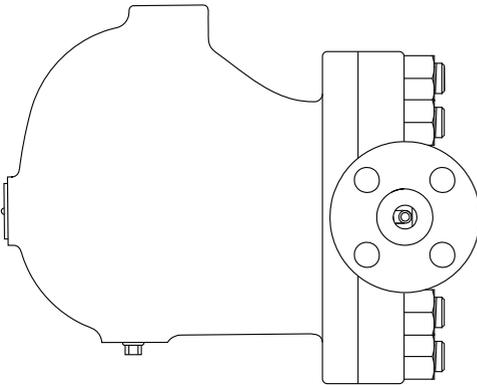

FTC62 and FTS62
Ball Float Steam Traps
Installation and Maintenance Instructions



Flanged FT_62 shown

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

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, product markings and Technical Information Sheet, check that the product is suitable for the intended use/application. The FTC62 and FTS62 comply with the requirements of the European Pressure Equipment Directive 2014/68/EU.

It should be noted that products within this category are required by the Directive to carry the  mark.

Product	Group 2 Gases	Group 2 Liquids
FTC62 and FTS62 DN15, DN20 and DN25	2	SEP

- i) These products have been specifically designed for use on steam, air or condensate/water, which is in Group 2 of the above mentioned Pressure Equipment Directive. The products' use on other fluids may be possible but, if this is contemplated, Spirax Sarco should be contacted to confirm the 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 nameplates, 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 opened and closed progressively 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 the danger of burns.

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 may reach temperatures in excess of 425 °C (797 °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

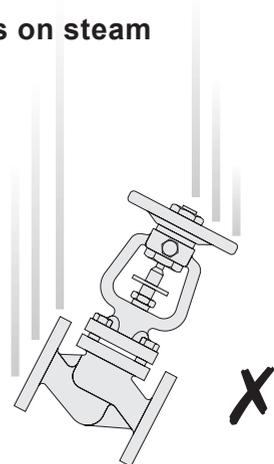
Unless otherwise stated in the Installation and Maintenance Instructions, this product is recyclable and no ecological hazard is anticipated with its disposal providing due care is taken.

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 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.

1.17 Working safely with cast iron products on steam

Cast iron products are commonly found on steam and condensate systems. If installed correctly using good steam engineering practices, it is perfectly safe. However, because of its mechanical properties, it is less forgiving compared to other materials such as SG iron or carbon steel. The following are the good engineering practices required to prevent waterhammer and ensure safe working conditions on a steam system.

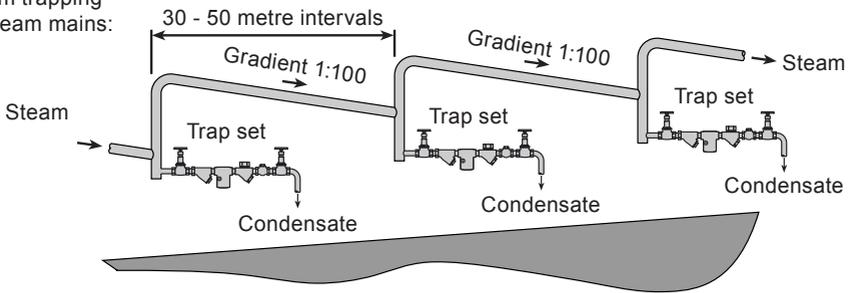


Safe Handling

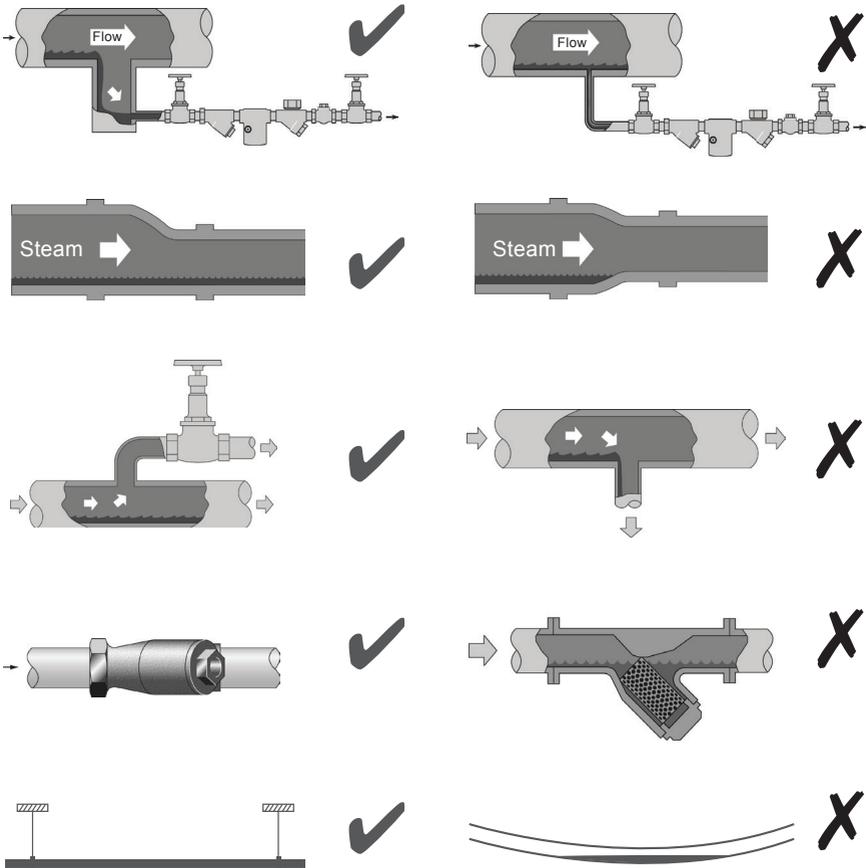
Cast Iron is a brittle material. If the product is dropped during installation and there is any risk of damage the product should not be used unless it is fully inspected and pressure tested by the manufacturer.

