



Cert. No. LRQ 0963008

ISO 9001

# spirax/sarco

## TD32F

### Flanged

### Thermodynamic Steam Trap

TI-P068-17

ST Issue 4

#### Description

The TD32F is a maintainable medium pressure flanged thermodynamic steam trap which has an integral strainer screen fitted to protect the internals from dirt.

The TD32FLC is designed specifically for low load applications such as steam mains drainage applications.

The TD32FA and TD32FALC are fitted with an anti-air-binding disc to ensure prompt removal of air on start-up.

#### Standards

This product fully complies with the requirements of the European Pressure Equipment Directive 97/23/EC.

#### Certification

These products are available with certification to EN 10204 2.2.

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

#### Sizes and pipe connections

DN15, 15LC, 20, 20LC, 25 and 25LC

Flanged ANSI B 16.5 Class 150 and 300, DIN 2501 PN40 and JIS/KS 10, 16 and 20.

#### Optional extras

**Insulating cover (for the DN15 and 20 only):** To prevent the trap being unduly influenced by excessive heat loss such as when subjected to low outside temperatures, wind, rain etc.

#### Limiting conditions (ISO 6552)

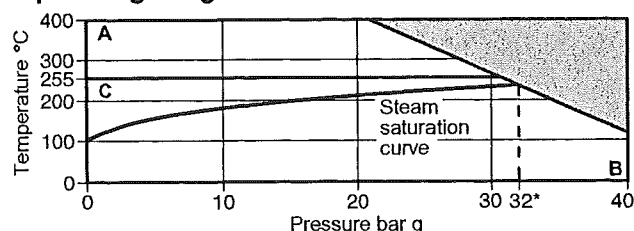
|                                     |                           |
|-------------------------------------|---------------------------|
| Body design conditions              | PN40                      |
| PMA - Maximum allowable pressure    | 40 bar g                  |
| TMA - Maximum allowable temperature | 400°C                     |
| PMO - Maximum operating pressure    | 32 bar g                  |
| TMO - Maximum operating temperature | TD32F and TD32FLC 400°C   |
|                                     | TD32FA and TD32FALC 255°C |

Minimum operating pressure for satisfactory operation is 0.25 bar g

PMOB - Maximum operating backpressure is 80% of upstream pressure

Designed for a maximum cold hydraulic test pressure of 60 bar g

#### Operating range



The product must not be used in this region.

\*PMO Maximum operating pressure for saturated steam service.

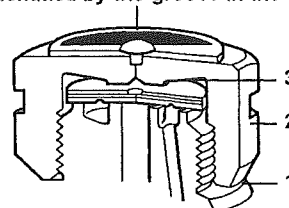
PMOB Maximum operating backpressure is 80% of upstream pressure.

**Note:** Minimum operating pressure for satisfactory operation is 0.25 bar g.

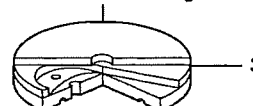
A - B TD32F and TD32FLC

C - B TD32FA and TD32FALC

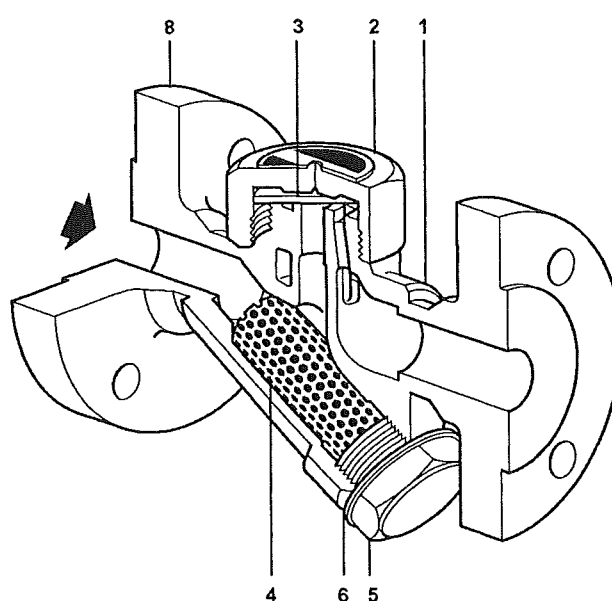
The TD32FLC and TD32FALC versions are identified by the groove in the cap



