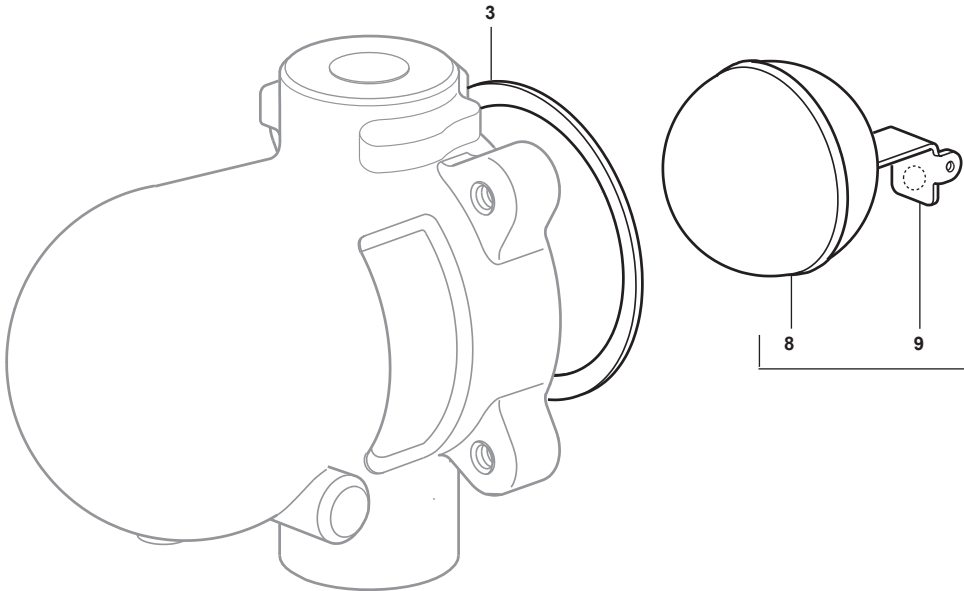
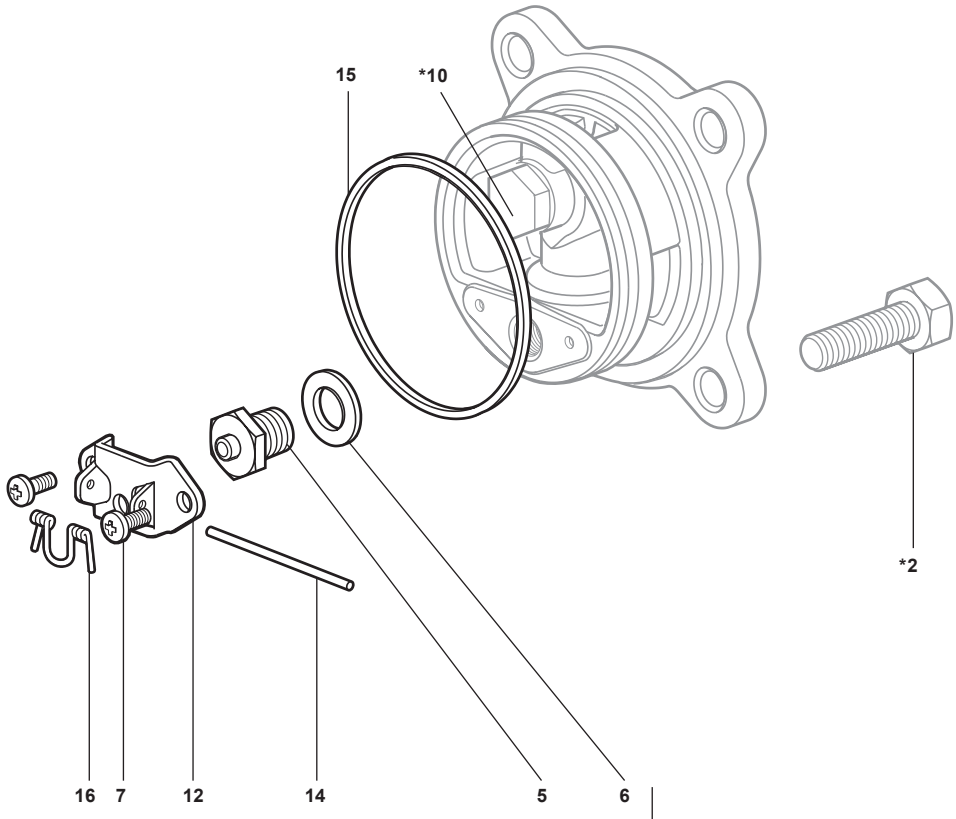


Fig. 5



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



**Main valve assembly**

**Note:** Item 16 is required for the 1" size only

**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)





