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 Stainless steel cover and internals	PMO 7 bar g
FTC23-23		PMO 23 bar g

Standards

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

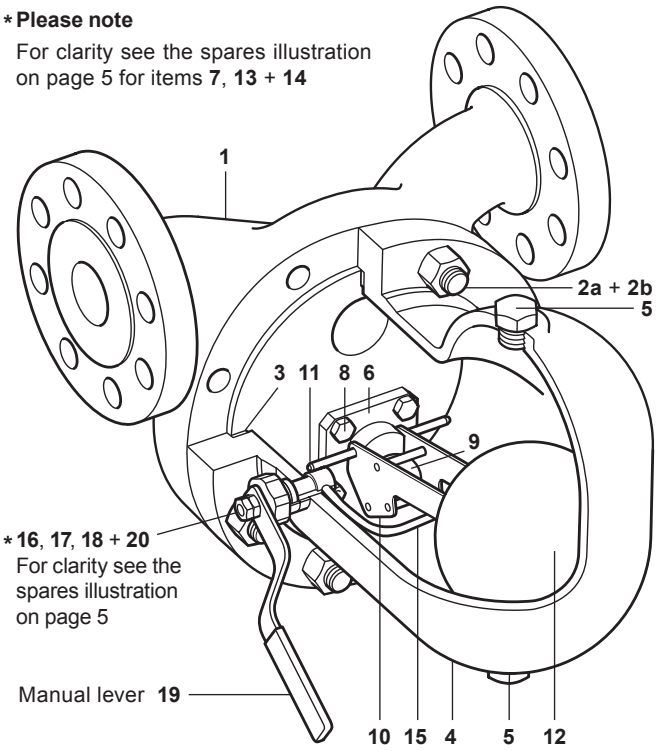
Approvals

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**



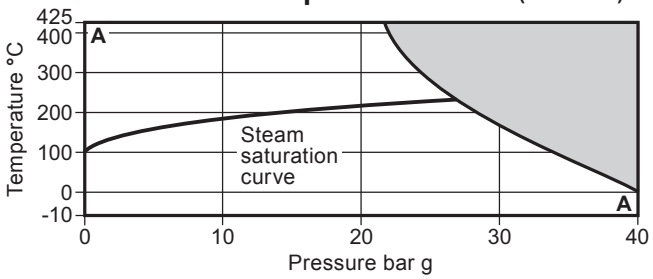
Materials

No.	Part	Material	
1	Body	Carbon steel	ASTM A216 WCB
		Stainless steel	ASTM A351 CF8 (on request)
2a	Cover studs	Carbon steel	ASTM A193 B7
		Stainless steel	ASTM A193 B8 Cl.1
2b	Cover nuts	Carbon steel	ASTM A 194 Gr. 2H
		Stainless steel	ASTM A194 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

Pressure / temperature limits (ISO 6552)

FTS23
Stainless steel body and cover

Flanged PN40



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

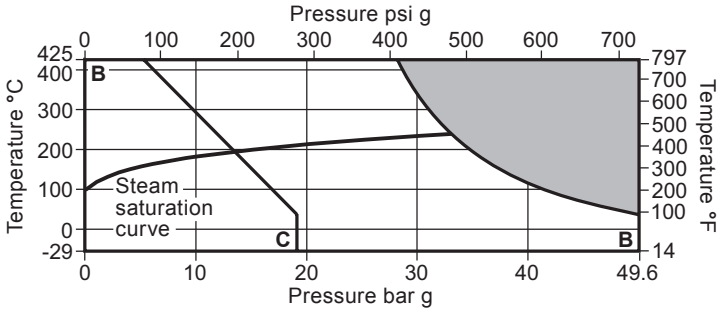
A - A Flanged PN40

Body design conditions			
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	1 087.5 psi g
	ASME 150		28.5 bar g	413 psi g

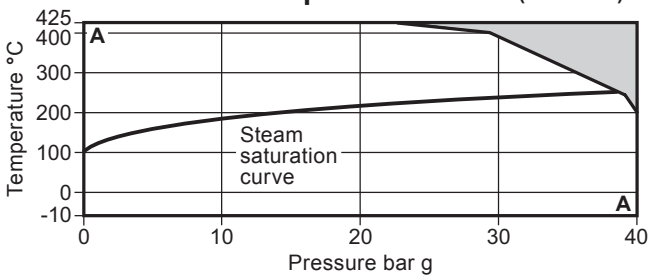
Please note that the trap in its complete operational form must not be subjected to pressures greater than 40 bar g (580 psi g) as damage to the internals may occur.

