



TI-P605-01

ST Issue 1

FTS23 Stainless Steel Body and Cover

FTC23 Carbon Steel Body with Stainless Steel Cover

Ball Float Steam Traps

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

| | | |
|----------|---|--------------|
| FTS23-07 | Stainless steel body, cover and internals | PMO 7 bar g |
| FTS23-23 | | PMO 23 bar g |
| FTC23-07 | Carbon steel body with | PMO 7 bar g |
| FTC23-23 | Stainless steel cover and internals | PMO 23 bar g |

Standards

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

Approvals

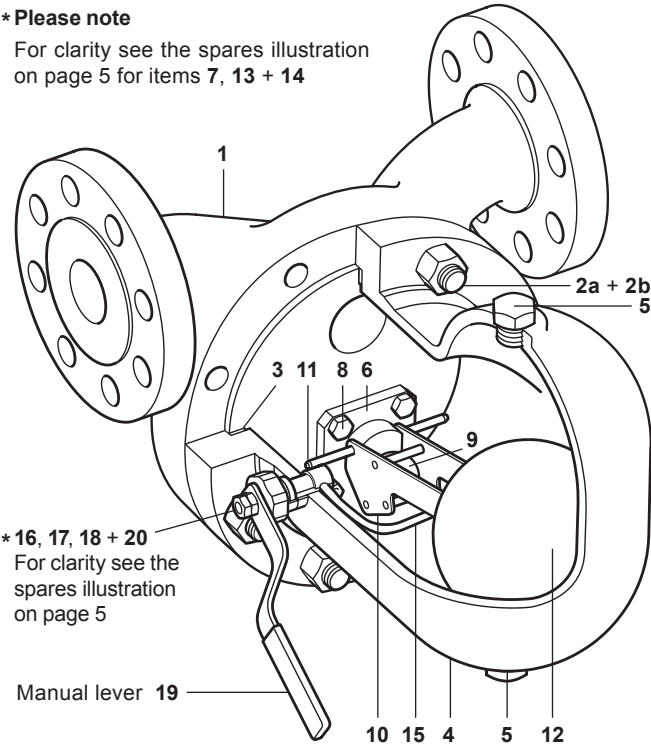
These products are available with a manufacture's Typical Test Report or Certification to EN 10204 3.1. **Note:** All certification/inspection requirements must be stated at the time of order placement.

Sizes and pipe connections

| | |
|---------------------|--|
| DN25, DN40 and DN50 | Flanged EN 1092 PN40 |
| 1½" and 2" | Flanged ASME B16.5 Class 150 Flanged ASME B16.5 Class 300 |

