



APT10-4.5 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.



The APT10-4.5 is available with standard blue paint finish or coated in ENP (Electroless Nickel plate).

Certification

This product is available with certification to EN 10204 3.1.

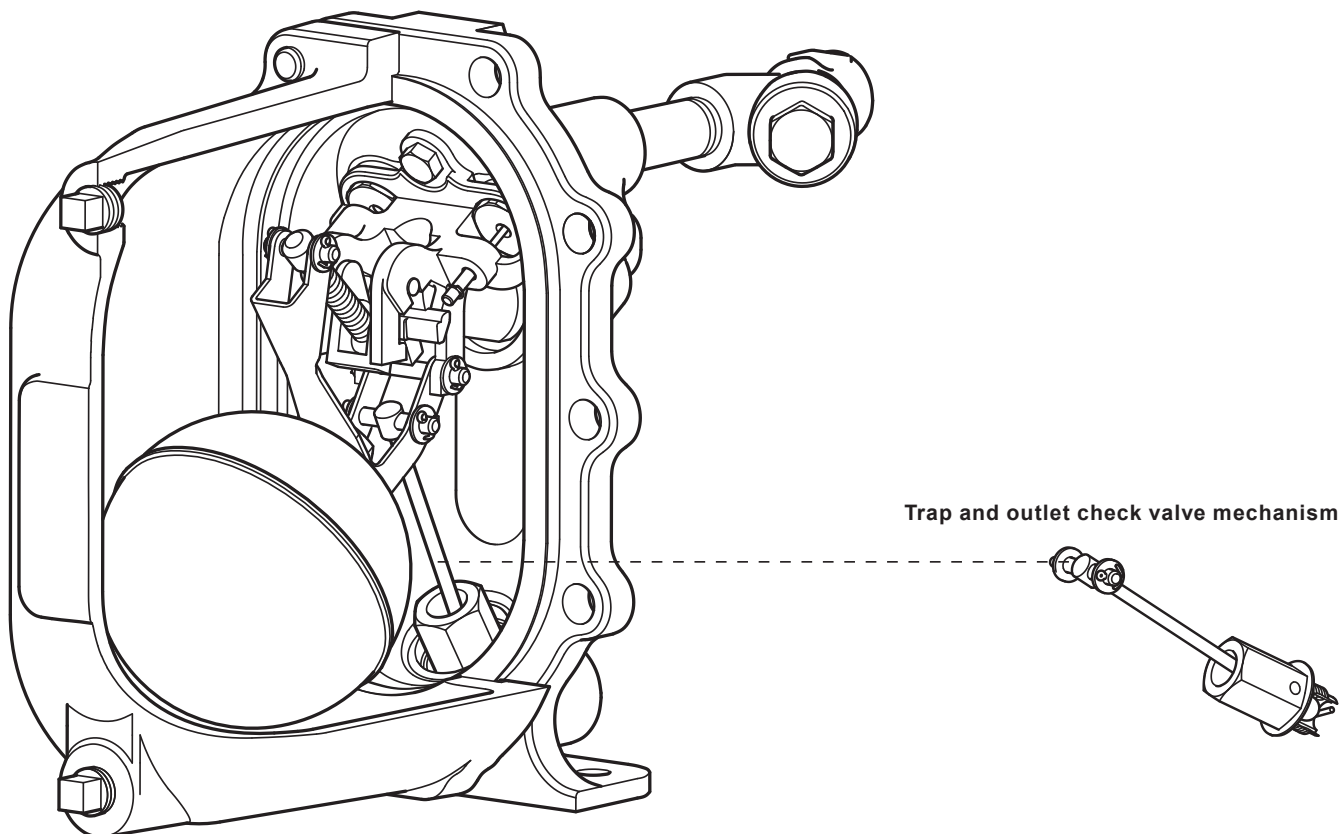
Note: All certification/inspection requirements must be stated at the time of order placement.

