Cert. No. LRQ 0963008

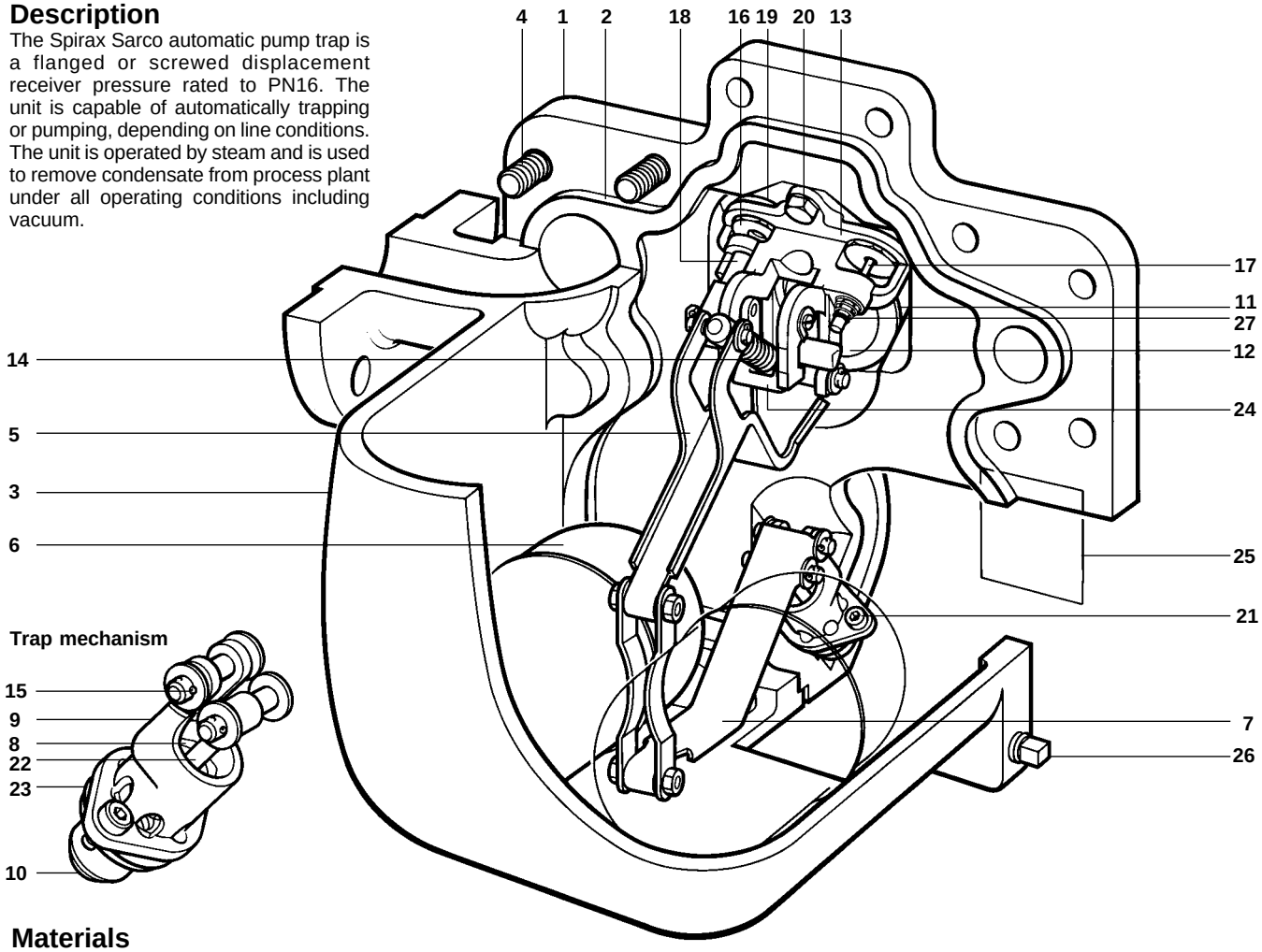
ISO 9001

TI-P612-02
ST Issue 4

APT14
Automatic Pump Trap

Description

The Spirax Sarco automatic pump trap is a flanged or screwed displacement receiver pressure rated to PN16. 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 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	Graphite laminated with stainless steel insert	
3	Body	SG iron	DIN 1693 GGG 40.3 / ASTM A395
4	Cover bolts	Stainless steel	ISO 3506 Gr. A2 70
5	Pump lever	Stainless steel	BS 1449 304 S15
6	Float	Stainless steel	BS 1449 304 S15
7	Trap lever	Stainless steel	BS 1449 304 S15
8	Trap 2nd stage valve	Stainless steel	ASTM A276 440 B
9	Trap housing	Stainless steel	BS 3146 ANC 2
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
15	Split pin	Stainless steel	BS 1574
16	Exhaust seat	Stainless steel	BS 970 431S29 / 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	ISO 3506 Gr. A2 70
21	Trap housing bolt	Stainless steel	BS 6105 A4 80
22	Trap 1st stage valve	Stainless steel	BS 970 431S29 / ASTM A276 431
23	'O' ring	EPDM	
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
27	Inlet valve spring	Stainless steel	

Certification

All pump traps are EN 10204 (3.1.B) certifiable. Available fully TÜV approved on request.