* Please note

For clarity see the spares illustration on page 5 for items 7, 13 + 14



* 16, 17, 18 + 20
For clarity see the spares illustration on page 5

Manual lever 19

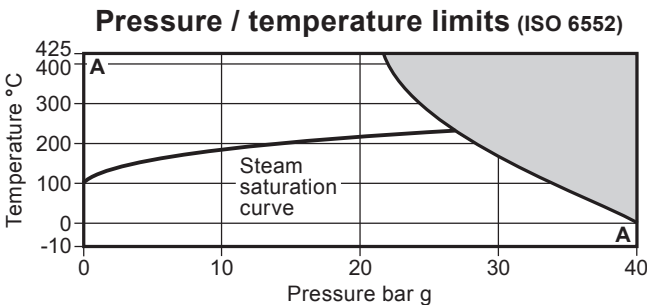
Materials

| No. | Part | Material | |
|------|------------------------|--------------------------------------|----------------------------|
| 1 | Body | Carbon steel | ASTM A216 WCB |
| | | Stainless steel | ASTM A351 CF8 (on request) |
| 2a | Cover studs | Carbon steel | ASTMA 193 B7 |
| | | Stainless steel | ASTM A193 B8 Cl.1 |
| 2b | Cover nuts | Carbon steel | ASTMA 194 Gr. 2H |
| | | Stainless steel | ASTMA194 Gr.8 |
| 3 | Cover gasket | Exfoliated graphite reinforced steel | |
| 4 | Cover | Stainless steel | ASTM A351 CF8 |
| 5 | Cover plug (½") | Carbon steel | ASTM A105 |
| 6 | Valve seat | Stainless steel | ASTM A479 316 |
| * 7 | Valve seat gasket | Exfoliated graphite reinforced steel | |
| 8 | Valve assembly screws | Stainless steel | AISI 304 |
| 9 | Valve ball | Stainless steel | AISI 316 |
| 10 | Float lever | Stainless steel | ASTM A240 316 |
| 11 | Float lever pin | Stainless steel | ASTM A479 316 |
| 12 | Float | Stainless steel | AISI 316 |
| * 13 | Washer | Stainless steel | AISI 304 |
| * 14 | Screw | Stainless steel | AISI 304 |
| 15 | Internal lever | Stainless steel | AISI 316 |
| * 16 | Graphite packing seals | Graphite | Graphite |
| * 17 | Spacer | Stainless steel | AISI 316 |
| * 18 | Gland nut | Stainless steel | AISI 316 |
| 19 | Manual lever | Stainless steel | ASTM A240 304 |
| * 20 | Nut and lock-nut | Stainless steel | AISI 304 |

Steam traps
Ball float

FTS23
Stainless steel
body and cover

Flanged PN40



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

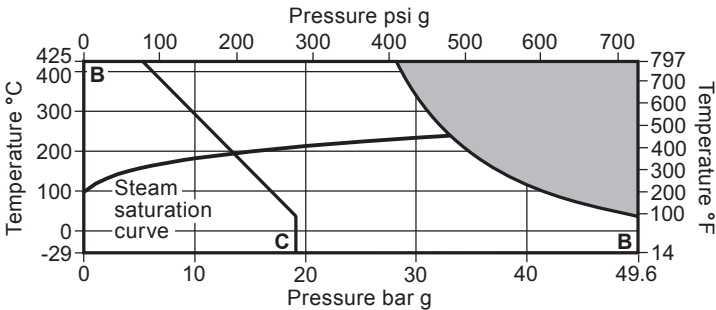
A - A Flanged PN40

| | | | |
|--|-------------------------------|----------|--------------------|
| Body design conditions | | | PN40 |
| PMA | Maximum allowable pressure | | 40 bar g @ 0°C |
| TMA | 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 |
| ΔPMX | 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.

FTS23
Stainless steel
body and cover

Flanged ASME 150
and
Flanged ASME 300



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

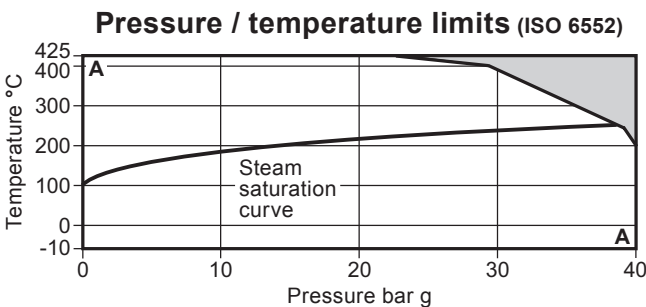
B - B Flanged ASME 300
B - C Flanged ASME 150

| Body design conditions | | | | ASME 150 or ASME 300 |
|--|-------------------------------|------------|---------------------------|----------------------|
| PMA | Maximum allowable pressure | ASME 300 | 49.6 bar g @ 38°C | 719 psi g @ 100°F |
| | | ASME 150 | 19 bar g @ 38°C | 275 psi g @ 100°F |
| TMA | Maximum allowable temperature | ASME 300 | 425°C @ 28 bar g | 797°F @ 406 psi g |
| | | ASME 150 | 425°C @ 5.5 bar g | 797°F @ 79 psi g |
| Minimum allowable temperature | | | -10°C | 14°C |
| PMO | Maximum operating pressure | ASME 300 | FTS23-07 7 bar g @ 425°C | 101 psi g @ 797°F |
| | | | FTS23-23 23 bar g @ 425°C | 333 psi g @ 797°F |
| | | ASME 150 | FTS23-07 7 bar g @ 386°C | 101 psi g @ 726°F |
| | | | FTS23-23 13 bar g @ 194°C | 188 psi g @ 381°F |
| TMO | Maximum operating temperature | ASME 300 | 425°C @ 28 bar g | 797°F @ 406 psi g |
| | | ASME 150 | 425°C @ 5.5 bar g | 797°F @ 79 psi g |
| Minimum operating temperature Note: For lower operating temperatures consult Spirax Sarco | | | 0°C | 32°F |
| ΔPMX | Maximum differential pressure | FTS23-07 | 7 bar | 101.5 psi |
| | | FTS23-23 | 23 bar | 333.5 psi |
| Designed for a maximum cold hydraulic test pressure of: | ASME 300 | 75 bar g | 1087.5 psi g | |
| | ASME 150 | 28.5 bar g | 413 psi 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.