The TD32FA and TD32FALC have an anti-air-binding disc



A TD32F is shown below



#### Materials

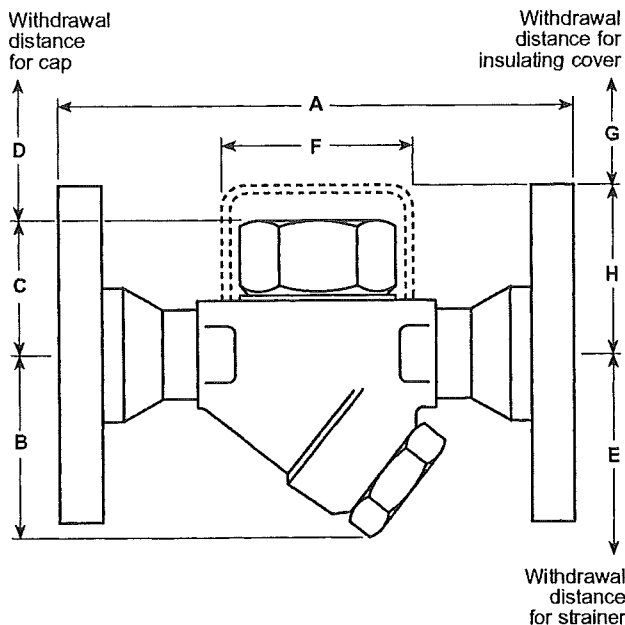
| No. | Part   | Material                        |
|-----|--|---------------------------------|
| 1   | Body   | Stainless steel ASTM A743 CA-40 |
| 2   | Cap  | Stainless steel AISI 416        |
| 3   | Disc   | Stainless steel BS 1449 420 S45 |
| 4   | Strainer screen  | Stainless steel ASTM A240 316L  |
| 5   | Strainer cap   | Stainless steel AISI 416        |
| 6   | Strainer cap gasket  | Stainless steel BS 1449 304 S16 |
| 7   | Insulating cover (optional extra for the DN15 and 20 only) | Aluminium                       |
| 8   | Flanges  | Steel DIN 17243 C22.8 Ws 1.0460 |

**Note:** The TD32FA and TDFALC are fitted with a 100 mesh stainless steel screen. All other versions have a 0.8 mm perforated screen.

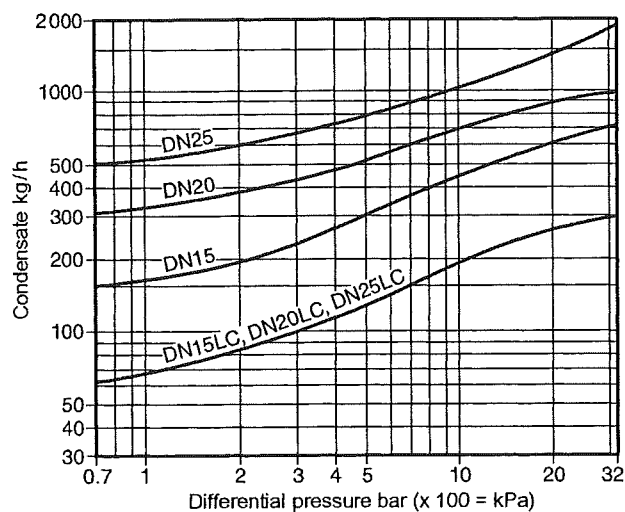


## Dimensions / weights (approximate) in mm and kg

| Size          | A   | B  | C  | D  | E   | F  | G  | H  | Weight |
|---------------|-----|----|----|----|-----|----|----|----|--------|
| DN15 and 15LC | 150 | 55 | 41 | 40 | 80  | 57 | 38 | 55 | 2.4    |
| DN20 and 20LC | 150 | 60 | 47 | 40 | 95  | 57 | 38 | 61 | 3.1    |
| DN25 and 25LC | 160 | 65 | 53 | 40 | 100 | —  | —  | —  | 4.2    |



## Capacities



## Safety information, installation and maintenance

For full details see the Installation and Maintenance Instructions (IM-P068-26) supplied with the product.