Standards

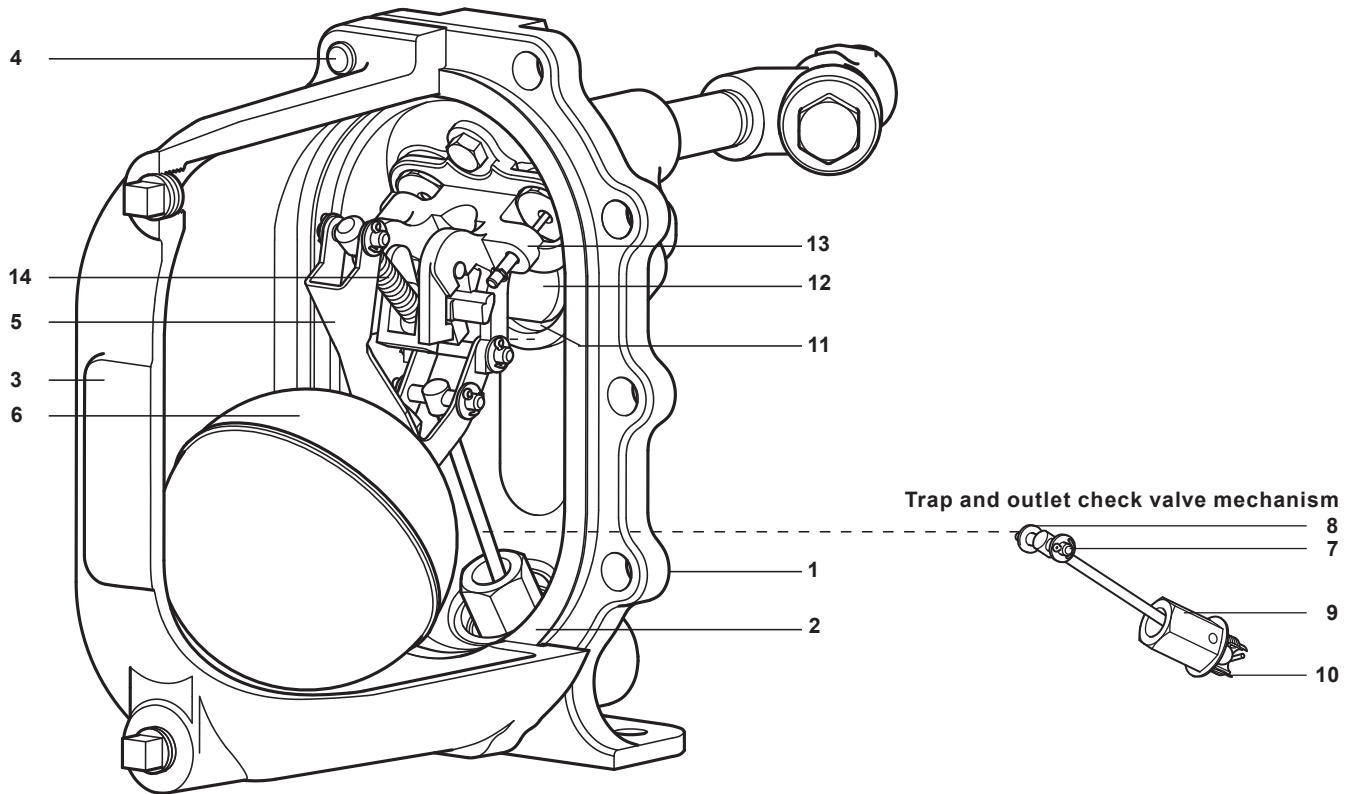
This product fully complies with the requirements of the Pressure Equipment Directive (PED), ATEX Directive 2014/34/EU and carries the  and  marks when so required.

