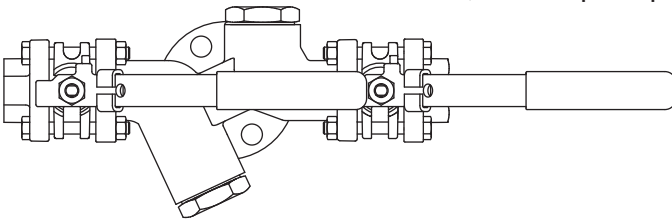


Compact Trapping Module (OEM market only)

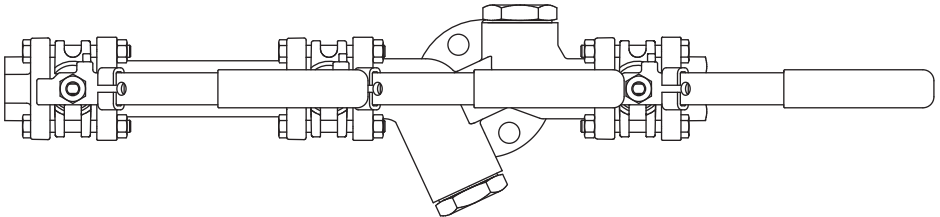
Installation and Maintenance Instructions

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

Single isolation ball valve



Double isolation ball valves



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 1.11) 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 SEP requirements of the EU Pressure Equipment Directive/UK Pressure Equipment

(Safety) Regulations and do not carry the   marks. The products fall within the following Pressure Equipment Directive categories:

Product	Group 1 Gases	Group 2 Gases	Group 1 Liquids	Group 2 Liquids
Compact Trapping Module (DN15 - DN25)	-	SEP	-	SEP

- i) The Compact Trapping Module has been specifically designed for use on steam and condensate that is in Group 2 of the above mentioned pressure equipment directive. For use on other fluids contact Spirax Sarco to confirm suitability of the product for the application being considered.
- ii) 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.
- iii) Determine the correct installation situation and direction of fluid flow.
- iv) 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.
- v) Remove protection covers from all connections and protective film from all name-plates, where appropriate, before installation on steam or other high temperature applications.

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. Valves which are fitted with PTFE seats must not be subjected to temperatures above 260 °C (500 °F). Above these temperatures toxic fumes may be given off.

Avoid inhalation of fumes or skin contact.

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 230°C (446°F).

Many products are not self-draining. Take due care when dismantling or removing the product from an installation (refer to '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 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. However, the product is fitted with PTFE seats, special care must be taken to avoid potential health hazards associated with decomposition/burning of these seats.

PTFE:

- Can only be disposed of by approved methods, not incineration.
- Keep PTFE waste in a separate container, do not mix it with other rubbish, and consign it to a landfill site.

1.16 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 residue's 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 Description

The Compact Trapping Module (CTM13) is designed to provide a convenient, ready to install trapping solution, including upstream and downstream isolation ball valves, cast connector body integrating a debris strainer, quick fit universal steam trap mounting and anti-surge check valve. Lockable handles are a product standard, minimising the possibility of accidental or unauthorised operation.

Available types

The Compact Trapping Module is available with either single or double upstream isolation ball valves offering a steam trapping solution with Spirax Sarco quickfit technology, allowing rapid steam trap maintenance. The following Spirax Sarco universal mounted steam traps (sold separately) are suitable for use with the Compact Trapping Module, enabling it to be tailored to suit any application:

- UTD thermodynamic steam traps.
- UBP balanced pressure steam traps.
- USM bimetallic steam traps.
- UFT ball float steam traps.
- UIB inverted bucket steam traps.

Standards

These products fully comply with the Standard Engineering Practice requirements of the EU Pressure Equipment Directive/UK Pressure Equipment (Safety) Regulations.

Certification

These products are available with certification to EN 10204-1 3.1.

Note: All certification/inspection requirements must be stated at the time of order placement. For other certification contact Spirax Sarco.

