



## APT10-4.5 Automatic Pump Trap

The Spirax Sarco Automatic Pump Trap is a non-electric combination pump and trap which transfers high temperature condensate from a low-point, low pressure or vacuum space to an area of higher pressure or elevation. This self contained unit uses steam as the pumping force to remove condensate from process equipment under all operating conditions. Recommended for use with motive steam only.

<b>Model</b>	<b>APT10-4.5</b>
<b>PMO</b>	65 psig
<b>Sizes</b>	3/4" x 3/4" Inlet/Outlet 1/2" Motive/Exhaust
<b>Connections</b>	NPT
<b>Construction</b>	Ductile Iron Body Stainless Steel Internals Stainless Steel Check Valves

### Optional Extra

The APT10-4.5 is available with the body and cover coated with electroless nickel plate (ENP). This option, when required, will be denoted as APT10-4.5 ENP.

### Limiting Operating Conditions

<b>Max. Operating Pressure (PMO)</b>	65 psig (4.5 barg)
<b>Max. Back Pressure</b>	58 psig (4 barg)
<b>Max. Operating Temperature (TMO)</b>	311°F (155°C)

### Specific Gravity

0.9 to 1.0

### Filling Head Requirements

(from base) 7.8" (.2m)

### Filling Head Recommended

(from base) 11.8" (.3m)

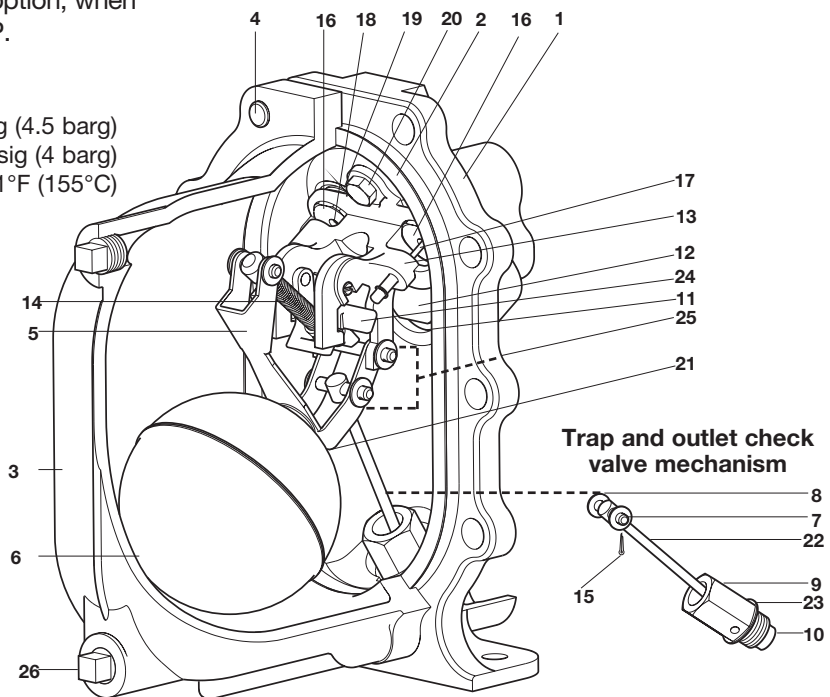
### Pressure Shell Design Conditions

#### PMA

Max. allowable pressure 145 psig (PN10)

#### TMA

Max. allowable temperature 392°F (200°C)



