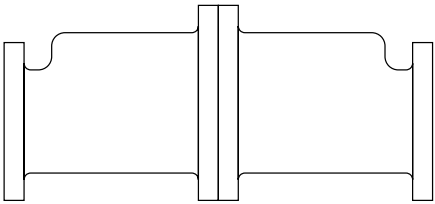
IM-P084-02
ST Issue 5

# FT12
# Cast Iron Float / Orifice Trap
## 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 body/cover gasket contains a thin stainless steel support ring which may cause physical injury if it is 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.**

## Disposal

**The product is recyclable. No ecological hazard is anticipated with the disposal of this product providing due care is taken.**

# 2. General product information

## 2.1 General description

The FT12 is a unique steam trap which utilises a large fixed orifice to handle very high condensate loads up to differential pressures of 4 bar (58 psi). An integral float trap mechanism provides a variable capacity in addition to the orifice. Minimum flowrates are required to avoid blowthrough and these depend on the orifice selected A, B, C or D.

The FT12 is manufactured in cast iron with DN150 (6") flanged connections. It is designed specifically for the sugar industry, which has inherently low pressure, high load steam systems.

**Note:** For additional information see the Technical Information Sheet TI-P084-01.

## 2.2 Size and pipe connections

DN150 flanged PN16 and ANSI 125 (Flanges to BS 10 Table D can be supplied to special order).

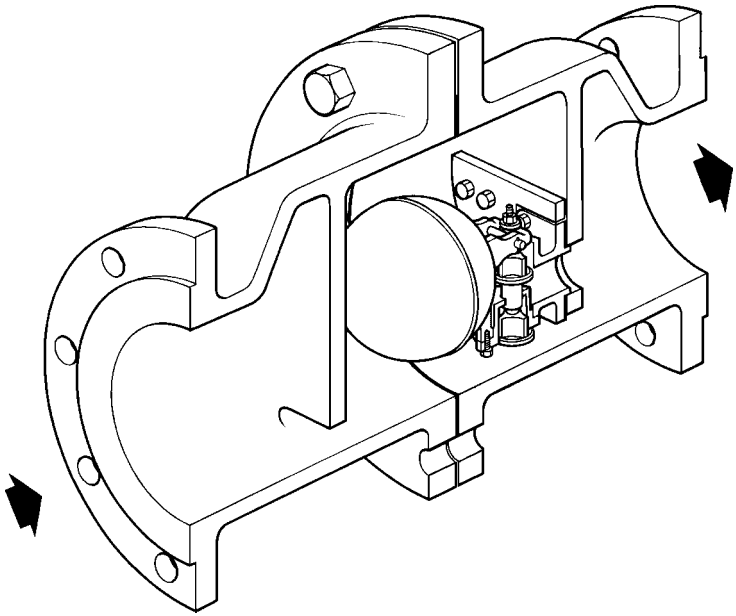
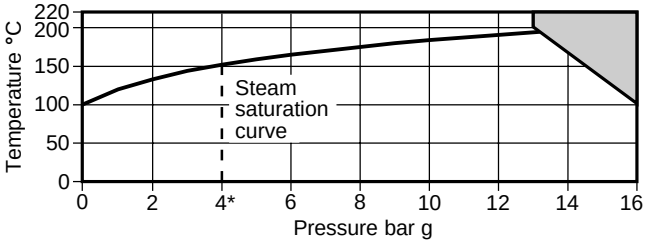


**Fig. 1**

## 2.3 Limiting conditions

| Body design conditions | | PN16 |
|---|---|---|
| PMA - Maximum allowable pressure | 4 bar g | (58 psi g) |
| TMA - Maximum allowable temperature | 220°C | (428°F) |
| PMO - Maximum operating pressure | 4 bar g | (58 psi g) |
| TMO - Maximum operating temperature | 220°C | (428°F) |
| Designed for a maximum cold hydraulic test pressure of: | 24 bar g | (348 psi g) |

## 2.4 Operating range




The product must not be used in this region.

