Description

FT_23 ball float steam traps are suitable for use with saturated and superheated steam, on process equipment, and the first choice for drainage of temperature controlled systems.

They are the perfect choice in solving problems caused by steam that is carrying solid and incondensable contaminants such as salts and gasses; These quickly lead to fouling and the accumulation of sediment and debris, resulting in failure of the internal mechanism. They are typically used on geothermal steam.

The main design feature is the innovative self-cleaning float closing mechanism, which allows automatic safe operation even in cases of severe steam contamination. Furthermore, the position and size of the main valve and seat makes it easier for the discharge of condensate and solid contaminant. The trap is able to modulate the condensate flow adapting immediately to sudden and large variations of flow and pressure.

Another key feature of the unit is the external manual lever that allows the valve ball to be fully opened regardless of the presence or absence of condensate in the unit - This facilitates the fast removal of any sediment/condensate that may be in the unit and easier inspection in maintaining optimum performance of the internal mechanism.

Available types

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Pressure (bar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FTS23-07</td>
<td>Stainless steel body, cover and internals</td>
<td>PMO 7 bar g</td>
</tr>
<tr>
<td>FTS23-23</td>
<td>Stainless steel body, cover and internals</td>
<td>PMO 23 bar g</td>
</tr>
<tr>
<td>FTC23-07</td>
<td>Carbon steel body with Stainless steel cover and internals</td>
<td>PMO 7 bar g</td>
</tr>
<tr>
<td>FTC23-23</td>
<td>Carbon steel body with Stainless steel cover and internals</td>
<td>PMO 23 bar g</td>
</tr>
</tbody>
</table>

Standards

These products fully comply with the requirements of the European Pressure Equipment Directive 97/23/EC and carry the CE mark when required.

Approvals

These products are available with the manufacturer’s Typical Test Report or Certification to EN 10204 3.1. Note: All certification/inspection requirements must be stated at the time of order placement.

Sizes and pipe connections

<table>
<thead>
<tr>
<th>Size</th>
<th>Connection</th>
<th>Material</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>DN25, DN40, and DN50</td>
<td>Flanged EN 1092 PN40</td>
<td>Carbon steel</td>
<td>ASTM A216 WCB</td>
</tr>
<tr>
<td>1 1/8” and 2”</td>
<td>Flanged ASME B16.5 Class 150</td>
<td>Stainless steel</td>
<td>ASTM A351 CF8 (on request)</td>
</tr>
</tbody>
</table>

Materials

<table>
<thead>
<tr>
<th>No.</th>
<th>Part</th>
<th>Material Description</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Body</td>
<td>Carbon steel, stainless steel</td>
<td>ASTM A216 WCB, ASTM A351 CF8 (on request)</td>
</tr>
<tr>
<td>2a</td>
<td>Cover studs</td>
<td>Carbon steel</td>
<td>ASTM A193 B7</td>
</tr>
<tr>
<td>2b</td>
<td>Cover nuts</td>
<td>Carbon steel</td>
<td>ASTM A193 B8 Cl.1</td>
</tr>
<tr>
<td>3</td>
<td>Cover gasket</td>
<td>Exfoliated graphite reinforced steel</td>
<td>ASTM A194 Gr. 2H</td>
</tr>
<tr>
<td>4</td>
<td>Cover</td>
<td>Stainless steel</td>
<td>ASTM A193 B8 Cl.1</td>
</tr>
<tr>
<td>5</td>
<td>Cover plug (1/4”)</td>
<td>Stainless steel</td>
<td>ASTM A194 Gr. 2H</td>
</tr>
<tr>
<td>6</td>
<td>Valve seat</td>
<td>Stainless steel</td>
<td>ASTM A479 316</td>
</tr>
<tr>
<td>7</td>
<td>Valve seat gasket</td>
<td>Exfoliated graphite reinforced steel</td>
<td>ASTM A194 Gr. 2H</td>
</tr>
<tr>
<td>8</td>
<td>Valve assembly screws</td>
<td>Stainless steel</td>
<td>AISI 304</td>
</tr>
<tr>
<td>9</td>
<td>Valve ball</td>
<td>Stainless steel</td>
<td>AISI 316</td>
</tr>
<tr>
<td>10</td>
<td>Float lever</td>
<td>Stainless steel</td>
<td>AISI 316</td>
</tr>
<tr>
<td>11</td>
<td>Float lever pin</td>
<td>Stainless steel</td>
<td>AISI 316</td>
</tr>
<tr>
<td>12</td>
<td>Float</td>
<td>Stainless steel</td>
<td>AISI 316</td>
</tr>
<tr>
<td>13</td>
<td>Washer</td>
<td>Stainless steel</td>
<td>AISI 304</td>
</tr>
<tr>
<td>14</td>
<td>Screw</td>
<td>Stainless steel</td>
<td>AISI 304</td>
</tr>
<tr>
<td>15</td>
<td>Internal lever</td>
<td>Stainless steel</td>
<td>AISI 316</td>
</tr>
<tr>
<td>16</td>
<td>Graphite packing seals</td>
<td>Graphite graphite</td>
<td>Graphite</td>
</tr>
<tr>
<td>17</td>
<td>Spacer</td>
<td>Stainless steel</td>
<td>AISI 316</td>
</tr>
<tr>
<td>18</td>
<td>Gland nut</td>
<td>Stainless steel</td>
<td>AISI 316</td>
</tr>
<tr>
<td>19</td>
<td>Manual lever</td>
<td>Stainless steel</td>
<td>ASTM A240 304</td>
</tr>
<tr>
<td>20</td>
<td>Nut and lock-nut</td>
<td>Stainless steel</td>
<td>AISI 304</td>
</tr>
</tbody>
</table>
FTS23 Stainless Steel Body and Cover