Design compliance

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



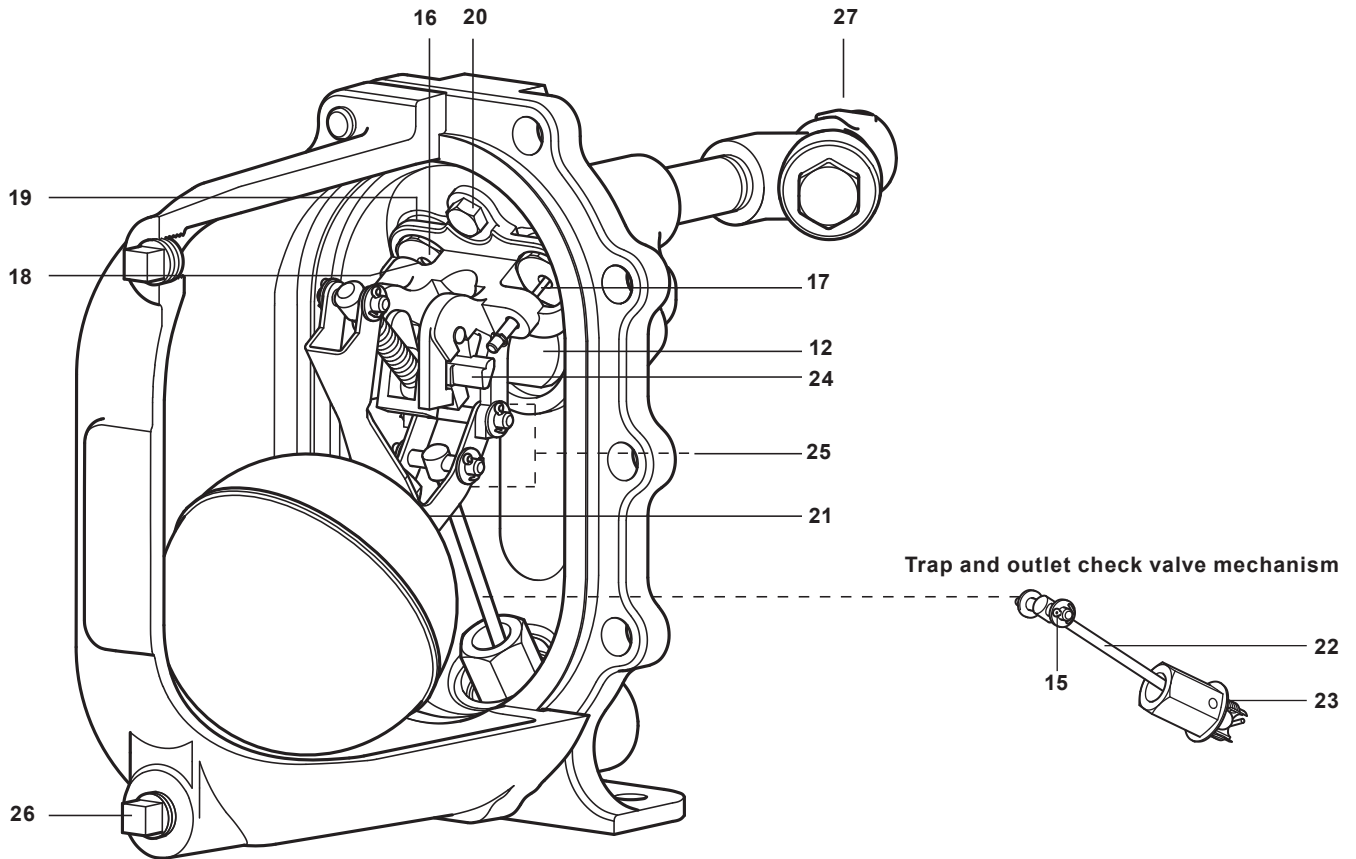
Materials



| No. | Part | Material | |
|-----|--------------------------|-----------------|---------------------------------|
| 1 | Cover | SG iron | EN JS 1025/ASTM A395 |
| 2 | Cover gasket | Synthetic fibre | |
| 3 | Body | SG iron | EN JS 1025/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 | Stainless steel | 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 |

Materials continued on the next page

Materials (continued)




| 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 | BS 970 431 S29 |
| 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 bin | 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 |
| 27 | Motive supply strainer | SG iron | DIN 17440 1.4571 |

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 | 4.5 bar g |
| Maximum operating pressure | 4.5 bar g |
| Maximum backpressure | 4.0 bar g |
| Maximum operating temperature | 155°C |
| Minimum operating temperature | -10°C |
| Temperature limits (Ambient ) | -10°C to 200°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 minimum installation head (from base of pump) | 0.3 m |

Safety information, installation and maintenance

For full details see the Installation and Maintenance Instructions supplied with the product.