Prevention of water hammer

Steam trapping
on steam mains:

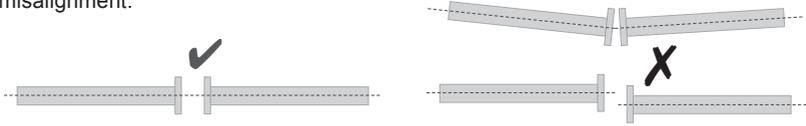


Steam Mains - Do's and Don'ts

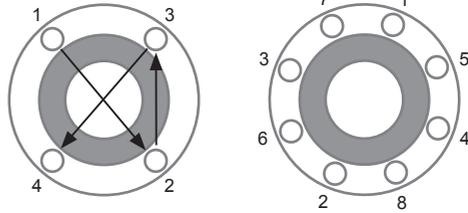


Prevention of tensile stressing

Pipe misalignment:



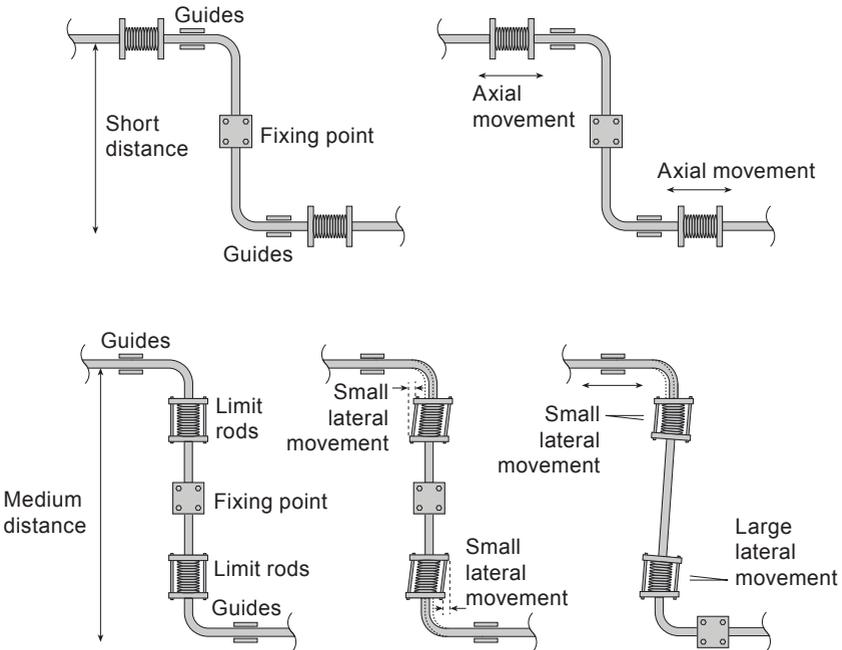
Installing products or re-assembling after maintenance:



Do not over tighten.
Use correct torque figures.

Flange bolts should be gradually tightened across diameters to ensure even load and alignment.

Thermal expansion:



2. General product information

2.1 General description

The FT_62 range of ball float steam traps have an automatic built-in air venting facility.

FT_62 range:

	Model	Body and cover	Optional extra
Available types	FTC62	Carbon steel body with stainless steel internals	On request the cover (2) may have been drilled and tapped for the purpose of fitting a balance line - This option will only be supplied if requested at the time of order placement.
	FTS62	Stainless steel body with stainless steel internals	
Flow options when facing the body	L-R	Has a flow direction of Left-to-Right	
	R-L	Has a flow direction of Right-to-Left	

Standards

These products fully comply with the requirements of the European Pressure Equipment Directive 97/23/EC and carries the  mark.

Certification

These products are available with certification to EN 10204 3.1.

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

Note: For additional product information see the following Technical Information sheets:

FTC62 TI-P179-13

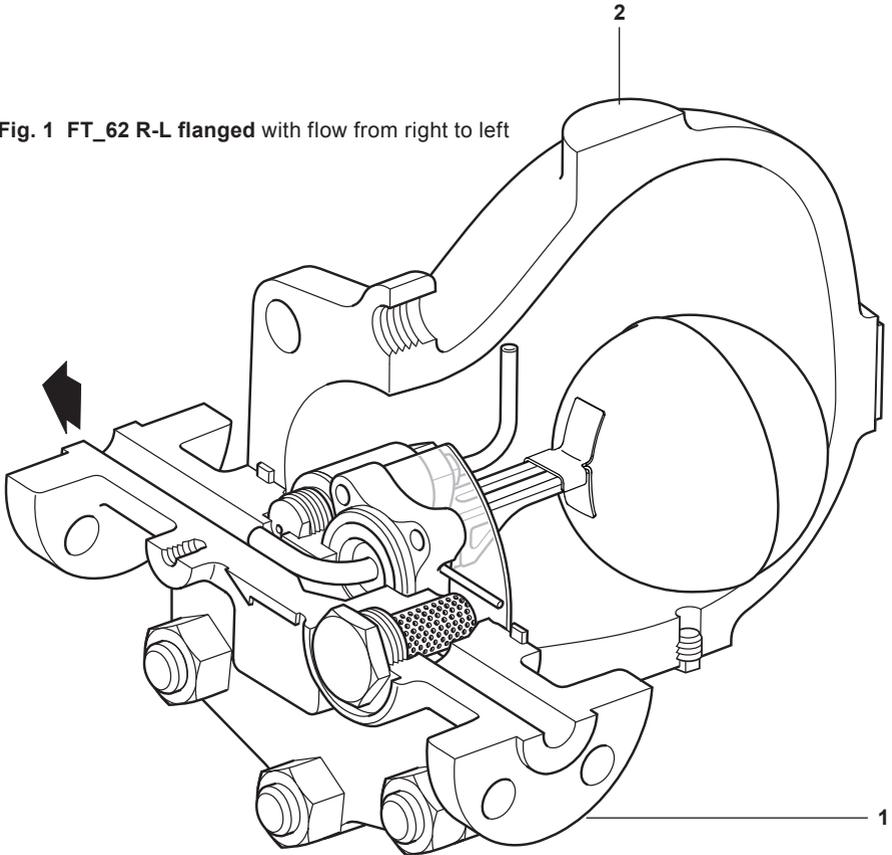
and

FTS62 TI-P179-14

2.2 Sizes and pipe connections

½", ¾" and 1"	Screwed BSP or NPT
½", ¾" and 1"	Socket weld ends to BS 3799 and Class 3000 lbs
Standard flanges:	
DN15, DN20 and DN25	Flanged EN 1092-1 PN100 Please note: For the PN100 variant the material used for the weld on flange is carbon steel 1.0460 for the FTC62 and stainless steel 1.4301 upon the FTS62. The material used for the studs and nuts upon all versions is Studs = ASTM A193 B7 Nuts = ASTM A194 Gr. 4 to EN 10269
½", ¾" and 1"	Flanged ASME B 16.5 Class 600