### Materials

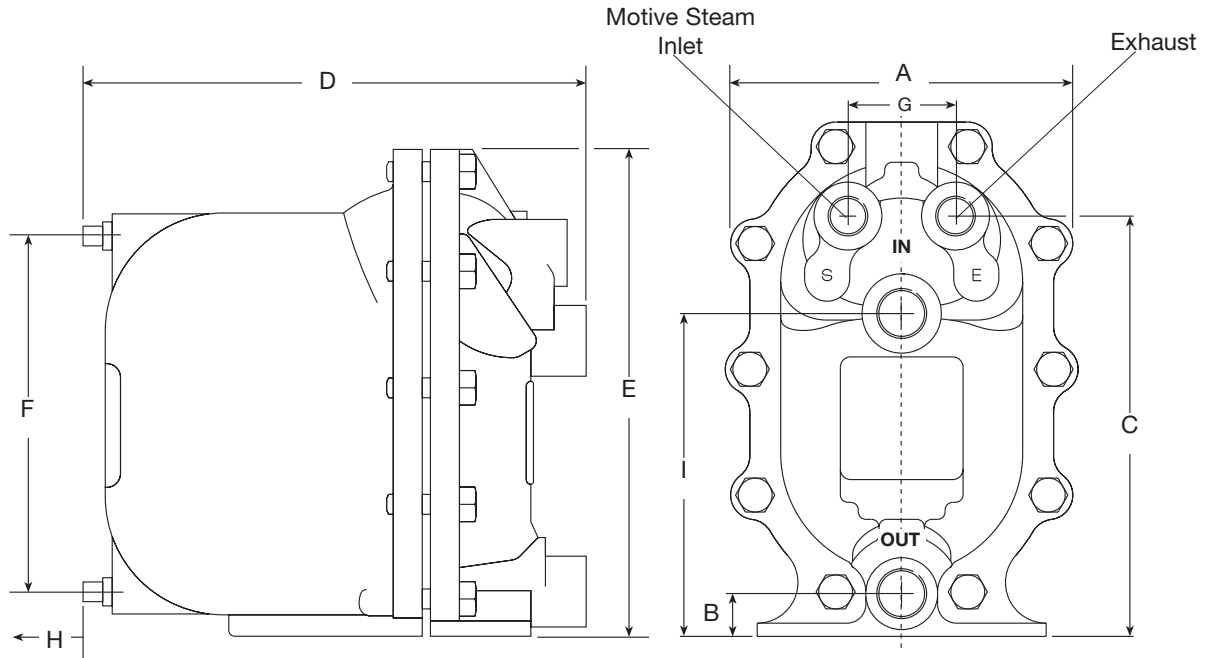
No.	Part	Material
1	Cover	SG Iron ASTM A395/ DIN 1693 GGG 40.3
2	Cover Gasket	Synthetic fiber
3	Body	SG Iron ASTM A395/ DIN 1693 GGG 40.3
4	Cover Bolts	Stainless Steel ISO 3506 Gr. A2-70
5	Pump trap lever	Stainless Steel
6	Float	Stainless Steel
7	Pivot shaft	Stainless Steel
8	Washer	Stainless Steel
9	Trap housing	Stainless Steel
10	Ball	Stainless Steel
11	Seat (inlet check valve)	Stainless Steel
12	Flap (inlet check valve)	Stainless Steel
13	Pump mechanism bracket	Stainless Steel
14	Spring (pump)	Stainless Steel
15	Split pin	Stainless Steel
16	Inlet and exhaust seat	Stainless Steel
17	Inlet valve	Stainless Steel
18	Exhaust valve	Stainless Steel
19	Valve seat gasket	Stainless Steel
20	Pump mechanism bolt	Stainless Steel
21	Float bolt	Stainless Steel
22	Trap 1st stage valve	Stainless Steel
23	Trap gasket	Stainless Steel
24	Actuator arm	Stainless Steel
25	Name-plate	Stainless Steel
26	Drain plug	Stainless Steel

Local regulation may restrict the use of this product below the conditions quoted. Limiting conditions refer to standard connections only.  
In the interests of development and improvement of the product, we reserve the right to change the specification.

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# APT10-4.5 Automatic Pump Trap

Approximate Dimensions (nominal) in inches and millimeters											
Size	Connection	A	B	C	D	E	F	G	H	I	Weight
3/4" x 3/4"	NPT	7.4	0.9	8.7	10.5	10.7	7.6	2.2	8.9	6.7	31
		187	23	223	266	273	194	57	225	171	14



## 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 center line of the heat exchanger/process condensate outlet (ft). 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 (psig).
3. Total back pressure in the condensate return system (psig). See note below.
4. Heat exchanger/ plant full load operating pressure (psig).
5. Heat exchanger/ plant maximum steam load (lb/hr).
6. Minimum temperature of process fluid. (°F).
7. Maximum controlled temperature of process fluid (°F).

## Spare Parts

See TIS 5.231

## Installation & Maintenance

Complete installation and maintenance instructions are given in IM-P612-18, supplied with each unit.

## Sample Specification

The pump trap shall be a Spirax Sarco automatic pump trap type APT10-4.5 operated by steam to 65 psig. No electrical energy shall be required.

Body construction from SG iron ASTM A395 dual certified with DIN 1693 GGG 40.3 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 7.8 inches installation head from the base of the unit.

## Certification

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

## Design Compliance

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

Size	3/4" x 3/4"
Pump discharge/cycle 3.3 ft. installation head At: 65 psig motive pressure	0.55 gallons Max. trapping capacity 2022 lb/hr
21 psig total back pressure	Max. pumping capacity 1420 lb/hr
Average Steam Consumption	6.6 lb/hr (3 kg/hr)

### 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.

$$BP \text{ (back pressure)} = (H : 2.3) + (P) + (Pf)$$

Height (H) in feet : 2.3 plus pressure (P) psig in the return line, plus downstream piping friction pressure drop (Pf) in psig.

**How to order** 1 - Automatic pump trap, type APT10-4.5, 3/4" x 3/4", NPT with NPT motive fluid connections.