Pressure / temperature limits (ISO 6552)

FTC23

Carbon steel body with Stainless steel cover

Flanged PN40



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

A - A Flanged PN40

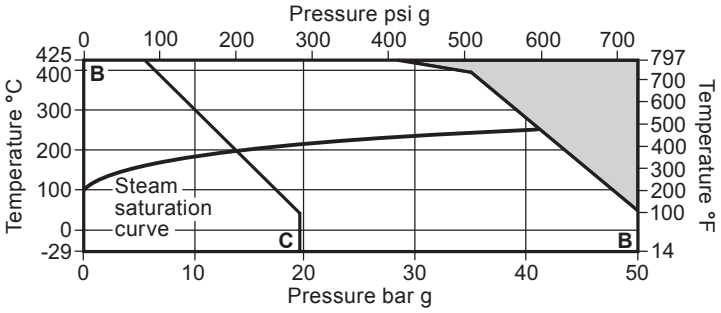
Body design conditions			
PMA Maximum allowable pressure			40 bar g @ 200°C
TMA Maximum allowable temperature			425°C @ 22.8 bar g
Minimum allowable temperature			-10°C
PMO Maximum operating pressure	**FTC23-07**		7 bar g @ 425°C
	FTC23-23		23 bar g @ 425°C
TMO Maximum operating temperature			425°C @ 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

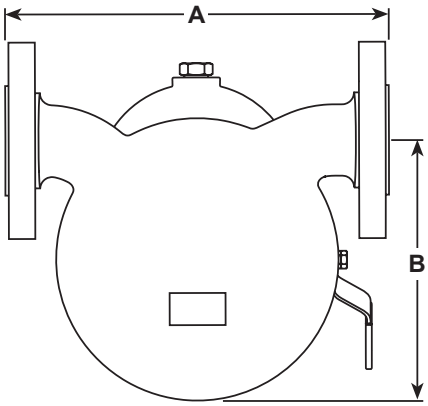
Body design conditions				ASME 150 or ASME 300
PMA Maximum allowable pressure	ASME 300		50 bar g @ 50°C	725 psi g @ 122°F
	ASME 150		19.6 bar g @ 38°C	284 psi g @ 100°F
TMA Maximum allowable temperature	ASME 300		425°C @ 28.8 bar g	797°F @ 417 psi g
	ASME 150		425°C @ 5.5 bar g	797°F @ 79 psi g
Minimum 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	1087.5 psi g
	ASME 150		30 bar g	435 psi g

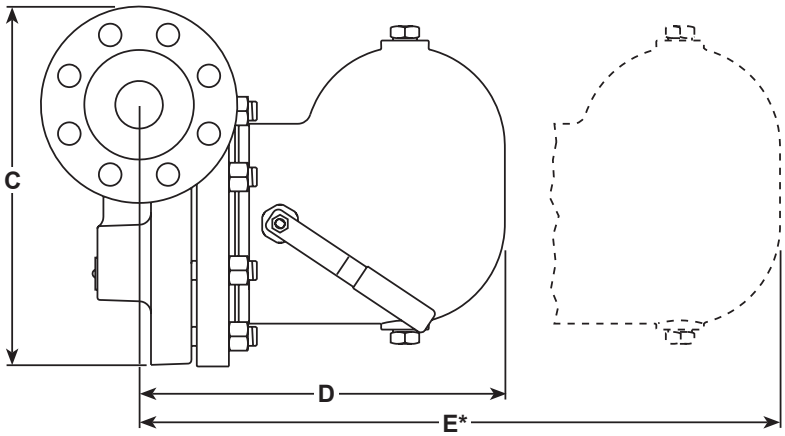
Please note that the trap in its complete operational form must not be subjected to pressures greater than 40 bar g (580 psi g) as damage to the internals may occur.

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

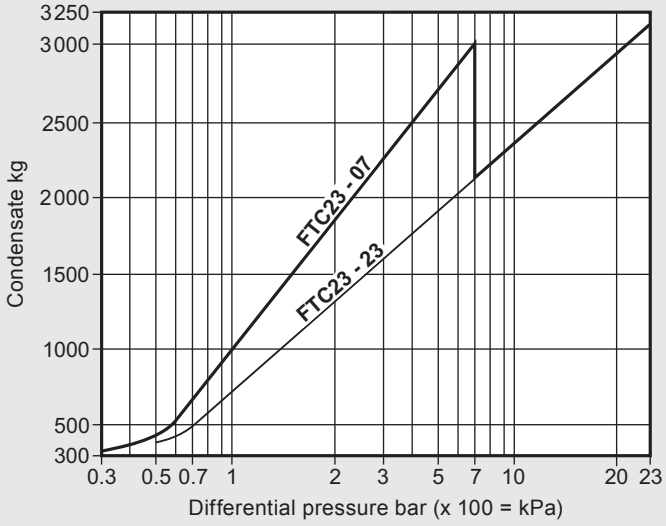
The condensate discharge capacities are based on the actual temperature of operation.