Design compliance

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

Local regulations may restrict the use of this product to below the conditions quoted.
In the interests of development and improvement of the product, we reserve the right to change the specification.

Spare parts
For spare parts please see TI-P612-07

Sizes and pipe connections

Size	DN40 x DN25	
	Fluid connections	
Inlet	**Outlet**	**Motive / Exhaust**
DN40 (1½")	DN25 (1")	DN15 (½")
PN16 - EN 1092 / DIN 2533		BSP or NPT
ANSI 150 - B 16.5		NPT
JIS / KS10 - JIS B 2210 / KS B 1511		BSP
BSP - BS 21 parallel		BSP
NPT		NPT

Limiting conditions

Body design conditions	PN16
Maximum motive inlet pressure	13.8 bar g
Maximum operating pressure	13.8 bar g
Maximum back pressure	5.0 bar g
Maximum operating temperature	198°C
Minimum operating temperature	-10°C
Designed for a maximum cold hydraulic test pressure of 24 bar g	
Minimum installation head (from base of pump)	0.2 m
Recommended installation head (from base of pump)	0.3 m

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	**DN40 x DN25**
Pump discharge/cycle	5 litres
1 metre installation head At: 5 bar g motive pressure 1 bar g total back pressure	Max. trapping capacity 4 000 kg/h
	Max. pumping capacity 1 100 kg/h

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.

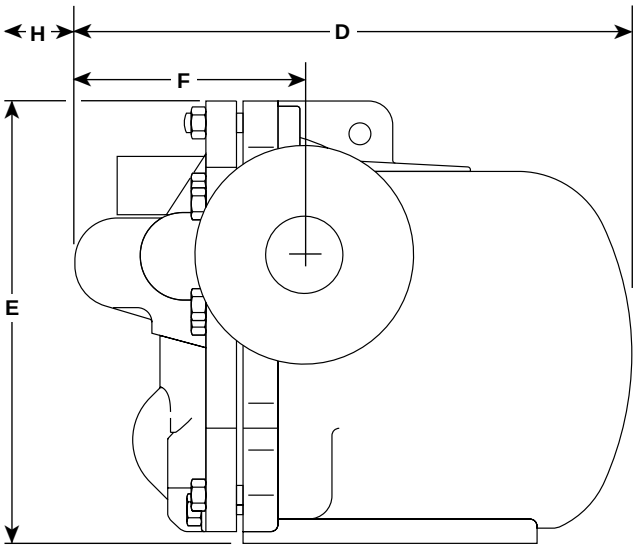
BP (back pressure) = (H x 0.0981) + (P) + (Pf)

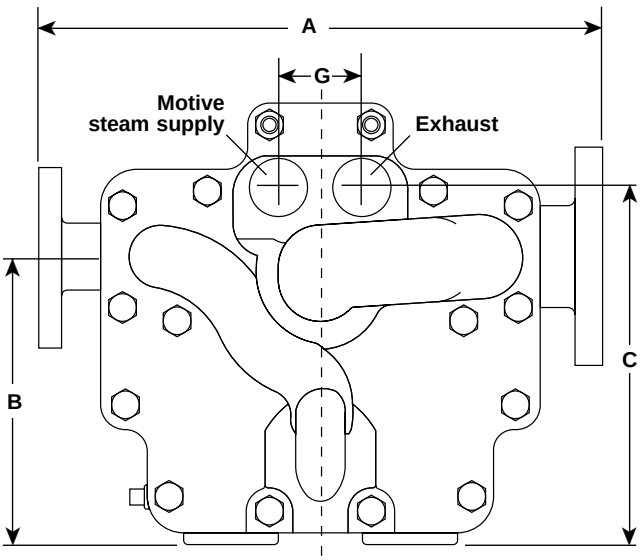
Height (H) in metres x 0.0981 plus pressure (P) bar g in the return line, plus downstream piping friction pressure drop (Pf) in bar. (Pf can be ignored if the downstream pipework is less than 100 metres to a non-flooded condensate return and has been sized to take into account the effect of flash steam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

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	Weight
DN40 x DN25 flanged	389	198	246	382	304	157	57	250	45
DN40 x DN25 screwed	350	198	246	382	304	157	57	250	45





How to specify
The pump trap shall be a Spirax Sarco automatic pump trap type APT14 operated by steam to 13.8 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 dual stainless steel floats connected with a two stage trap, while the internal pump mechanism shall be a stainless steel single tension spring snap-action device with no external seals or glands.

How to order **1 - Automatic pump trap, type APT14, DN40 x DN25, flanged PN16 with BSP motive fluid connections.**