*****PMO Maximum operating pressure recommended for saturated steam 4 bar g (58 psi g).

# 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 fluid flow.

**3.3** Remove protective covers from all connections.

**3.4** The trap is designed for installation in a horizontal plane. A typical installation is shown in Figure 2. Where air is present as part of the process cycle a separate thermostatic air vent can be fitted in parallel.

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

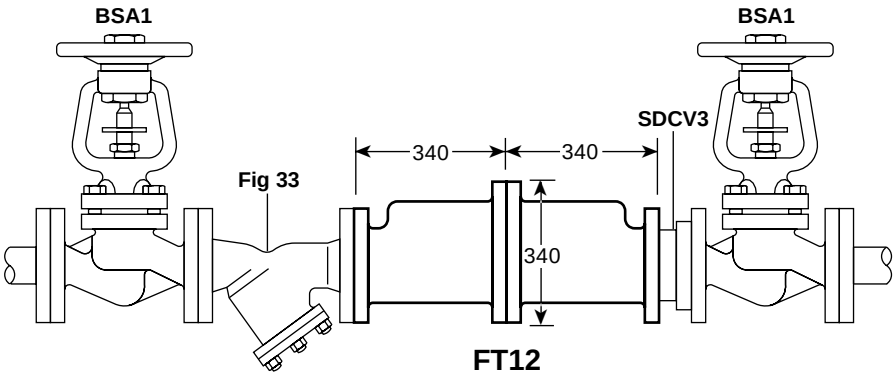



**Fig. 2 Dimensions** approximate in mm **Weight** approximately 82 kg

# 4. Commissioning

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

# 5. Operation

## 5.1 General information

The ball float steam trap is a continuous discharge trap, removing condensate the instant it forms. On start-up, the addition of a thermostatic air vent (if required) 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 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 steam arrives, the float drops and closes the main valve. Float traps are renown for their high start-up load handling capability, clean tight shut-off and resistance to waterhammer and vibration.

## 5.2 Trap operation

It is important that the FT12 is sized correctly to the running load of the plant being drained. See Technical Information Sheet TI-P084-01 for full details on 'Capacities - How to select / size the trap'.

The fixed orifice (available in four different cross sectional areas A, B, C, or D) will pass a set amount of condensate at any given differential pressure consequently it is important that loads are constant. If the condensate load drops below the minimum value shown then steam will also pass through the trap. A separate float trap mechanism provides additional capacity should the condensate level build up to the maximum value shown on the graph. Correct sizing will ensure that the plant condensate flow is between the minimum and maximum flowrates shown.

# 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 How to fit the main valve assembly:

- Remove the trap from the pipeline, using a suitable spanner, withdraw the eight body bolts (**2**).
- Remove the main valve assembly, by unscrewing the four bolts (**6**).
- Withdraw the main valve assembly and replace with a new one.
- Replace bolts and tighten evenly.
- Replace cover gasket and tighten cover bolts to the recommended torque (see Table 1).

## 6.2 How to fit the orifice plate:

- Remove the trap from the pipeline, using a suitable spanner, withdraw the eight body bolts (**2**).
- Remove the main valve assembly, by unscrewing the four bolts (**6**), and the four bolts (**9**) which secure the orifice plate, and then remove.
- A new orifice plate should be fitted in the reverse order, and all screws tightened to the recommended torque (see Table 1).

## Table 1 Recommended tightening torques

| Item | Part |  | or  mm | N m | (lbf ft) |
|---|---|---|---|---|---|
| **2** | Cover bolts / nuts | 32 A/F | M22 x 90 | 160 - 180 | (117 - 132) |
| **6** | Main valve assembly bolts | | M8 x 20 | 20 - 24 | (15 - 17) |
| **9** | Orifice plate bolts | | M8 x 20 | 20 - 24 | (15 - 17) |

# 7. Spare parts

The spare parts available are shown in heavy outline. Parts drawn in broken line are not supplied as spares.

## Available spares

| | |
|---|---|
| Main valve assembly with float | 4, 5, 6, 7, 8 |
| Orifice plate (state A, B, C or D) | 8, 9 |
| Set of body gaskets (packet of 3) | 3 |
| Set of body nuts and bolts | 2 |

## 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 - Main valve assembly for DN150 FT12-D float trap.