FTC23
Carbon steel body with
Stainless steel cover

Flanged PN40



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

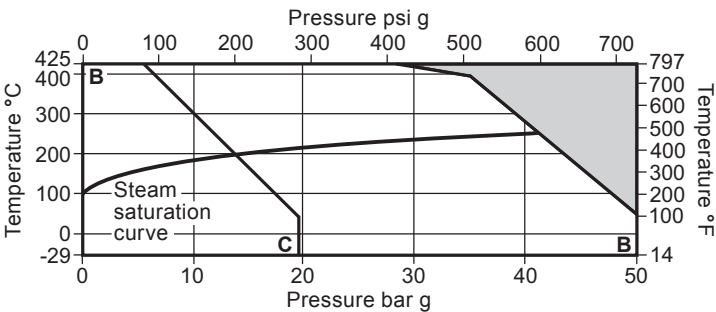
A - A Flanged PN40

| | | |
|--|-------------------------------|---------------------------|
| Body design conditions | | PN40 |
| 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 Note: For lower operating temperatures consult Spirax Sarco | | 0°C |
| ΔPMX | 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



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

B - B Flanged ASME 300
B - C Flanged ASME 150

| Body design conditions | | | | ASME 150 or ASME 300 |
|--|-------------------------------|----------|---------------------------|----------------------|
| PMA | Maximum allowable pressure | ASME 300 | 50 bar g @ 50°C | 725 psi g @ 122°F |
| | | ASME 150 | 19.6 bar g @ 38°C | 284 psi g @ 100°F |
| TMA | Maximum allowable temperature | ASME 300 | 425°C @ 28.8 bar g | 797°F @ 417 psi g |
| | | ASME 150 | 425°C @ 5.5 bar g | 797°F @ 79 psi g |
| Minimum allowable temperature | | | -10°C | 14°C |
| PMO | Maximum operating pressure | ASME 300 | FTC23-07 7 bar g @ 425°C | 101 psi g @ 797°F |
| | | | FTC23-23 23 bar g @ 425°C | 333 psi g @ 797°F |
| | | ASME 150 | FTC23-07 7 bar g @ 386°C | 101 psi g @ 726°F |
| | | | FTC23-23 13 bar g @ 194°C | 188 psi g @ 381°F |
| TMO | Maximum operating temperature | ASME 300 | 425°C @ 28.8 bar g | 797°F @ 417 psi g |
| | | ASME 150 | 425°C @ 5.5 bar g | 797°F @ 79 psi g |
| Minimum operating temperature Note: For lower operating temperatures consult Spirax Sarco | | | 0°C | 32°F |
| ΔPMX | Maximum differential pressure | FTC23-07 | 7 bar | 101.5 psi |
| | | FTC23-23 | 23 bar | 333.5 psi |
| Designed for a maximum cold hydraulic test pressure of: | | ASME 300 | 75 bar g | 1 087.5 psi g |
| | | ASME 150 | 30 bar g | 435 psi g |