Flanged PN40

- Maximum allowable pressure: 40 bar g @ 0°C
- Maximum allowable temperature: 425°C @ 21.7 bar g
- Minimum allowable temperature: -10°C

PMO Maximum operating pressure
- FTS23-07: 7 bar g @ 425°C
- FTS23-23: 23 bar g @ 350°C

TMO Maximum operating temperature
- 425°C @ 21.7 bar g

Minimum operating temperature
- Note: For lower operating temperatures consult Spirax Sarco
  - 0°C

PMX Maximum differential pressure
- FTS23-07: 7 bar
- FTS23-23: 23 bar

Designed for a maximum cold hydraulic test pressure of:
- 60 bar g

Please note that the trap in its complete operational form must not be subjected to pressures greater than 40 bar g as damage to the internals may occur.

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FTS23 Stainless Steel Body and Cover

Flanged ASME 150 and Flanged ASME 300

- Maximum allowable pressure
  - ASME 300: 49.6 bar g @ 38°C
  - ASME 150: 19 bar g @ 38°C
- Maximum allowable temperature
  - ASME 300: 425°C @ 28 bar g
  - ASME 150: 425°C @ 5.5 bar g
- Minimum allowable temperature
  - -10°C
- Maximum operating pressure
  - ASME 300
    - FTS23-07: 7 bar g @ 425°C
    - FTS23-23: 23 bar g @ 425°C
  - ASME 150
    - FTS23-07: 7 bar g @ 386°C
    - FTS23-23: 13 bar g @ 194°C
- Maximum operating temperature
  - ASME 300: 425°C @ 28 bar g
  - ASME 150: 425°C @ 5.5 bar g
- Minimum operating temperature
  - Note: For lower operating temperatures consult Spirax Sarco
    - 0°C
    - 32°F
- Maximum differential pressure
  - ASME 300: 7 bar
  - ASME 150: 28.5 bar

Please note that the trap in its complete operational form must not be subjected to pressures greater than 40 bar g (580 psi g) as damage to the internals may occur.
FTC23
Carbon steel body with Stainless steel cover
Flanged PN40

Body design conditions

PMA Maximum allowable pressure
40 bar g @ 200°C

TMA Maximum allowable temperature
425°C @ 22.8 bar g

Minimum allowable temperature
-10°C

PMO Maximum operating pressure
FTC23-07 7 bar g @ 425°C
FTC23-23 23 bar g @ 425°C

TMO Maximum operating temperature
425°C @ 22.8 bar g

Minimum operating temperature
-10°C

Note: For lower operating temperatures consult Spirax Sarco

PMX Maximum differential pressure
FTC23-07 7 bar
FTC23-23 23 bar

Designed for a maximum cold hydraulic test pressure of:
60 bar g

Please note that the trap in its complete operational form must not be subjected to pressures greater than 40 bar g as damage to the internals may occur.