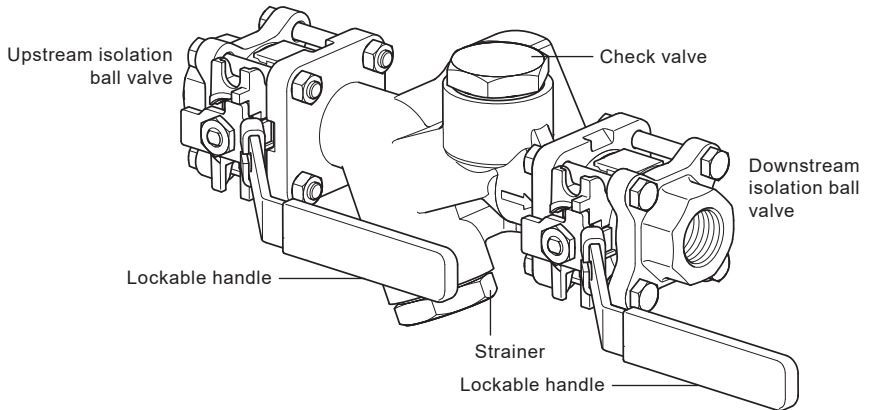
Note: For additional product information see Technical Information Sheet TI-P666-01.

Option

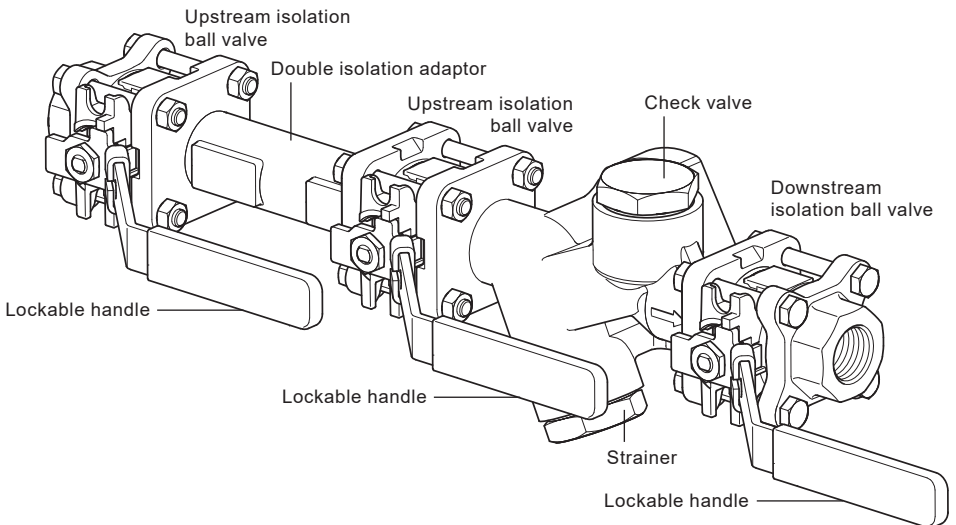
Left to right flow direction as shown, is standard.

Right to left flow direction is an available option (see next page).

Left to right versions



Compact Trapping Module with single isolation ball valve

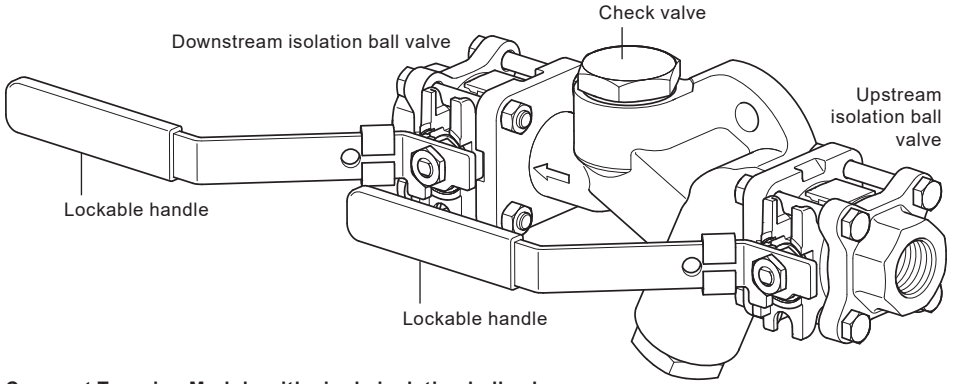


Compact Trapping Module with double isolation ball valves

Fig. 1

Compact Trapping Module (OEM market only)

Right to left version (available option)