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.

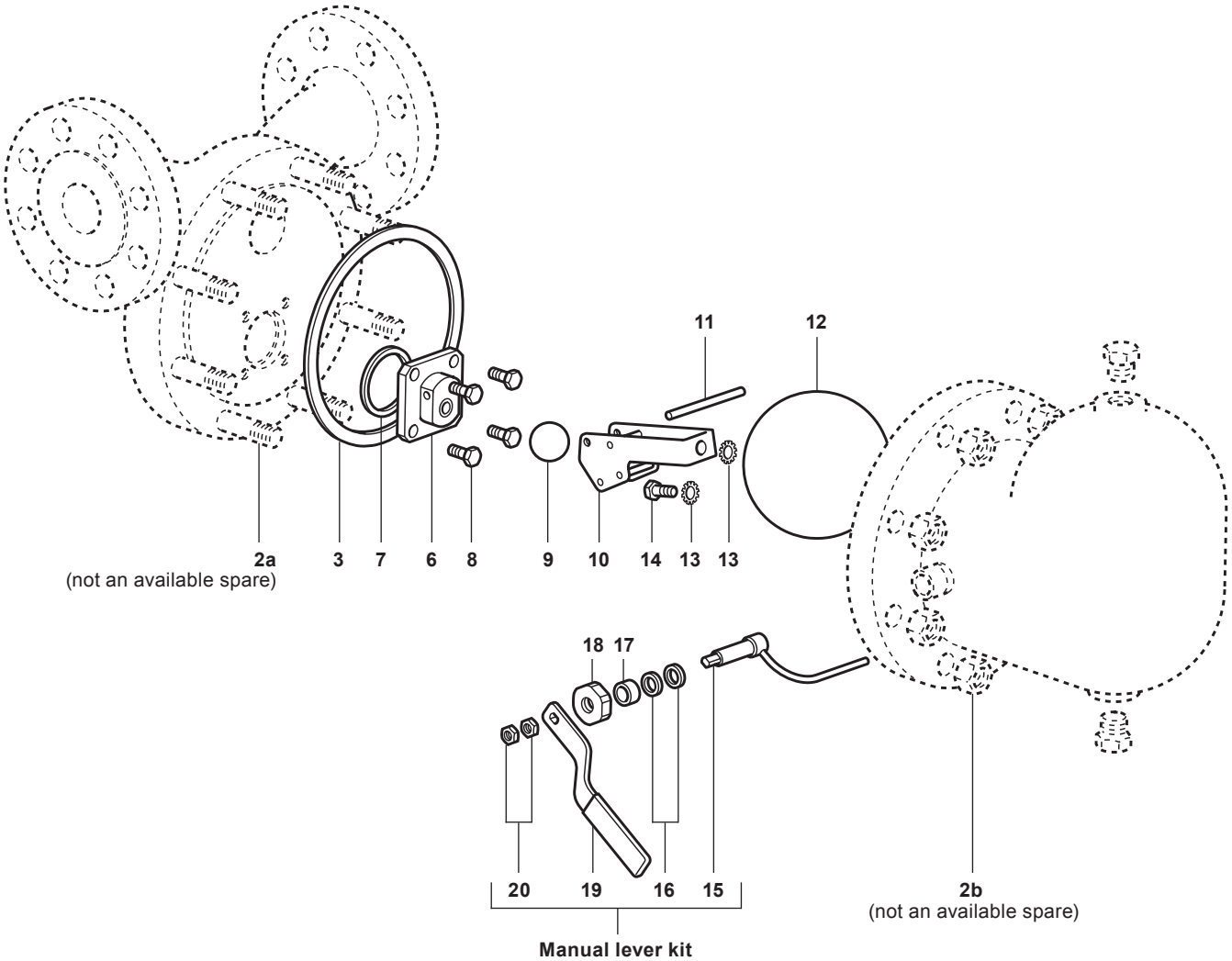
Available spares

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.



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