FTC23
Carbon steel body with Stainless steel cover
Flanged ASME 150 and Flanged ASME 300

Body design conditions

PMA Maximum allowable pressure
ASME 300 50 bar g @ 50°C
ASME 150 19.6 bar g @ 38°C

TMA Maximum allowable temperature
ASME 300 425°C @ 28.8 bar g
ASME 150 425°C @ 5.5 bar g

Minimum allowable temperature
-10°C

PMO Maximum operating pressure
ASME 300 FTC23-07 7 bar g @ 425°C
ASME 150 FTC23-07 7 bar g @ 425°C
FTC23-23 23 bar g @ 425°C
FTC23-23 13 bar g @ 194°C

TMO Maximum operating temperature
ASME 300 425°C @ 28.8 bar g
ASME 150 425°C @ 5.5 bar g

Minimum operating temperature
-10°C

Note: For lower operating temperatures consult Spirax Sarco

PMX Maximum differential pressure
FTC23-07 7 bar
FTC23-23 23 bar

Designed for a maximum cold hydraulic test pressure of:
60 bar g

Please note that the trap in its complete operational form must not be subjected to pressures greater than 40 bar g (580 psi g) as damage to the internals may occur.
Safety information, installation and maintenance
For full details see the Installation and Maintenance Instructions (IM-P605-02) supplied with the product.

Installation note:
FT_23 ball float steam traps must be installed below the draining point with the direction of flow as indicated on the body and with the float lever positioned in a horizontal plane so that it rises and falls freely. For optimum working conditions and protection of the unit it is recommended that a strainer be installed upstream to prevent possible damage to the internal mechanism and to ensure peak operation within your plant.

In order to allow simple and safe inspection for cleaning or maintenance purposes install suitable isolation valves. If the trap is to discharge to atmosphere ensure that it is to a safe place, the discharged medium may be at a temperature of 100°C. In order to ensure an efficient discharge of incondensable medium, it is recommended that a balance line be connected to a drain system (reference the Installation and Maintenance Instructions that are supplied with the unit).

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

In the event that, during the operation, the trap comes into contact with harmful substances, you will need to dispose of it in accordance with regulations under the current legislation.

How to order
Example: 1 off Spirax Sarco DN50 FTC23-23 carbon steel ball float steam trap with flanged EN 1092 PN40 connections.

Dimensions/weights (approximate) in mm and kg

<table>
<thead>
<tr>
<th>Size</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E*</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>DN25, DN40 and DN50 PN40 flanged</td>
<td>320</td>
<td>220</td>
<td>305</td>
<td>310</td>
<td>560</td>
<td>40.0</td>
</tr>
<tr>
<td>1½&quot; and 2&quot; ASME flanged</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Withdrawal distance for cover removal

Capacities
The condensate discharge capacities are based on the actual temperature of operation.

The choice of trap should be based on the following data:
- Hourly amount of condensate to be discharged
- Effective differential pressure

Safety factors:
- 1.25 ÷ 1.5 with continuous duty
- 2 ÷ 3 with intermittent duty

![Diagram of ball float steam trap]

Condensate kg vs. Differential pressure bar (x 100 = kPa)

Example: 1 off Spirax Sarco DN50 FTC23-23 carbon steel ball float steam trap with flanged EN 1092 PN40 connections.
Spare parts

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

Available spares

<table>
<thead>
<tr>
<th>Spare part</th>
<th>6, 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valve seat assembly</td>
<td>9</td>
</tr>
<tr>
<td>Valve ball</td>
<td></td>
</tr>
<tr>
<td>Ball float lever and pin assembly</td>
<td>10, 11</td>
</tr>
<tr>
<td>Float assembly</td>
<td>12, 13, 14</td>
</tr>
<tr>
<td>Manual lever kit</td>
<td>15, 16, 17, 18, 19, 20</td>
</tr>
<tr>
<td>Stuffing box and manual lever spacer assembly</td>
<td>16, 17</td>
</tr>
<tr>
<td>Gasket set (3 + 3 units)</td>
<td>3, 7</td>
</tr>
</tbody>
</table>

How to order spares

Always order spare parts by using the description given in the table above and state the size and type of ball float steam trap, including its pressure range and type of connections.

Example: 1 off Ball float lever and pin assembly for a DN50 Spirax Sarco FTC23-07 ball float steam trap having EN 1092 PN40 connections.

Recommended tightening torques

<table>
<thead>
<tr>
<th>Model</th>
<th>Item no.</th>
<th>Quantity</th>
<th>Part</th>
<th>mm or M</th>
<th>N m</th>
</tr>
</thead>
<tbody>
<tr>
<td>FTC23</td>
<td>2a</td>
<td>8</td>
<td>Cover studs</td>
<td>M16 x 70</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2b</td>
<td>8</td>
<td>Cover nuts</td>
<td>24</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>4</td>
<td>Valve assembly screws</td>
<td>13</td>
<td>19</td>
</tr>
<tr>
<td>FTS23</td>
<td>2a</td>
<td>12</td>
<td>Cover studs</td>
<td>M16 x 70</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2b</td>
<td>12</td>
<td>Cover nuts</td>
<td>24</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>4</td>
<td>Valve assembly screws</td>
<td>13</td>
<td>19</td>
</tr>
</tbody>
</table>