Fig. 1 FT_62 R-L flanged with flow from right to left

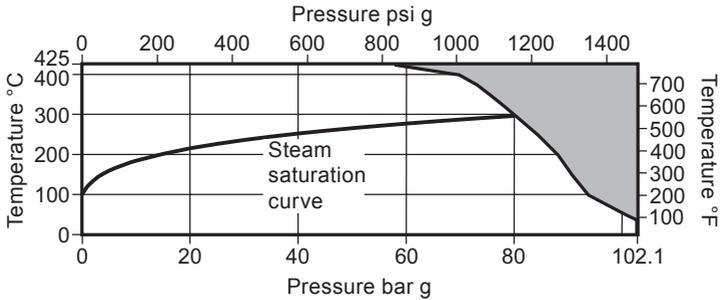


2.3 Pressure / temperature limits (ISO 6552)

FTC62	Screwed	
	Socket weld	see Section 2.4 , page 9
	Flanged ASME Class 600	
	Flanged EN 1092 PN100	see Section 2.5 , pages 10
FTS62	Screwed	
	Socket weld	see Section 2.6 , page 11
	Flanged ASME Class 600	
	Flanged EN 1092 PN100	see Section 2.7 , pages 12

2.4 FTC62 Pressure / temperature limits (ISO 6552)

Screwed, Socket weld and Flanged ASME Class 600

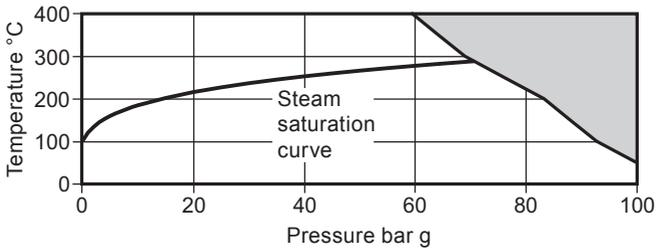


The product **must not** be used in this region or beyond the parameter of the PMA or TMA of the relative end connection.

Body design condition		ASME Class 600	
PMA	Maximum allowable pressure	102.1 bar g @ 38 °C	1480 psi g @ 100 °F
TMA	Maximum allowable temperature	425 °C @ 57.5 bar g	797 °F @ 834 psi g
Minimum allowable temperature		-29 °C	-20 °F
PMO	Maximum operating pressure for saturated steam service	80 bar g @ 296 °C	1160 psi g @ 565 °F
TMO	Maximum operating temperature	425 °C @ 57.5 bar g	797 °F @ 834 psi g
Minimum operating temperature			
Note: For lower operating temperatures consult Spirax Sarco		0 °C	32 °F
Minimum operating differential pressure		0.1 bar g	1.45 psi g
ΔPMX	Maximum differential pressure	FTC62-46	46 bar
		FTC62-62	62 bar
Designed for a maximum cold hydraulic test pressure of:		153.2 bar g	2222 psi g

2.5 FTC62 Pressure / temperature limits (ISO 6552)

Flanged EN 1092 PN100

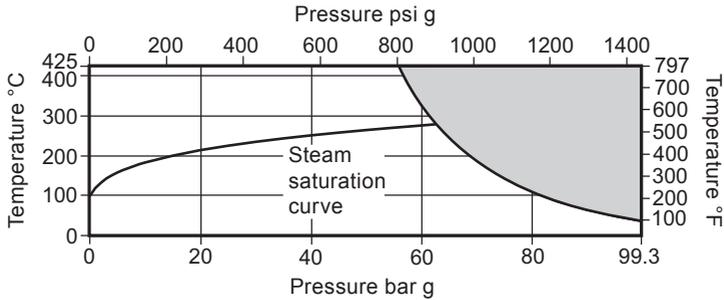


The product **must not** be used in this region or beyond the parameter of the PMA or TMA of the relative end connection.

Body design condition	PN100	
PMA Maximum allowable pressure	100 bar g @ 50 °C	
TMA Maximum allowable temperature	400 °C @ 59.5 bar g	
Minimum allowable temperature	-10 °C	
PMO Maximum operating pressure for saturated steam service	70.8 bar g @ 287 °C	
TMO Maximum operating temperature	400 °C @ 59.5 bar g	
Minimum operating temperature	0 °C	
Note: For lower operating temperatures consult Spirax Sarco		
Minimum operating differential pressure	0.1 bar g	
ΔPMX Maximum differential pressure	FTC62-46	46 bar
	FTC62-62	62 bar
Designed for a maximum cold hydraulic test pressure of:	150 bar g	

2.6 FTS62 Pressure / temperature limits (ISO 6552)

Screwed, Socket weld and Flanged ASME Class 600

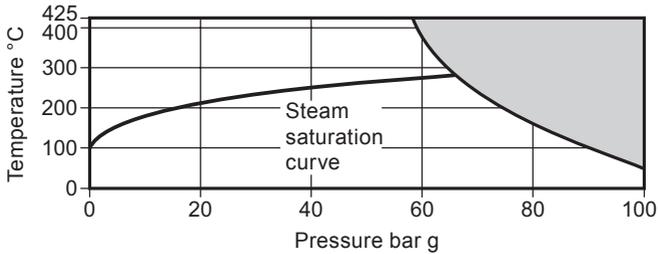


The product **must not** be used in this region or beyond the parameter of the PMA or TMA of the relative end connection.

