



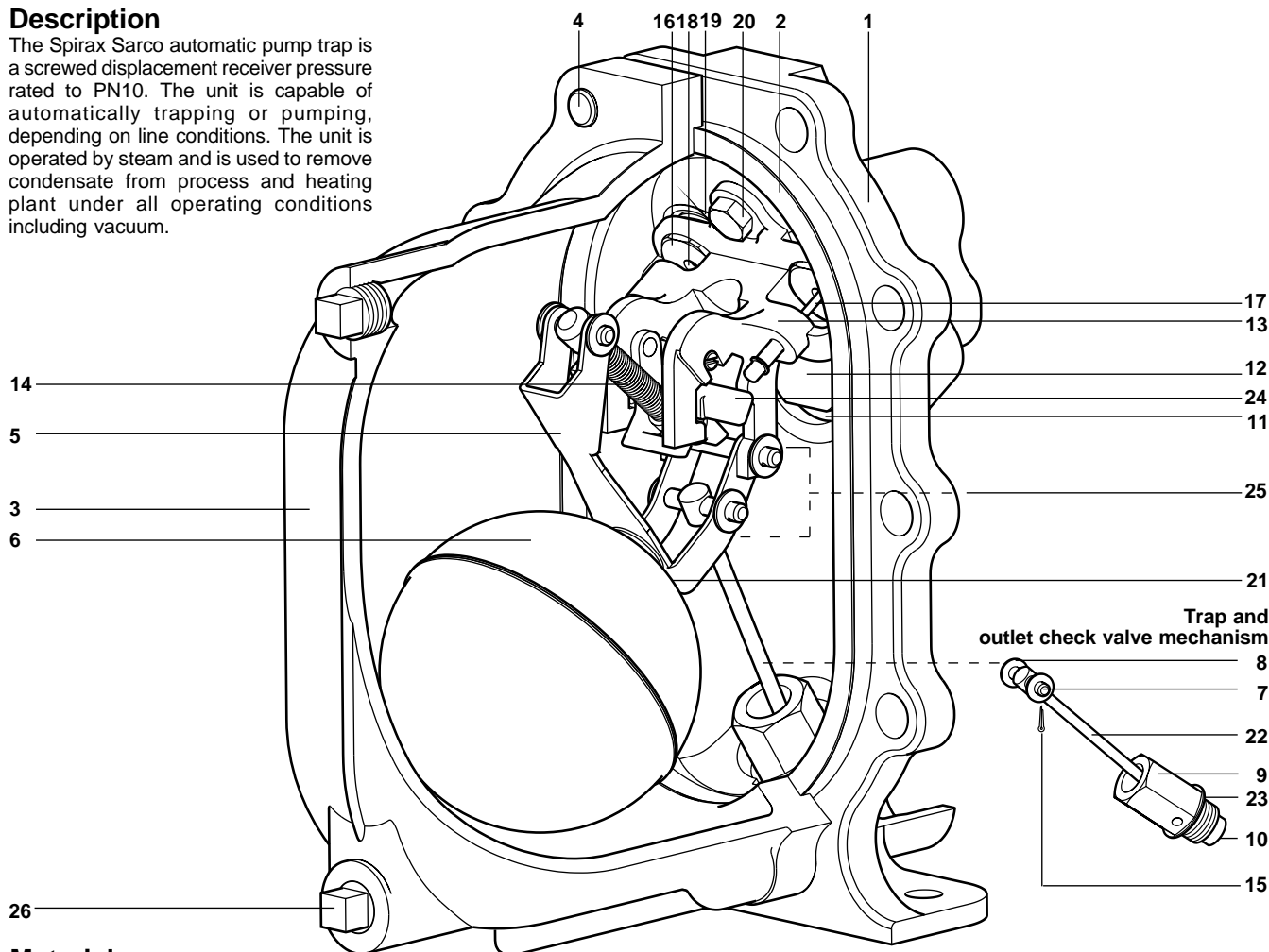
Cert. No. LRQ 0963008

ISO 9001

APT10 Automatic Pump Trap

Description

The Spirax Sarco automatic pump trap is a screwed displacement receiver pressure rated to PN10. The unit is capable of automatically trapping or pumping, depending on line conditions. The unit is operated by steam and is used to remove condensate from process and heating plant under all operating conditions including vacuum.