### Installation note:

The TD32F is designed for installation with the capsule in a horizontal plane with the cover at the top.

It is recommended that a non-return valve is fitted when discharging condensate into return lines where backpressure is experienced. It is also recommended that a diffuser is fitted when discharging to atmosphere.

For ease and maintenance, consideration should be given to fitting isolation valves upstream and downstream of the steam trap.

## Disposal

The product is recyclable. No ecological hazard is anticipated with the disposal of this product, providing due care is taken.

## How to order

**Example:** 1 off DN15 Spirax Sarco TD32FALC low capacity steam trap with flanged PN40 connections and having an integral strainer screen and anti-air-binding disc fitted.

## Spare parts

The spare parts available are shown in heavy outline. Parts drawn in broken line are not supplied as spares.

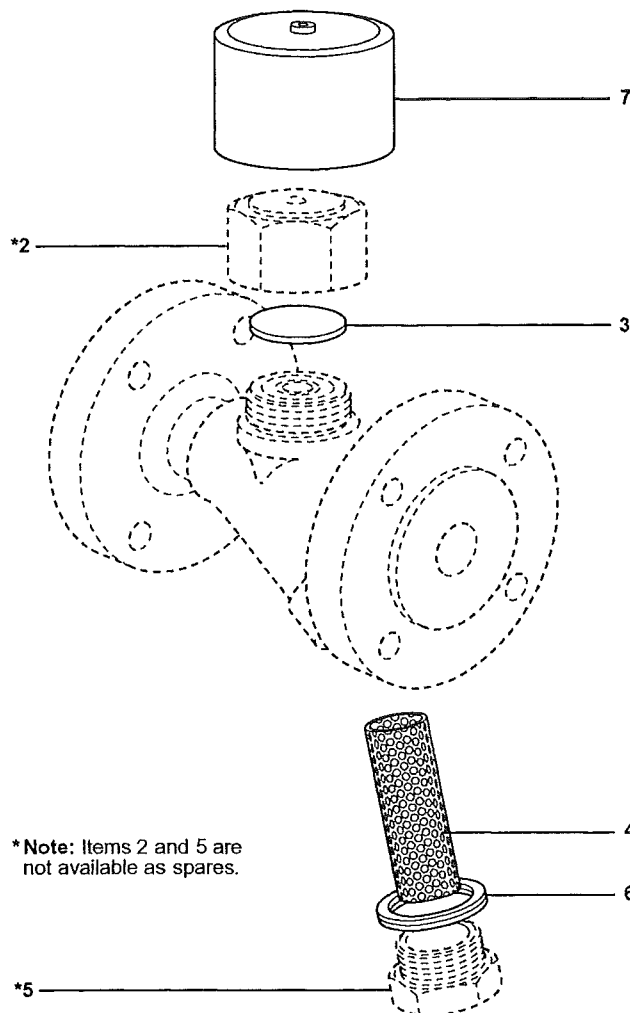
### Available spares

|   |         |
|---|---------|
| Disc for TD32F or TD32FLC (packet of 3)                 | 3       |
| Disc, strainer screen and gasket for TD32FA or TD32FALC | 3, 4, 6 |
| Strainer screen and gasket                              | 4, 6    |
| Strainer cap gasket (packet of 3)                       | 6       |
| Insulating cover (for the DN15 and 20 only)             | 7       |

### 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 trap.

**Example:** 1 - Strainer screen for a DN15 Spirax Sarco TD32F thermodynamic steam trap.



\*Note: Items 2 and 5 are not available as spares.