Body design condition			ASME Class 600	
PMA	Maximum allowable pressure	99.3 bar g @ 38 °C	1440 psi g @ 100 °F	
TMA	Maximum allowable temperature	425 °C @ 56 bar g	797 °F @ 812 psi g	
	Minimum allowable temperature	-29 °C	-20 °F	
PMO	Maximum operating pressure for saturated steam service	63.1 bar g @ 280 °C	915 psi g @ 536 °F	
TMO	Maximum operating temperature	425 °C @ 56 bar g	797 °F @ 812 psi g	
	Minimum operating temperature			
	Note: For lower operating temperatures consult Spirax Sarco	0 °C	32 °F	
	Minimum operating differential pressure	0.1 bar g	1.45 psi g	
ΔPMX	Maximum differential pressure	FTS62-46	46 bar	667 psi g
		FTS62-62	62 bar	899 psi g
	Designed for a maximum cold hydraulic test pressure of:	149 bar g	2 161 psi g	

2.7 FTS62 Pressure / temperature limits (ISO 6552)

Flanged EN 1092 PN100



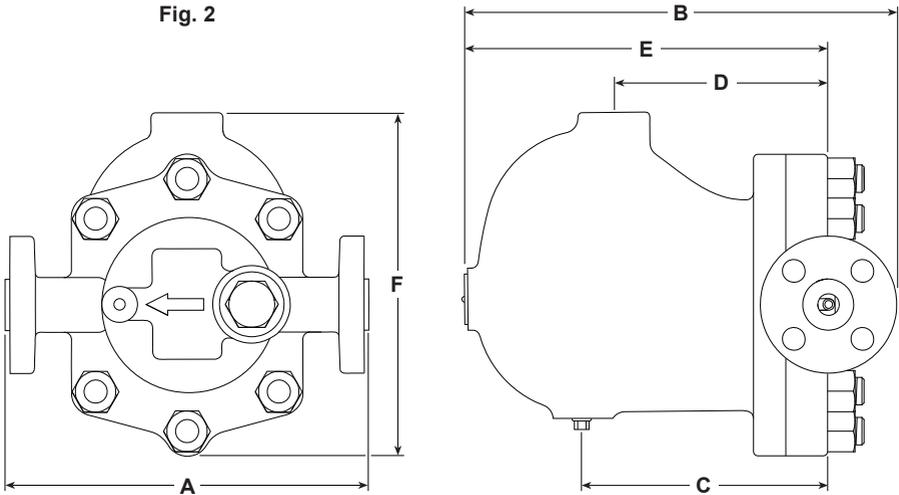
 The product **must not** be used in this region or beyond the parameter of the PMA or TMA of the relative end connection.

Body design condition		PN100
PMA	Maximum allowable pressure	100 bar g @ 50 °C
TMA	Maximum allowable temperature	425 °C @ 58.9 bar g
Minimum allowable temperature		-29 °C
PMO	Maximum operating pressure for saturated steam service	65.8 bar g @ 283 °C
TMO	Maximum operating temperature	425 °C @ 58.9 bar g
Minimum operating temperature		0 °C
Note: For lower operating temperatures consult Spirax Sarco		
Minimum operating differential pressure		0.1 bar g
ΔPMX	Maximum differential pressure	FTS62-46
		FTS62-62
Designed for a maximum cold hydraulic test pressure of:		150 bar g

2.8 Flanged - dimensions / weights (approximate) in mm and kg

Notes: 1. PN100 EN 1092-1 and ASME 600 B 16.5 face-to-face dimensions

Fig. 2

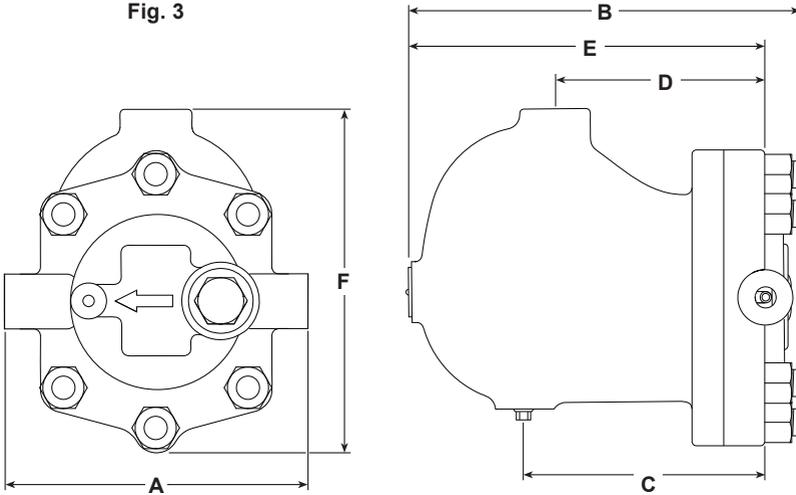


Size	Flanged						Common sizes			
	PN100			ASME 600			C	D	E	F
	A	B	Weight	A	B	Weight				
DN15	300	304.0	25.0	261	299	24.0	172.5	148	251.5	239
DN20	300	316.5	26.0	271	309	25.5	172.5	148	251.5	239
DN25	300	321.5	28.0	291	314	27.0	172.5	148	251.5	239

2.9 Screwed and socket weld - dimensions / weights (approximate) in mm and kg

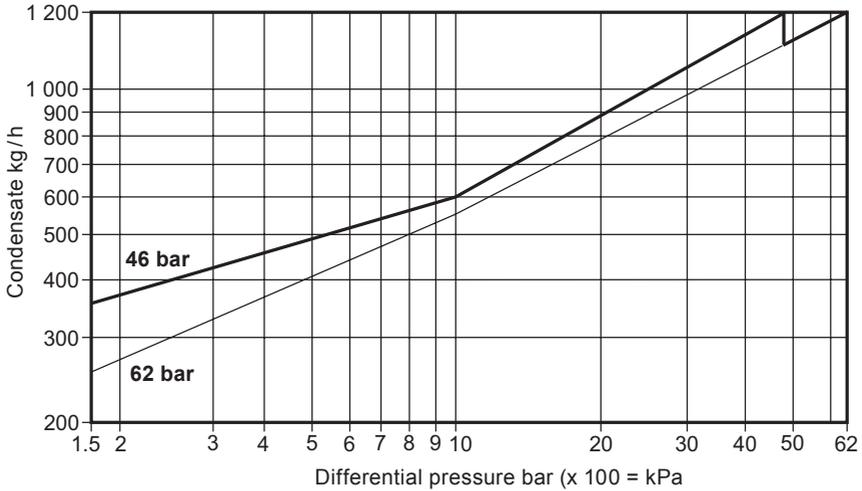
Notes: 1. PN100 EN 1092-1 and ASME 600 B 16.5 face-to-face dimensions

Fig. 3



Size	Screwed and Socket weld			Common sizes			
	A	B	Weight	C	D	E	F
DN15	190	287.5	22.0	172.5	148	251.5	239
DN20	190	287.5	22.0	172.5	148	251.5	239
DN25	190	287.5	22.0	172.5	148	251.5	239

2.10 Capacities



Capacities shown above are based on condensate at saturation temperature. When discharging sub-cooled condensate the air vent provides extra capacity. Under start-up conditions when condensate is cold the internal bi-metallic air vent will be open and provides additional capacity to the main valve. **The following table gives the minimum additional cold water capacities from the air vent on all sizes.**

Note : The Air vent closing temperature range = 120 °C to 135 °C

For differential pressures less than 1.5 bar g, the additional cold water capacity is minimal.