Materials

No. Part	Material	
1 Cover	SG iron	DIN 1693 GGG 40.3 / ASTM A395
2 Cover gasket	Synthetic fibre	
3 Body	SG iron	DIN 1693 GGG 40.3 / ASTM A395
4 Cover bolts	Stainless steel	BS EN ISO 3506 Gr.A2-70
5 Pump trap lever	Stainless steel	BS 1449 304 S15
6 Float	Stainless steel	BS 1449 304 S16
7 Pivot shaft	Stainless steel	BS 970 431 S29 / ASTM A276 431
8 Washer	Stainless steel	BS 1449 316
9 Trap housing	Stainless steel	BS 970 431 S29 / ASTM A276 431
10 Ball		ASTM A276 440 B
11 Seat (inlet check valve)	Stainless steel	AISI 420
12 Flap (inlet check valve)	Stainless steel	BS 3146 ANC 4B
13 Pump mechanism bracket	Stainless steel	BS 3146 ANC 4B
14 Spring (pump)	Stainless steel	BS 2056 302 S26 Gr.2

No. Part	Material	
15 Split pin	Stainless steel	BS 1574
16 Exhaust seat	Stainless steel	BS 970 431 S29 / ASTM A276 431
17 Inlet valve and seat assembly	Stainless steel	
18 Exhaust valve	Stainless steel	BS 3146 ANC 2
19 Valve seat gasket	Stainless steel	BS 1449 409 S19
20 Pump mechanism bolt	Stainless steel	BS EN ISO 3506 Gr.A2-70
21 Float bolt	Stainless steel	BS EN ISO 3506 Gr.A2-70
22 Trap 1st stage valve	Stainless steel	BS 970 431 S29 / ASTM A276 431
23 Trap gasket	Stainless steel	BS 1449 409 S19
24 Actuator arm	Stainless steel	BS 3146 ANC 2
25 Name-plate	Stainless steel	BS 1449 304 S16
26 Drain plug	Stainless steel	DIN 17440 1.4571

Certification All pump traps are EN 10204 (3.1.B) certifiable.

Design compliance

Shell designed in accordance with A.D. Merkblatter / ASME VIII.

Spare parts

For spare parts please see TI-612-14

Sizes and pipe connections

Size		DN20 x DN20
Fluid connections		
Inlet	Outlet	Motive/Exhaust
DN20 (¾")	DN20 (¾")	DN15 (½")
BSP - BS 21 parallel		BSP
NPT		NPT