## Recommended tightening torques

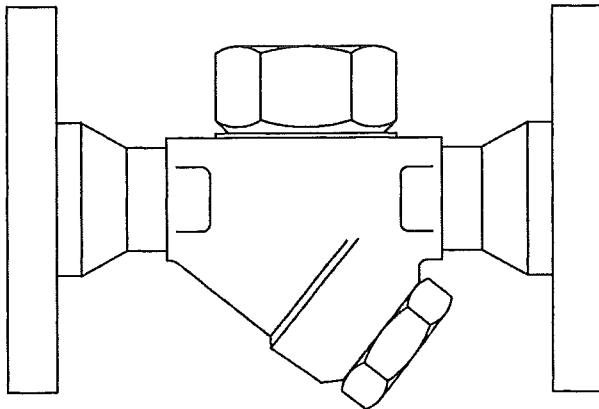
| Item | Size               | or<br>mm | N m       |
|------|--------------------|----------|-----------|
| 2    | DN15LC, 20LC, 25LC | 36 A/F   | 135 - 150 |
|      | DN15               | 41 A/F   | 180 - 200 |
|      | DN20               | 41 A/F   | 180 - 200 |
|      | DN25               | 55 A/F   | 250 - 275 |
| 5    | 32 A/F             |          | 170 - 190 |



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**Flanged Thermodynamic Steam Traps**  
**Installation and Maintenance Instructions**

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- 1. *General  
safety information*
- 2. *General  
product information*
- 3. *Installation*
- 4. *Commissioning*
- 5. *Operation*
- 6. *Maintenance*
- 7. *Spare parts*

# **1. General safety information**

Safe operation of this unit can only be guaranteed if it is properly installed, commissioned and maintained by a qualified person (see Section 11 of the attached Supplementary Safety Information) in compliance with the operating instructions. General installation and safety instructions for pipeline and plant construction, as well as the proper use of tools and safety equipment must also be complied with.

## **Isolation**

Consider whether closing isolating valves will put any other part of the system or personnel at risk. Dangers might include; isolation of vents and protective devices or alarms. Ensure isolation valves are turned off in a gradual way to avoid system shocks.

## **Pressure**

Before attempting any maintenance consider what is or may have been in the pipeline. Ensure that any pressure is isolated and safely vented to atmospheric pressure before attempting to maintain the product, this is easily achieved by fitting Spirax Sarco depressurisation valves type DV (see separate literature for details). Do not assume that the system is depressurised even when a pressure gauge indicates zero.

## **Temperature**

Allow time for temperature to normalise after isolation to avoid the danger of burns and consider whether protective clothing (including safety glasses) is required.

## **Disposal**

The product is recyclable. No ecological hazard is anticipated with the disposal of this product providing due care is taken.

## — 2. General product information —

### 2.1 General description

The TD32F is a maintainable medium pressure flanged thermodynamic steam trap which has an integral strainer screen fitted to protect the internals from dirt.

The TD32FLC is designed specifically for low load applications such as steam mains drainage.

The TD32FA and TD32FALC are fitted with an anti-air-binding disc to ensure prompt removal of air on start-up.

#### Optional extras

**Insulating cover (for the DN15 and 20 only):** To prevent the trap being unduly influenced by excessive heat loss such as when subjected to low outside temperatures, wind, rain etc.

**Note:** The insulating cover, if required, must be specified at the time of order placement.

#### Standards

This product fully complies with the requirements of the European Pressure Equipment Directive 97/23/EC.

#### Certification

These products are available with certification to EN 10204 2.2. **Note:** All certification/inspection requirements must be stated at the time of order placement.

**Note:** For additional information see the Technical Information Sheet TI-P068-17.

### 2.2 Sizes and pipe connections

DN15, 15LC, 20, 20LC, 25 and 25LC

Flanged ANSI B 16.5 Class 150 and 300, DIN 2501 PN40 and JIS/KS 10, 16 and 20.