ΔP (bar)	1.5	10	30	46	62
FTC62	Minimum additional cold water capacity (kg/h)				
46 bar version	20	426	536	800	
62 bar version	20	350	440	930	800

3. Installation

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

Warning

Note 1 : The FT62 must be installed with the direction of flow as indicated on the body.

Ensuring the float arm is in the horizontal plane so that it rises and falls vertically.

Note 2 : Its recommended that a strainer is fitted upstream of the trap and that sound engineering practice is followed and that the system undergoes regular maintenance to ensure the steam quality is to industry standard.

Note 3 :

The installation of the trap needs to be carried having selected nuts, bolts and gaskets to adhere to Industry Standards.

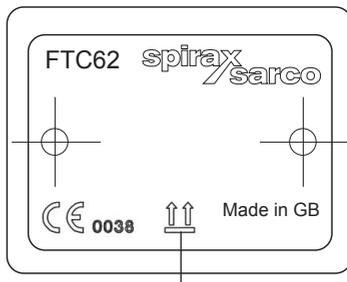
The nuts and bolts should be tightened to the required torque cited in the Industry Standard.

Referring to the Installation and Maintenance Instructions, product markings and Technical Information Sheet, check that the product is suitable for the intended installation:

- 3.1** Check materials and maximum pressure / temperature 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 direction of fluid flow – please be aware that the flow direction is not the same for all FT_62 trap types or sizes. However the flow direction will be clearly marked on the trap body.
- 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** The trap must be fitted with the float arm in a horizontal plane so that it rises and falls vertically. **Note:** The trap can be visually checked for its correct orientation by reading the displayed writing on the body, cover, and name-plate. The writing will be seen to be displayed the correct way up when the unit has been installed correctly.
- 3.5** The trap should be fitted below the outlet of the steam system, with a small drop leg immediately proceeding the trap, typically 150 mm (6"). If no drop leg is allowed for then it may be possible (under low load conditions) for steam to flow over the condensate in the bottom of the pipe and reach the trap.
- 3.6** If the trap is to be situated in an exposed position, it should be either lagged or drained by a separate small thermostatic trap such as the Spirax Sarco No.8, or Bydrain.
- 3.7** Always fit a non-return (check) valve downstream of any steam trap which discharges into condensate return lines where backpressure is experienced. This is not commonly caused by a rising condensate line. The check valve will prevent the steam space flooding when the inlet pressure is reduced or the steam is shut off.
- 3.8** Ensure adequate space is left to remove the cover from the body for maintenance – the maximum withdrawal to remove the cover is 250 mm (10").

Note: If the trap is to discharge to atmosphere, ensure that it is to a safe place. The discharging fluid may be at a temperature of 100 °C (212 °F).

Fig. 4



The nameplate indicates 'This Way Up'

4. Commissioning

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

After installation or maintenance always open isolation valves slowly to mitigate system shocks and check for leaks. Ensure that the system is fully functional and carry out tests on any alarms or protective devices.

The trap can be cold hydraulic tested, up to 1.5 times the PMA as per section 2, without the need to remove any internals. At pressures beyond this limit, permanent damage may occur to the float that would render the trap inoperative.

5. Operation

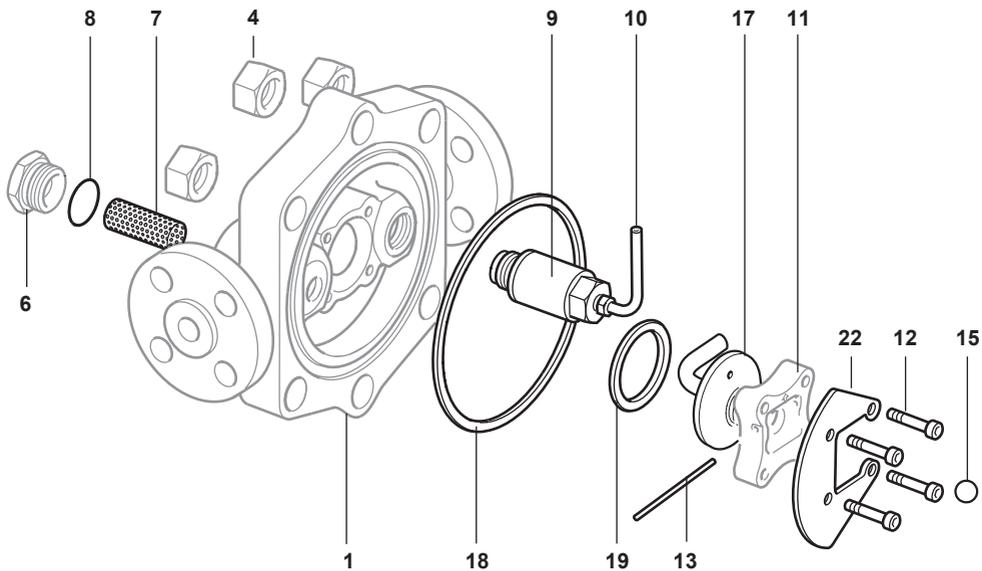
The ball float trap is a continuous discharge device, removing condensate the instant it forms. On start-up, the bimetallic air vent allows air to bypass the main valve preventing the system air binding. Hot condensate will close the air vent tightly, but as soon as it enters the main chamber of the 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 the steam arrives, the float drops and closes the main valve. Float traps are renowned for their high start-up load handling capability, clean tight shut-off and resistance to waterhammer and vibration.

6. Spare parts and Maintenance

Note: Before actioning any maintenance 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.