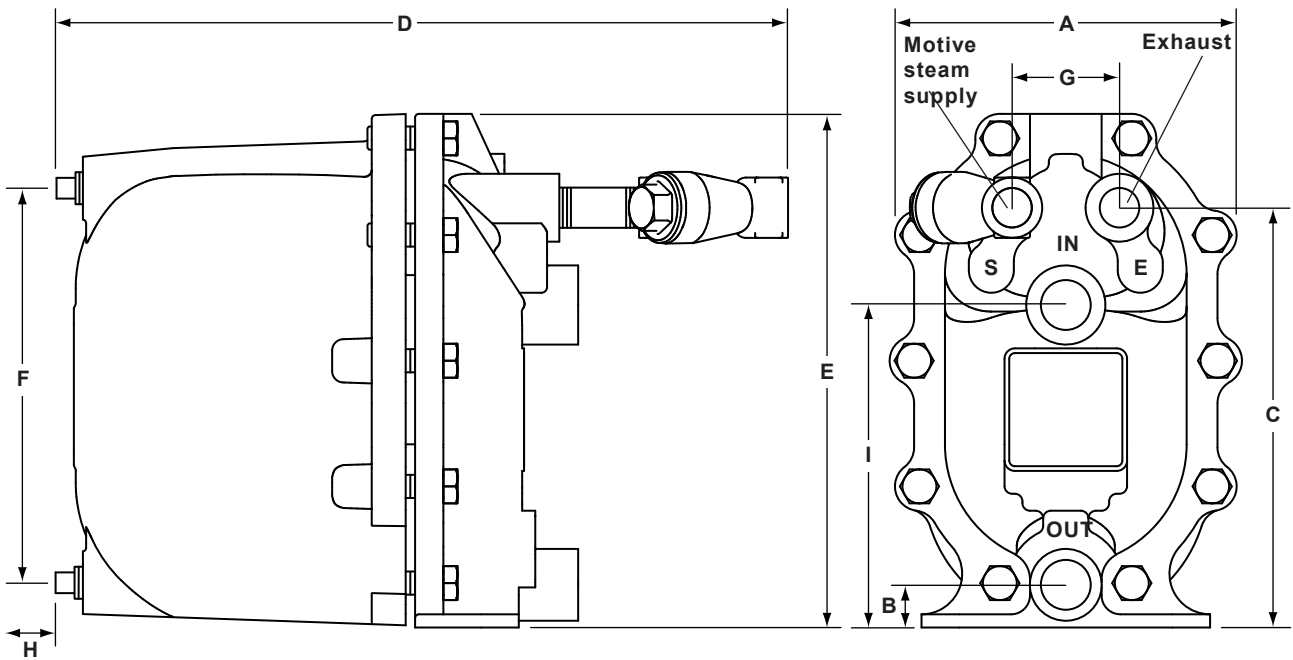
Nominal capacities

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 backpressure in the condensate return system (bar g).
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 | 2.6 litres |

Dimensions/weight (approximate) in mm and kg



| Size | A | B | C | D | E | F | G | H | I | Weight |
|-------------|-----|----|-----|-----|-----|-----|----|-----|-----|--------|
| DN20 x DN20 | 187 | 23 | 223 | 398 | 273 | 220 | 57 | 135 | 171 | 14 |

How to specify

The pump trap shall be a Spirax Sarco automatic pump trap type APT10-4.5 operated by steam to 4.5 bar g. No electrical energy shall be required. Body construction from SG iron (GGG 40.3 or 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 APT10-4.5, DN20 x DN20, complete with motive supply strainer screwed BSP with BSP motive fluid connections.

Spare parts

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

Available spares (see page 7 for part number identification)

| | | |
|---|--|------------------------|
| A | Cover gasket | 2 |
| B | Inlet check valve | 2, 12 |
| C | Spring and actuator arm | 2, 14, 24 |
| D | Float | 2, 5, 6, 21 |
| E | Trap and outlet check valve mechanism | 2, 7, 8, 9, 10, 22, 23 |
| F | Inlet/exhaust valve and seat kit | 2, 16, 17, 18, 19 |
| G | Motive supply strainer (Fig. 12 SG iron) - see separate literature | |