Compact Trapping Module with single isolation ball valve

Fig. 2

2.2 Sizes and pipe connections

½", ¾" and 1" screwed BSP to EN 10226-1

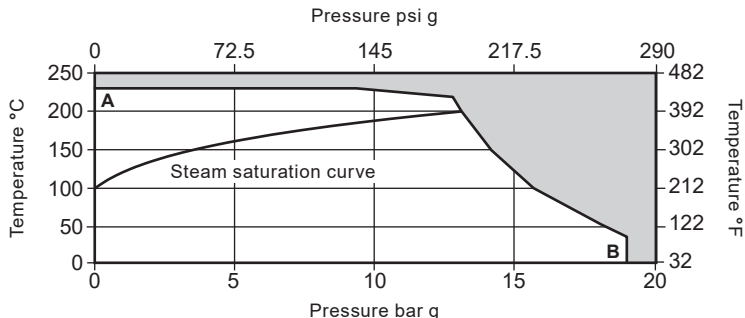
½", ¾" and 1" screwed NPT to ASME B1.20.1

½", ¾" and 1" socket weld to ASME B16.11.

½", ¾" and 1" flange to ASME B16.5 Class 150.

DN15, DN20 and DN25 flange to EN 1092-1 PN16.

2.3 Pressure/temperature limits - ASME 150, screwed and socket weld



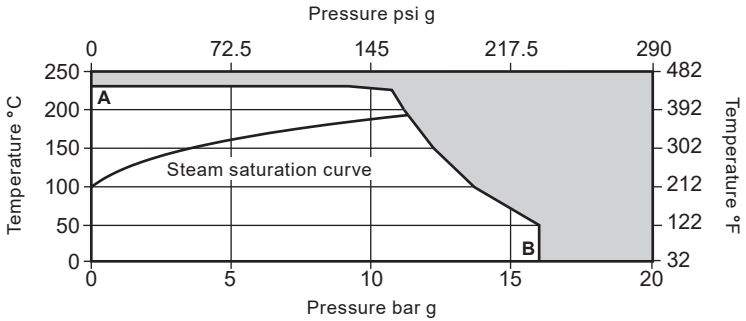
The product **must not** be used in this region.

A - B BSP, NPT, socket weld and ASME B16.5 Class 150 flange

System design conditions		ASME B16.5 Class 150	
PMA	Maximum allowable pressure	19 bar g @ 38 °C	275.5 psi g @ 100.4 °F
TMA	Maximum allowable temperature	230 °C @ 9.3 bar g	446 °F @ 134.8 psi g
Minimum allowable temperature		-10 °C	14 °F
PMO	Maximum operating pressure for saturated steam service ASME B16.5 Class 150, BSP, NPT and socket weld	13.2 bar g	191.4 psi g
TMO	Maximum operating temperature	230 °C @ 9.3 bar g	446 °F @ 134.8 psi g
Minimum operating temperature		-10 °C	14 °F
Designed for a maximum cold hydraulic test pressure of		28.5 bar g	413.3 psi g

Compact Trapping Module (OEM market only)

2.4 Pressure/temperature limits - PN16



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

A - B EN 1092-1 PN16 flange

System design conditions		PN16	
PMA	Maximum allowable pressure	16 bar g @ 50 °C	232 psi g @ 122 °F
TMA	Maximum allowable temperature	230 °C @ 9.3 bar g	446 °F @ 134.8 psi g
Minimum allowable temperature		-10 °C	14 °F
PMO	Maximum operating pressure for saturated steam service	11.4 bar g	165.3 psi g
EN 1092-1 PN16			
TMO	Maximum operating temperature	230 °C @ 9.3 bar g	446 °F @ 134.8 psi g
Minimum operating temperature		-10 °C	14 °F
Designed for a maximum cold hydraulic test pressure of		24 bar g	348 psi g

Compact Trapping Module (OEM market only)