Recommended tightening torques

Item	Part	Inch or mm		N m	lbf ft
					
3	3/8" NPT Square head plug	11 mm A/F	3/8" NPT	As required	
4	3/4" UNF Hex. Nut	1.125" A/F	3/4" UNF	252-260	186-192
6	Strainer cap	32 mm A/F	M28 x 1.5	170-190	125-140
9	Air vent assembly	24 mm A/F	M22 x 1.5	80-88	59-65
10	Air vent tube assembly	11 mm A/F	M10 x 1.5	10-12	7-9
12	M6 x 30 Socket head cap screw	5 mm A/F (Hex Key)	M6	14-16	10-12

6.1 Spare parts

The spare parts available are shown in solid outline. Parts drawn in a grey line are not supplied as spares.

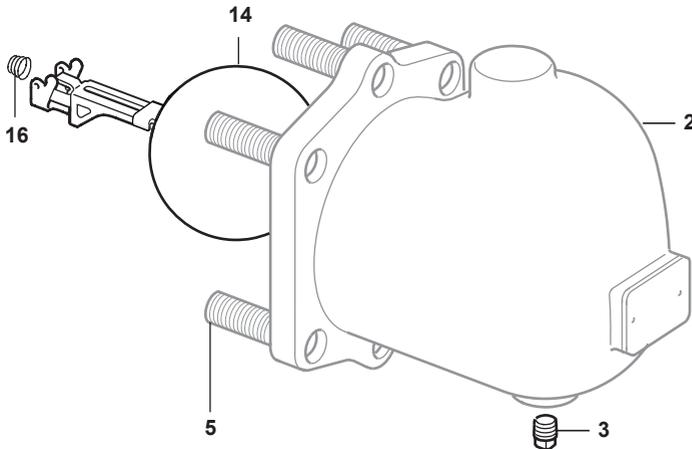
Available spares

Body / cover gasket kit	18
Air vent assembly + Air vent tube	9 and 10
Strainer screen + 'S' type gasket	7 and 8
	3
	12
	13
	14
Maintenance kit	15
	16
	17
	8, 18 and 19
	22
Overhaul kit	3, 7, 8, 9, 10, 12, 13, 14, 15, 16, 17, 18, 19 and 22

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, including pressure range.

Example: 1 - Maintenance kit for a Spirax Sarco DN25 FTC62-62 ball float steam trap.

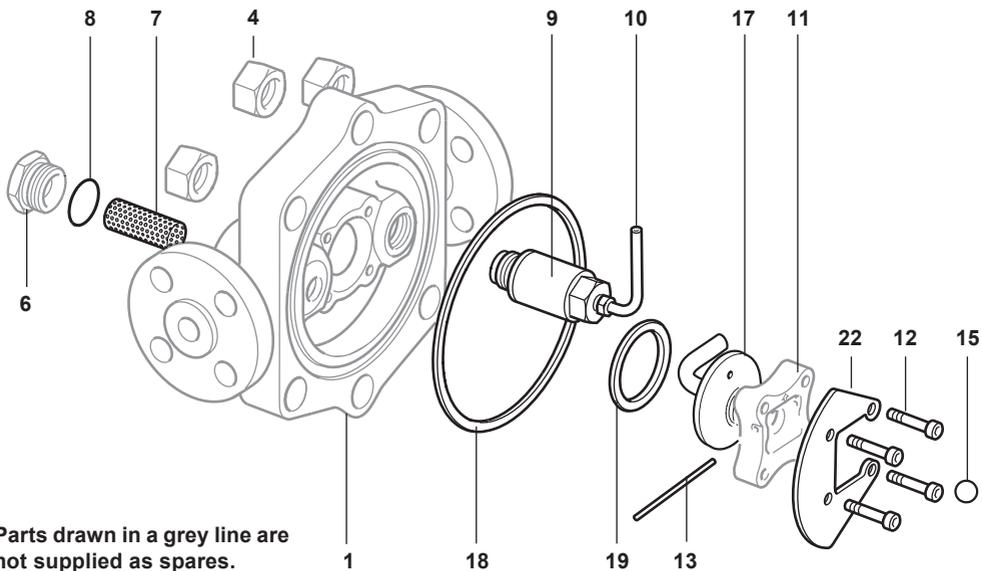


6.2 Maintenance

General safety information:

- With suitable isolation, repairs can be carried out with the trap in the pipeline.
- When reassembling, make sure that all joint faces are clean.

Service being executed upon the valve can be undertaken with the Float in situ in a line or securely fastened in a vice.



Recommended tightening torques

Item	Part	Inch or mm		N m	lbf ft
					
3	3/8" NPT Square head plug	11 mm A/F	3/8" NPT	As required	
4	3/4" UNF Hex. Nut	1.125" A/F	3/4" UNF	252-260	186-192
6	Strainer cap	32 mm A/F	M28 x 1.5	170-190	125-140
9	Air vent assembly	24 mm A/F	M22 x 1.5	80-88	59-65
10	Air vent tube assembly	11 mm A/F	M10 x 1.5	10-12	7-9
12	M6 x 30 Socket head cap screw	5 mm A/F (Hex Key)	M6	14-16	10-12

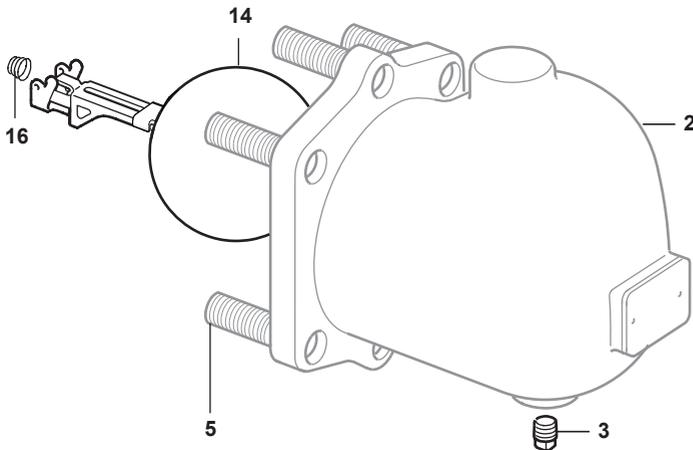
6.2.1 Pre-assembly of the main valve

- Holding the lever arm and float vertically with the float downward.
- Place the conical spring (16) in the box at the end of the lever arm, with the small diameter of the conical spring facing upward, place the ball (15) upon the top of the spring.
- Insert the pin (13).
- Insertion of the pin holds the parts in place until the pre-assembly is to be mounted within the trap.