Limiting conditions

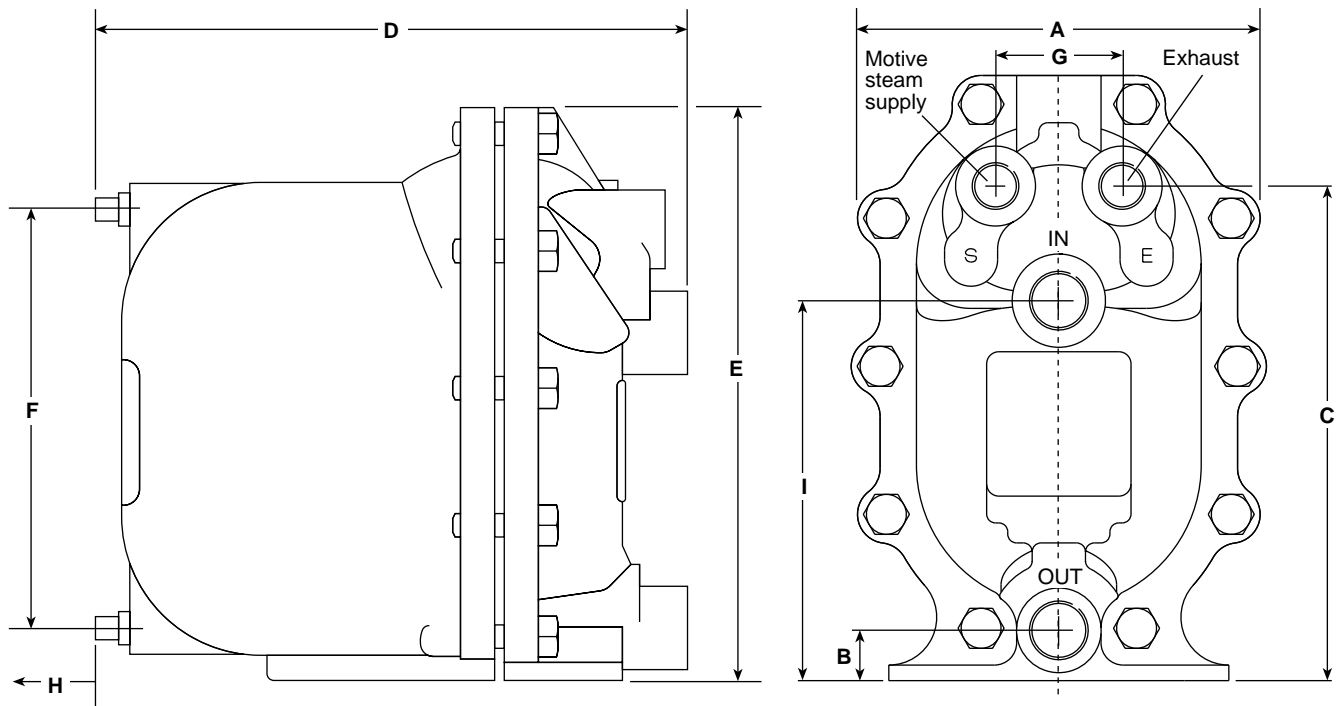
Body design conditions	PN10
Maximum motive inlet pressure	2.0 bar g
Maximum operating pressure	2.0 bar g
Maximum back pressure	1.9 bar g
Maximum operating temperature	133°C
Minimum operating temperature	-10°C
Designed for a maximum cold hydraulic test pressure of 15.0 bar g	
Minimum installation head (from base of pump)	0.2 m
Recommended installation head (from base of pump)	0.3 m

Installation

Full details are given in the Installation and Maintenance Instructions supplied with each unit.

Dimensions/weight (approximate) in mm and kg

Size	A	B	C	D	E	F	G	H	I	Weight
DN20 x DN20	187	23	223	266	273	194	57	225	171	14



How to specify

The pump trap shall be a Spirax Sarco automatic pump trap type APT10 operated by steam to 2 bar g. No electrical energy shall be required. Body construction from SG iron (DIN 1693 GGG 40.3 dual certified with ASTM A395) with a swing type inlet check valve and ball type outlet check valve. The internal trap mechanism shall contain a stainless steel float connected to an internal trap. The pump, trap and check valve mechanisms shall be incorporated into the same body envelope with no external seals or glands and shall be capable of operating with a minimum of 200 mm installation head from the base of the unit.

How to order: Example: 1 off Automatic pump trap, type APT10, DN20 x DN20, screwed BSP with BSP motive fluid connections.

Nominal capacities

For full capacity details for a specific application consult Spirax Sarco. To accurately size the pump trap, the following data is required.

1. Installation head available, from the base of the pump trap to the centre line of the heat exchanger / process condensate outlet (m). If the outlet is mounted vertically, then this should be from the base of the pump to the face of the outlet.
2. Motive steam pressure available to power the pump trap (bar g).
3. Total back pressure in the condensate return system (bar g). See note below.
4. Heat exchanger full load operating pressure (bar g).
5. Heat exchanger maximum steam load (kg/h).
6. Minimum temperature of secondary fluid. (°C).
7. Maximum controlled temperature of secondary fluid (°C).

Size	DN20 x DN20
Pump discharge/cycle	2.1 litres
1 metre installation head	Max. trapping capacity 735 kg/h Max. pumping capacity 405 kg/h
At: 2.0 bar g motive pressure 0.5 bar g total back pressure	

Note:

Total lift or back pressure BP (static head plus pressure head in the return system) must be below the motive fluid inlet pressure to allow pump capacity to be achieved.

$$BP \text{ (back pressure)} = (H \times 0.0981) + (P) + (Pf)$$

Height (H) in metres x 0.0981 plus pressure (P) bar g in the return line, plus downstream piping friction pressure drop (Pf) in bar. (Pf can be ignored if the downstream pipework is less than 100 metres to a non-flooded condensate return and has been sized to take into account the effect of flash steam at the heat exchanger's full load operating conditions.)