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** Ensure that the directional arrows on the steam trapping station are pointing in the same direction as the fluid flow within the pipeline.
- 3.3** Remove protection covers from all connections and protective film from all name-plates, where appropriate, before installation on steam or other high temperature applications.
- 3.4** Make sure that there will be sufficient access for a steam trap to be fitted to the connector, once the trapping station is installed within the pipeline.
- 3.5** Although the steam trapping station has great structural integrity, severe misalignment and/or the pulling effect of incorrect pipe length will have a detrimental effect on the unit and must be avoided. Particular attention should be paid to correct pipe alignment such that the inlet pipework and valve are all on the same axis.
Ensure operating pipes loads are considered and pipes are adequately supported and anchored.
- 3.6** Care must be taken to ensure any dirt in the connecting pipework is removed before installation, maintain cleanliness during installation since the introduction of dirt can result in damage to the seats within the isolation valves.
- 3.7** To install socket welded versions the following procedure should be followed:
 - Dismantle the end caps from the body.
 - Remove the PTFE seats.
 - Check zinc plating is removed from weld heat affected surfaces.
 - Weld each end cap to the pipeline.
 - Replace the PTFE seats.
 - Reassemble.
- 3.8** Select a quickfit connector steam trap suitable for the application and fit it to the steam trap station using the guidance provided within the Installation and Maintenance Instructions provided with the chosen product.
- 3.9** Insulate exposed high temperature pipes with appropriate proprietary thermal insulation.
- 3.10** For good practice the operating sequence of the double isolation ball valves should be applied as follows. Close the first upstream ball valve, so that the pressure decays from the CTM assembly through the trap, rather than be locked between the two upstream ball valves. Noting that the ball valves are fully open when the handles are in line with the pipe, close the first upstream ball valve, allow pressure to decay, then close middle upstream ball valve, then close the third downstream ball valve. The sequence is reversed to open the ball valves, open the third downstream ball valve first, then the middle upstream ball valve, then the first upstream ball valve.