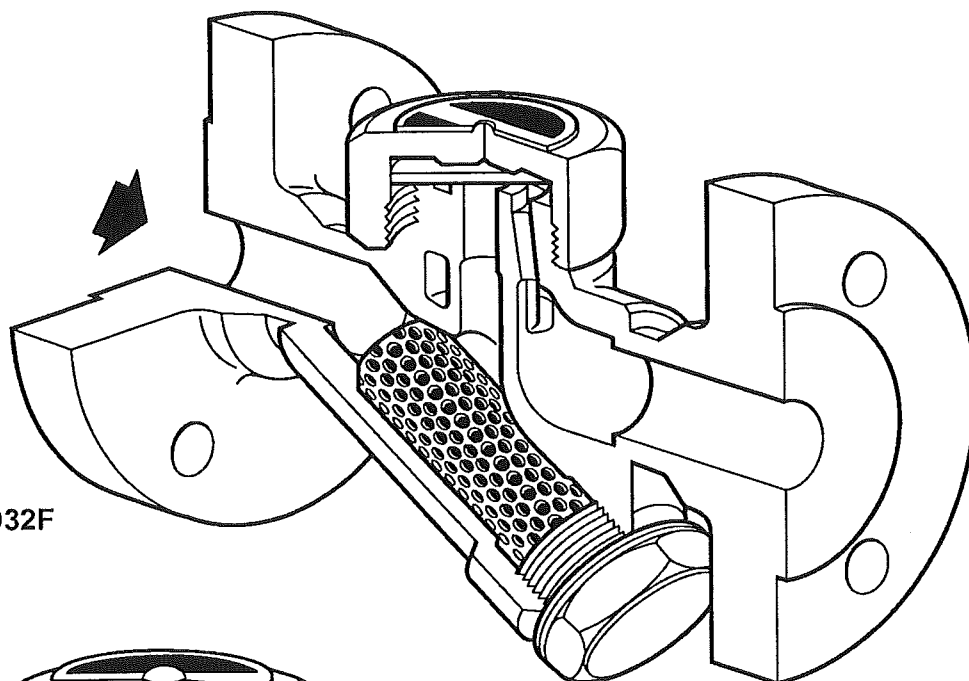


Fig. 1 TD32F

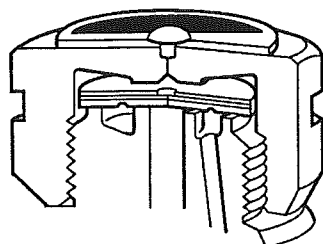


Fig. 2

The TD32FLC and TD32FALC versions are identified by the groove in the cap

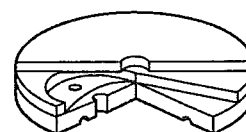


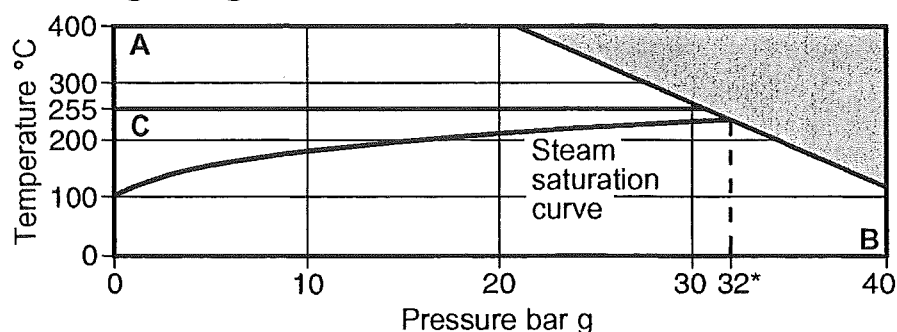
Fig. 3


The TD32FA and TD32FALC have an anti-air-binding disc

## 2.3 Limiting conditions (ISO 6552)

|   |                                 |                     |               |
|---|---------------------------------|---------------------|---------------|
| Body design conditions  |                                 | PN40                |               |
| PMA   | - Maximum allowable pressure    | 40 bar g            | (580 psi g)   |
| TMA   | - Maximum allowable temperature | 400°C               | (752°F)       |
| PMO   | - Maximum operating pressure    | 32 bar g            | (464 psi g)   |
| TMO   | - Maximum operating temperature | TD32F and TD32FLC   | 400°C (752°F) |
|   |                                 | TD32FA and TD32FALC | 255°C (491°F) |
| Minimum operating pressure for satisfactory operation:                |                                 | 0.25 bar g          | (3.6 psi g)   |
| PMOB - Maximum operating backpressure is 80% of the upstream pressure |                                 |                     |               |
| Designed for a maximum cold hydraulic test pressure of:               |                                 | 60 bar g            | (870 psi g)   |

## 2.4 Operating range



 The product must not be used in this region.

\*PMO Maximum operating pressure for saturated steam service is 32 bar g (464 psi g).

PMOB Maximum operating backpressure is 80% of the upstream pressure.

**Note:** Minimum operating pressure for satisfactory operation is 0.25 bar g (3.6 psi g).

**A - B** TD32F and TD32FLC

**C - B** TD32FA and TD32FALC



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## 3. Installation

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**Note:** Before actioning any installation observe the 'Safety information' in Section 1.

Referring to the Installation and Maintenance Instructions, name-plate and Technical Information Sheet, check that the product is suitable for the intended installation:

- 3.1** Check materials, pressure and temperature and their maximum values. If the maximum operating limit of the product is lower than that of the system in which it is being fitted, ensure that a safety device is included in the system to prevent overpressurisation.
- 3.2** Determine the correct installation situation and the direction of fluid flow.
- 3.3** Remove protective covers from all connections.