6.2.2 Valve seat and discharge assembly

- Gain access to the internals by removal of the cover (2) by undoing the six 3/4" UNF (4) nuts holding the cover in place.
- Withdraw the Pin (13), remove the float assembly (14), stainless ball (15) and conical spring (16)
- Unscrew the four M6 screws (12), remove the seat clamp (11) hence permitting removal of the valve seat and discharge assembly (17) together with the baffle plate (22).
- Replace old with new, and repeat the process in reverse, torquing the screws (12), and cover nuts and studs as indicated in the table. See Section 6.2.5 for indication of tightening sequence of 3/4" UNF (4) nuts and M6 (12) screws.

Note : Ensuring the arrow on the Seat Clamp(11) points upwards

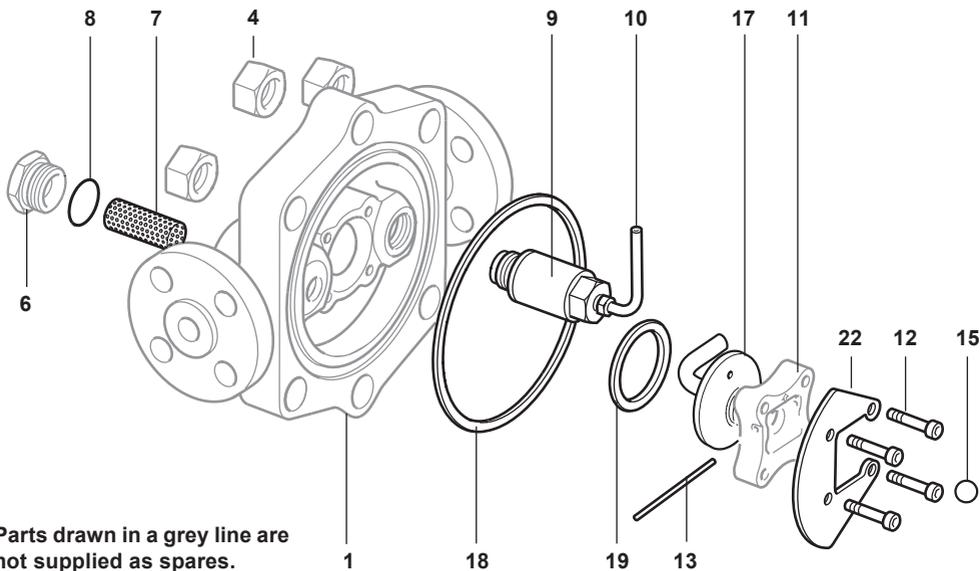


6.2.3 Replacing the Air vent assembly

- Gain access to the internals by removal of the cover (2) by undoing the six 3/4" UNF (4) nuts holding the cover in place.
- Then remove the air vent assembly (9) and the air vent tube (10).
- Put a little anti-seize on the thread of the new air vent assembly (9) together with the tube (10) preassembled, tighten following the guidance of the torque setting in the table.

Note 1 : The air vent tube must be aligned and pointing in the same direction as the directional arrow upon the seat clamp (11)

Note 2 : when the internals have been assembled, with the pin (13) fully inserted so that it touches the Air Vent assembly it may appear long, do not cut it, it is purposely long to inhibit that with vibration its movement is limited, therefore, it is impossible for it to become free.



Parts drawn in a grey line are not supplied as spares.

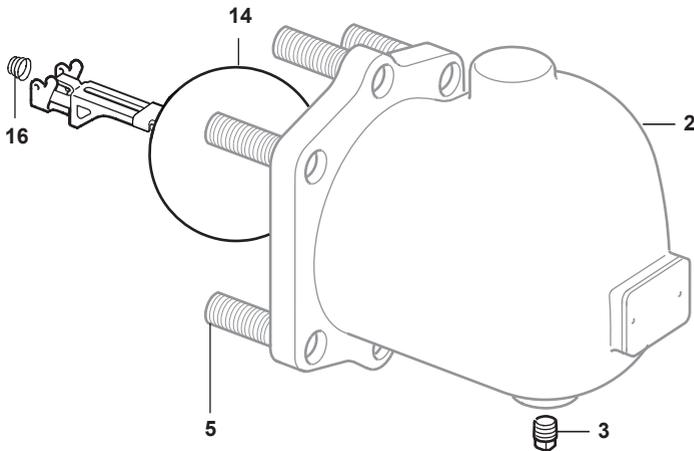
Recommended tightening torques

Item	Part	Inch or mm		N m	lbf ft
					
3	3/8" NPT Square head plug	11 mm A/F	3/8" NPT	As required	
4	3/4" UNF Hex. Nut	1.125" A/F	3/4" UNF	252-260	186-192
6	Strainer cap	32 mm A/F	M28 x 1.5	170-190	125-140
9	Air vent assembly	24 mm A/F	M22 x 1.5	80-88	59-65
10	Air vent tube assembly	11 mm A/F	M10 x 1.5	10-12	7-9
12	M6 x 30 Socket head cap screw	5 mm A/F (Hex Key)	M6	14-16	10-12