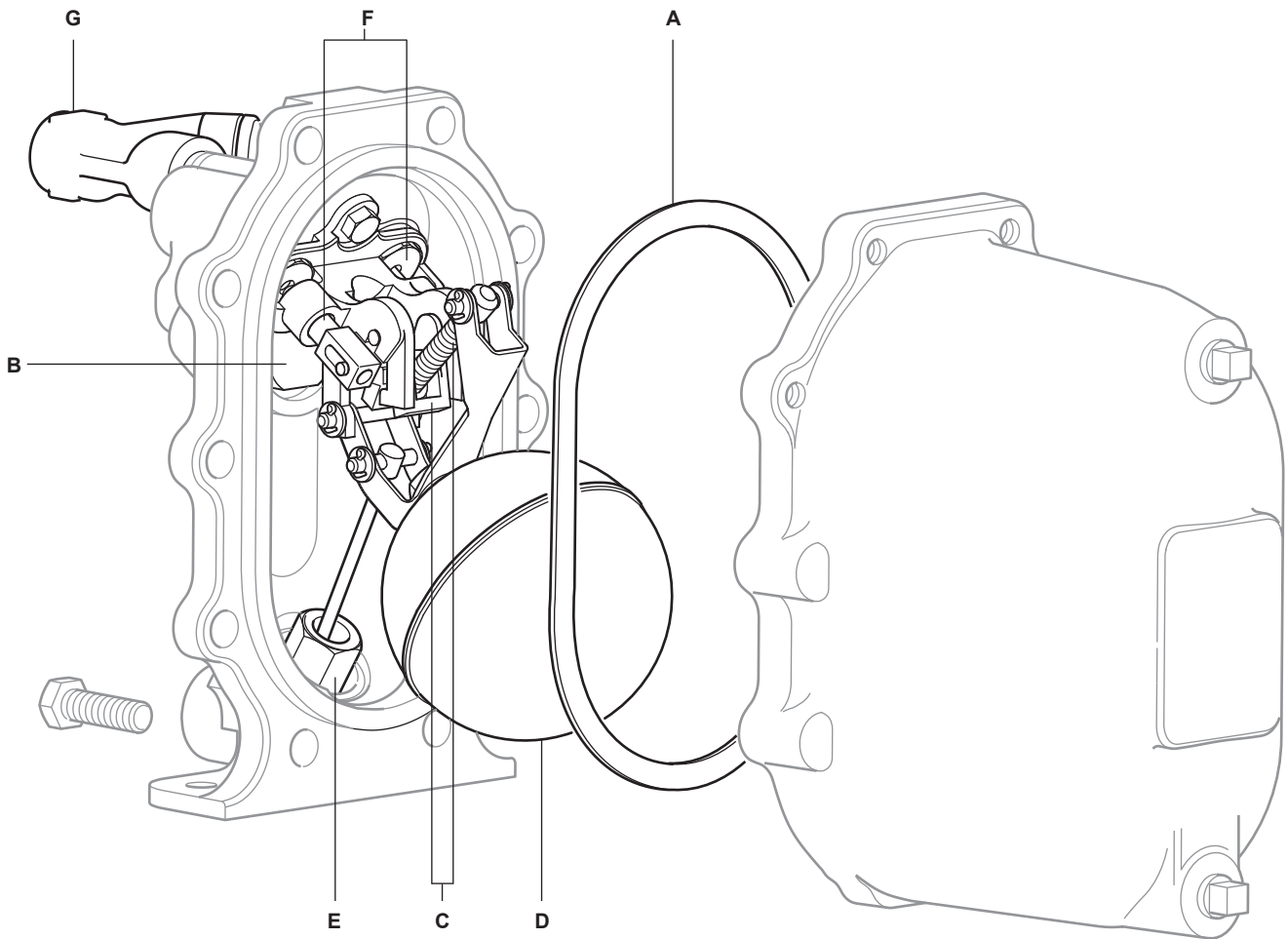
Please note:

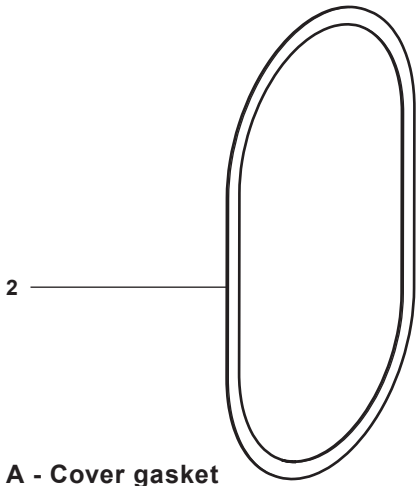
For customer convenience, spares are supplied in kits to ensure all the appropriate replacement parts are available e.g. when an inlet/exhaust valve and seat assembly is ordered, all replacement split pins, washers and gaskets will be provided in addition to the key components listed.