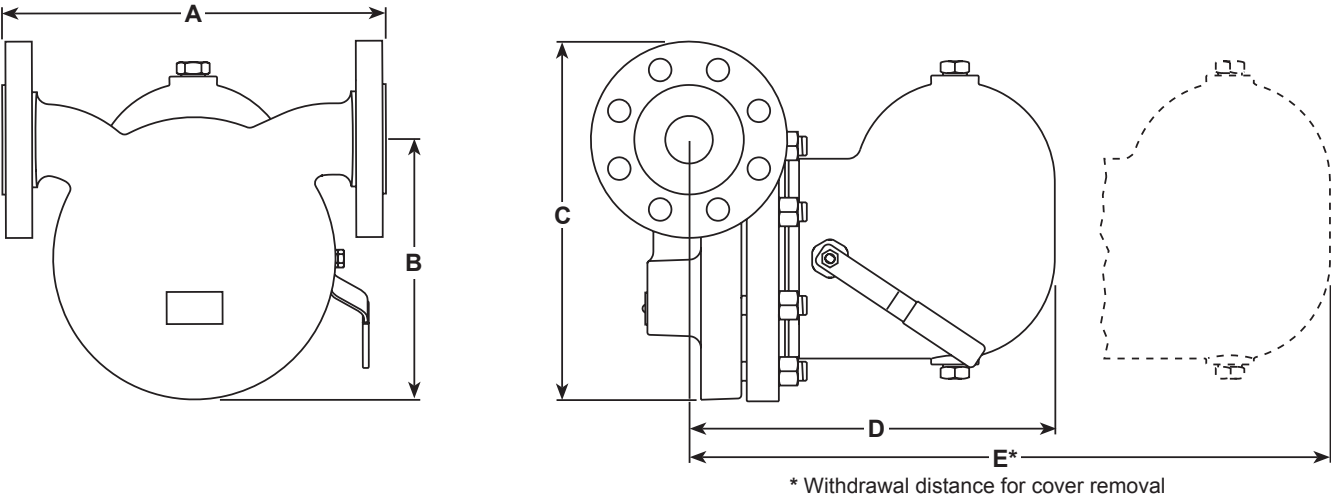
Please note that the trap in its complete operational form must not be subjected to pressures greater than 40 bar g (580 psi g) as damage to the internals may occur.

Steam traps
Ball float

Dimensions/weights (approximate) in mm and kg

| Size | | A | B | C | D | E* | Weight |
|---------------------|--------------|-----|-----|-----|-----|-----|--------|
| DN25, DN40 and DN50 | PN40 flanged | 320 | 220 | 305 | 310 | 560 | 40.0 |
| 1½" and 2" | ASME flanged | | | | | | |

* Withdrawal distance for cover removal



* Withdrawal distance for cover removal

Capacities

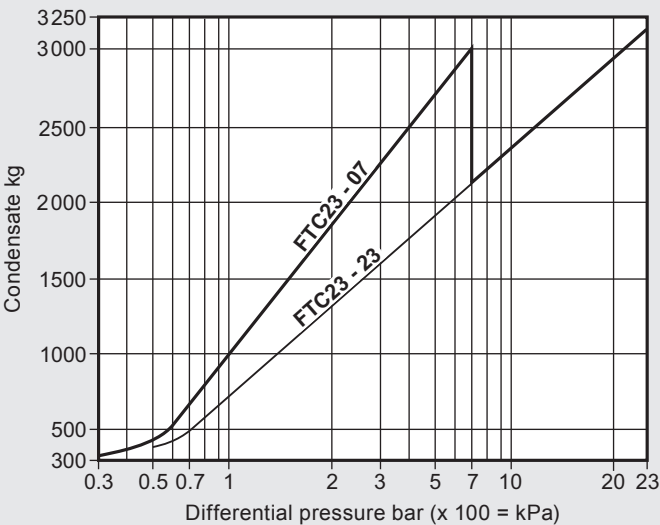
The condensate discharge capacities are based on the actual temperature of operation.

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



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.