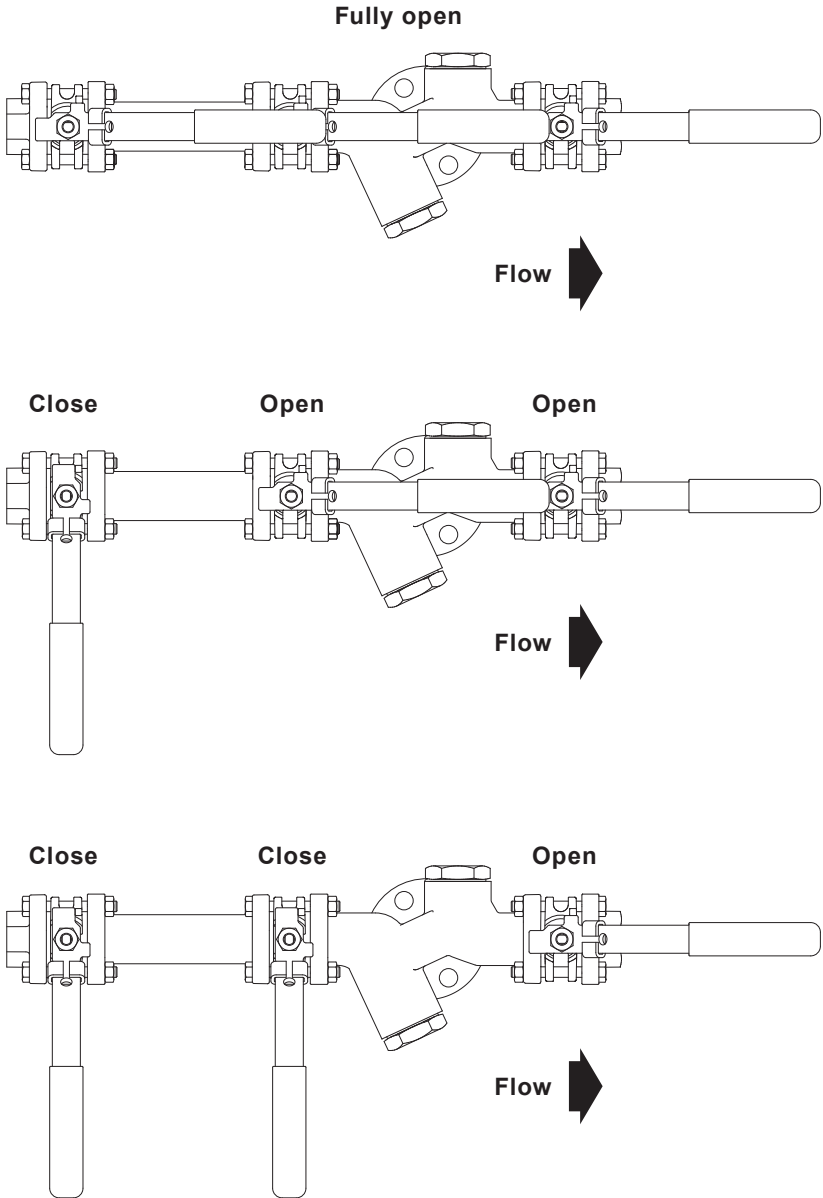


Fig. 3

Compact Trapping Module (OEM market only)

3.11 The Compact Trapping Module can be installed in a horizontal line (Figure 4a), or in a vertical line (Figure 4b) with flow downwards.

The Compact Trapping Module MUST NOT be fitted in a vertical line with the flow upwards - See Figure 5.

Horizontal flow

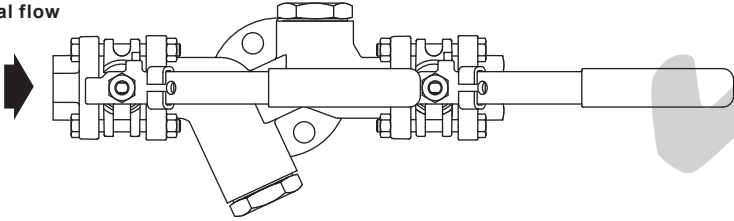


Fig. 4a

Vertical flow downwards

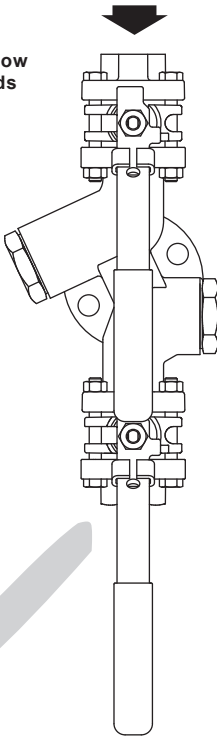


Fig. 4b

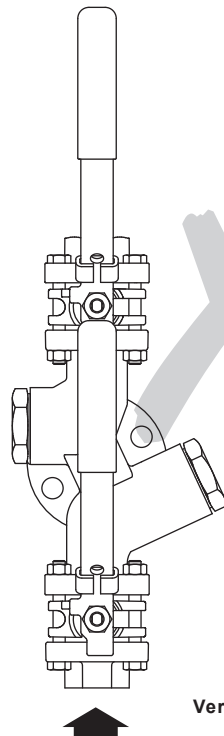


Fig. 5

Vertical flow upwards

Compact Trapping Module (OEM market only)

4. Commissioning

After installation ensure that the system is fully functioning. Carry out tests on any alarms or protective devices. Open isolating valves slowly and ensure that there are no leaks.

5. Maintenance

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

5.1 Introduction

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.

5.2 Maintenance

Some maintenance can be completed with the steam trap station in the pipeline, once the safety procedures have been observed. It is recommended that new gaskets and spares are used whenever maintenance is undertaken. Ensure that the correct tools and necessary protective equipment are used at all times. When maintenance is complete open isolation valves slowly and check for leaks.

5.3 How to access the strainer screen:

- Before starting any maintenance work make sure that the steam trap station is isolated from the mains pressure (both steam and condensate) and that any residual pressure is vented to atmosphere. Allow to cool before commencing work.
- Remove strainer cap (4) and separate it from the strainer screen (9).
- Once the strainer screen (9) has been cleaned or replaced, place it in the recess of the strainer cap (4).
- Using a new cap gasket (8) replace the strainer screen and cap into the body of the Compact Trapping Module and loosely tighten to ensure the screen and gasket locate correctly.
- Tighten to the recommended torque (see Table 1).
- Recommission and ensure that there are no leaks.