6.2.4 How to clean or replace the strainer screen:

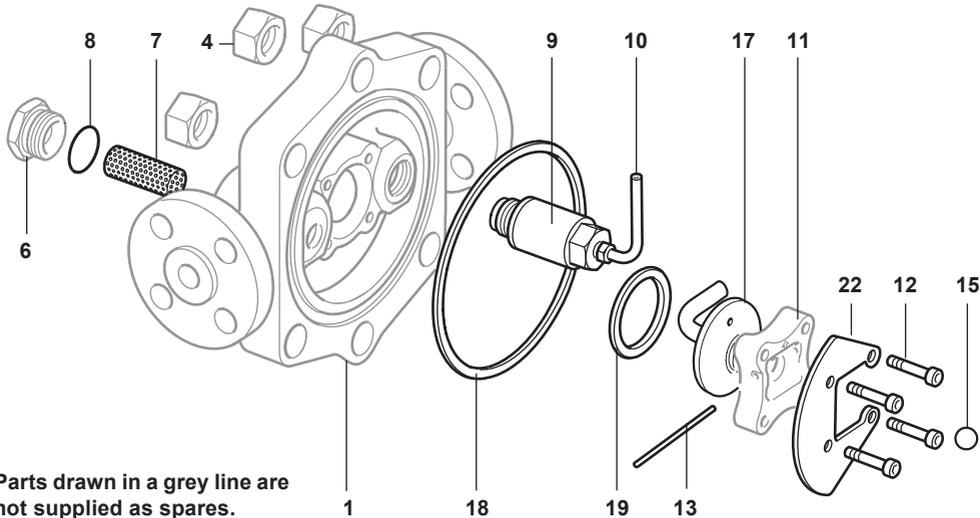
- Access to the strainer screen can be obtained by removing the strainer cap (6).
- Remove the strainer screen (7) and gasket (8).
- Fit a new or cleaned strainer screen into the recess in the cap (6).
- A new gasket (8) must always be fitted and the cap (6) screwed into the body and tighten to the recommended torque (170-190 Nm).

Note: A suitable anti-galling thread lubricant must be used.



6.2.5 General notes

- Smear threads (both ends) of the studs (5) and also of items 6, 9 and 12 with with a suitable anti-seize compound, such as FUCHS PCB or ROCOL J166, taking care the compound does not come into contact with any sealing surfaces.
- The contact faces of the 3/4" UNF nuts (4) are also to be smeared with anit-sieze.
- 3/4" UNF nuts (4) to be assembled with the face containing the heat number outermost.
- 3/4" UNF nuts (4) to be tightened in three stages, first 60% and then 80% of the finished torque rating before being finally tightened to the figure in the torque table, all in the sequence in Figure 5 opposite each stage to be repeated at least twice to ensure even gasket compression.
- M6 cap screws (12) to be tightened in three stages also, firstly 60% and then 80% of finished torque before being finally tightened to the figure in the torque table all in the sequence in Figure 6 opposite.
- Apply jointing compound to the thread of Item 3. **Do not use PTFE tape.**

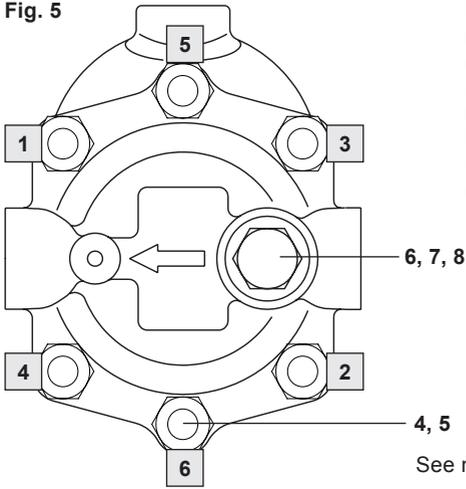


Parts drawn in a grey line are not supplied as spares.

Recommended tightening torques

Item	Part	Inch or mm		N m	lbf ft
					
3	3/8" NPT Square head plug	11 mm A/F	3/8" NPT	As required	
4	3/4" UNF Hex. Nut	1.125" A/F	3/4" UNF	252-260	186-192
6	Strainer cap	32 mm A/F	M28 x 1.5	170-190	125-140
9	Air vent assembly	24 mm A/F	M22 x 1.5	80-88	59-65
10	Air vent tube assembly	11 mm A/F	M10 x 1.5	10-12	7-9
12	M6 x 30 Socket head cap screw	5 mm A/F (Hex Key)	M6	14-16	10-12

Fig. 5



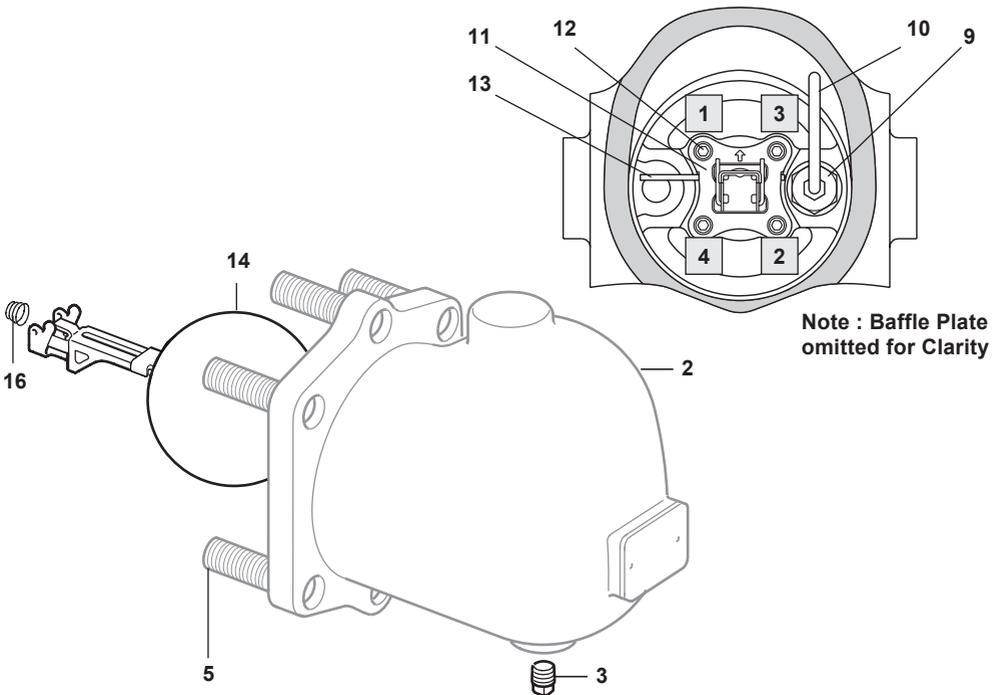
For Left-to-Right options the body (1) is rotated through 180° regardless of flow direction the open end of the air vent tube sub-assembly (10) must always be uppermost.

Regardless of flow direction the arrow on the seat clamp (11) must always be pointing upwards.

See notes for torque tightening procedure

See notes for torque tightening procedure

Fig. 6



Note : Baffle Plate omitted for Clarity