Spare parts

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

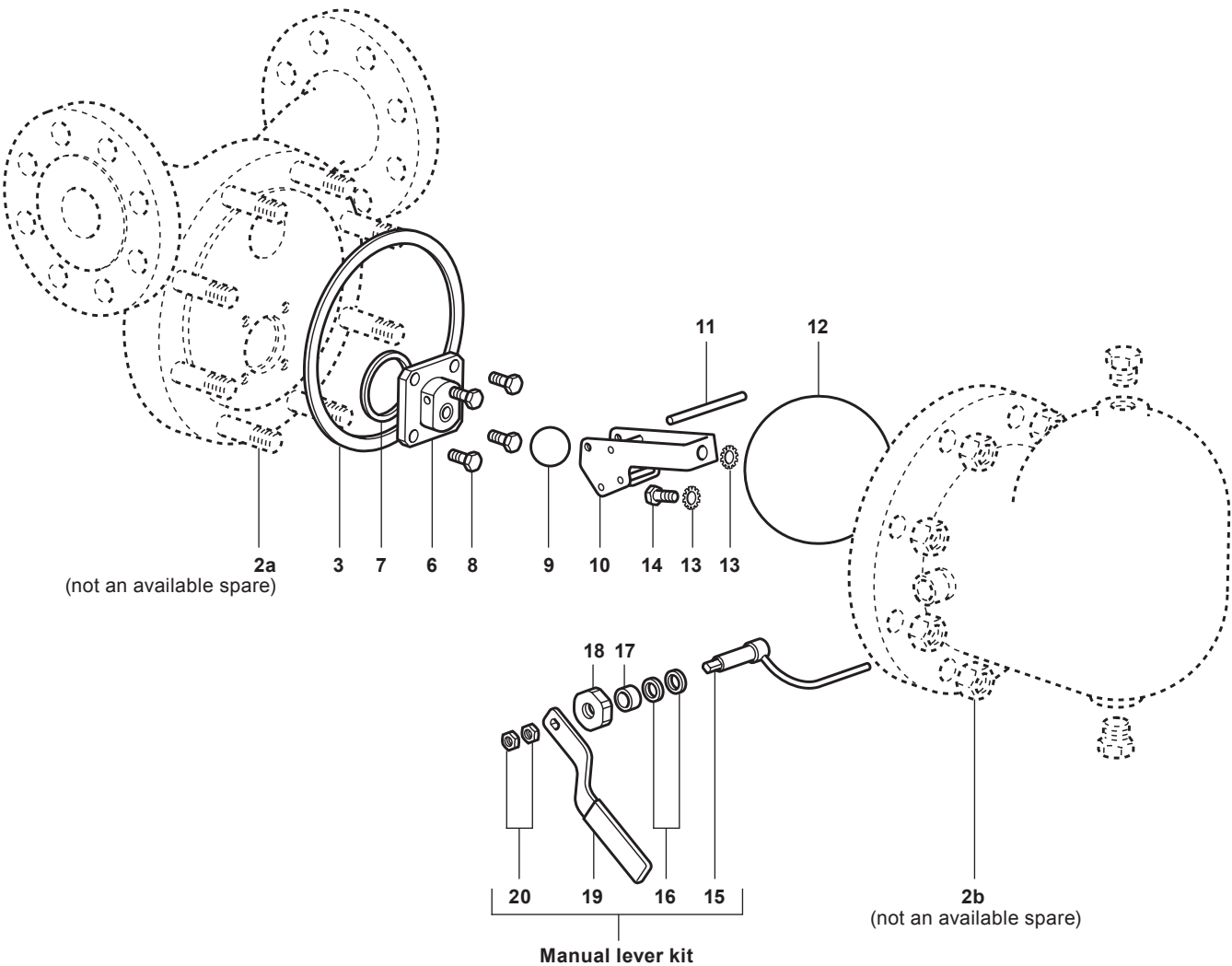
Available spares

| | |
|---|------------------------|
| Valve seat assembly | 6, 8 |
| Valve ball | 9 |
| Ball float lever and pin assembly | 10, 11 |
| Float assembly | 12, 13, 14 |
| Manual lever kit | 15, 16, 17, 18, 19, 20 |
| Stuffing box and manual lever spacer assembly | 16, 17 |
| Gasket set (3 + 3 units) | 3, 7 |

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.



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Recommended tightening torques

| Model | Item no. | Quantity | Part |  | mm or  | N m |
|-------|----------|----------|-----------------------|---|---|-----|
| FTC23 | 2a | 8 | Cover studs | | M16 x 70 | |
| | 2b | 8 | Cover nuts | 24 | | 80 |
| | 8 | 4 | Valve assembly screws | 13 | M8 x 20 | 19 |
| FTS23 | 2a | 12 | Cover studs | | M16 x 70 | |
| | 2b | 12 | Cover nuts | 24 | | 40 |
| | 8 | 4 | Valve assembly screws | 13 | M8 x 20 | 19 |

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Steam traps
Ball float

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