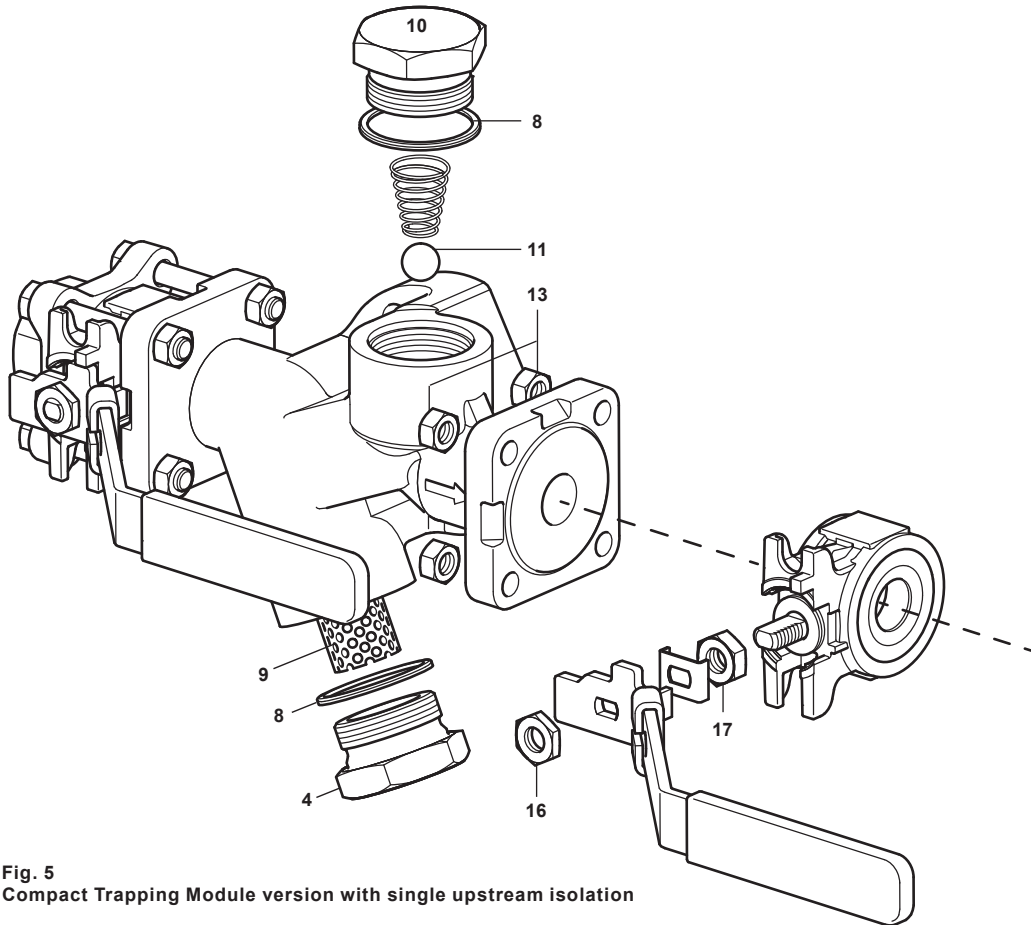




Fig. 5
Compact Trapping Module version with single upstream isolation

Compact Trapping Module (OEM market only)

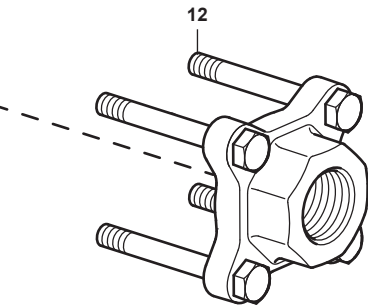
5.4 How to access the check valve ball

- Using a 32 mm A/F spanner, unscrew and remove the check valve blanking plug (10). You can now remove the check valve ball (11) inside the body.
- Replace with a new check valve ball (11).
- Using a new gasket (8), replace the check valve blanking plug (10) and tighten to the recommended torque, see Table 1.

Table 1 Recommended tightening torques

Item	 or  mm	Torque	
		N m	lbf ft
4 and 10	32 A/F M28 x 1.5	170 - 190	126 - 140
12 and 13	10 A/F M6 x 1	10 - 11	7.4 - 8.1
16 and 17	13 A/F	5.4 - 8.1	4 - 6

Clean threads and apply anti-seize compound to thread before tightening to recommended torques



6. Spare parts

There are no spare parts available for this product.