How to order spares

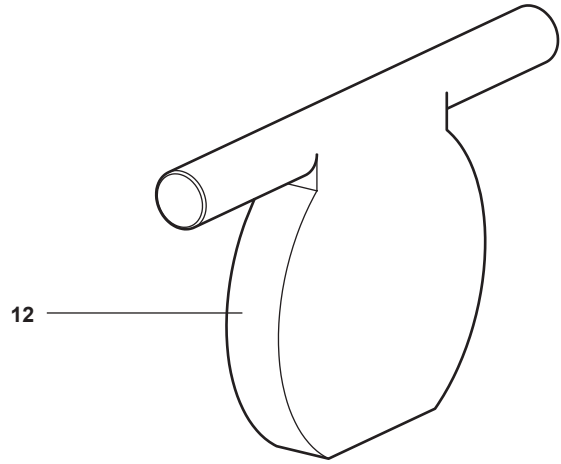
Always order spares by using the description given in the column headed 'Available spares' and state the size and type of unit.

Example: 1 off Inlet/exhaust valve and seat kit for a Spirax Sarco DN20 x DN20 APT10-4.5 automatic pump trap.

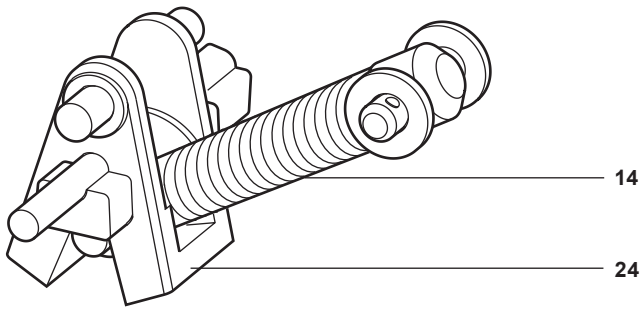




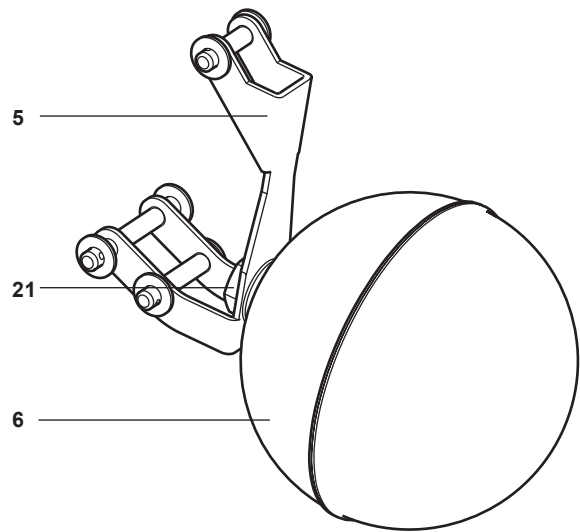
A - Cover gasket



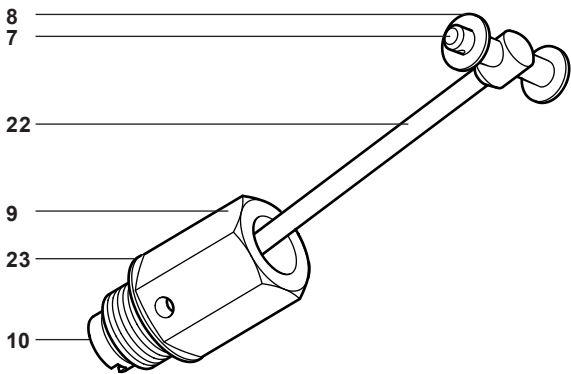
B - Inlet check valve



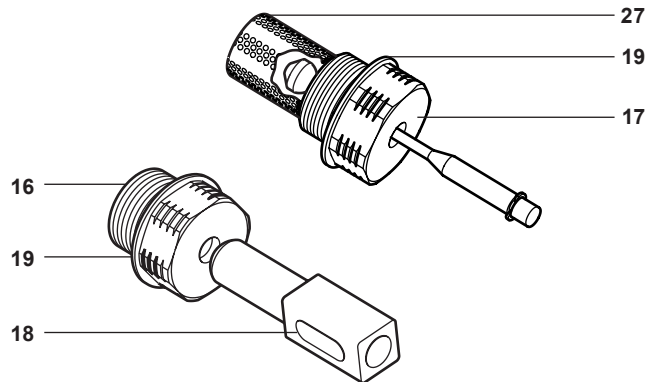
C - Spring and actuator arm



D - Float



E - Trap and outlet check valve mechanism



F - Inlet/exhaust valve and seat kit