- 3.4** The trap should preferably be installed in the horizontal plane, with a small drop leg preceding it. Suitable isolation valves must be installed to allow for safe maintenance and trap replacement. Consideration should be given to a suitable method for testing the correct operation of the trap. This may be a sight glass or a Spiratec system. Sight glasses must be positioned a minimum of 1 m (3 ft) downstream of any blast-action traps. Where the trap discharges into a closed return system, a non-return valve should be fitted downstream to prevent return flow. Remove all packaging and protective covers and ensure all connection ports are clear from obstruction.  
Always open isolation valves slowly until normal operating conditions are achieved - this will avoid system shocks. Check for leaks and correct operation. Always ensure the correct tools, safety procedures and protective equipment are used at all times.

**Note:** If the trap is to discharge to atmosphere ensure it is to a safe place, the discharging fluid may be at a temperature of 100°C (212°F).

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## 4. Commissioning

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After installation or maintenance ensure that the system is fully functional. Carry out tests on any alarms or protective devices.

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## 5. Operation

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The thermodynamic steam trap will discharge condensate with a blast type action at a few degrees below steam saturation temperature, due care must be given to the site of the discharge.

## 6. Maintenance

**Note:** Before actioning any maintenance programme observe the 'Safety information' in Section 1.

### 6.1 General information

Before undertaking any maintenance on the trap it must be isolated from both the supply line and return line and any pressure allowed to safely normalise to atmosphere. The trap should then be allowed to cool. When reassembling, ensure that all joint faces are clean.



### 6.2 How to service

- Remove insulating cover (7) , if fitted, and unscrew the cap (2) using a suitable spanner or socket. Do not use stillsons or a wrench of similar type which may cause distortion of the cap.
- If the seating faces on the body are only slightly worn, they can be refaced by lapping on a flat surface, such as a surface plate. A figure-of-eight motion and a little grinding compound, such as 'Carborundum Co's Compound I.F.' gives the best results. If the wear is too great to be rectified by simple lapping, the seating faces on the body must be ground flat and then lapped.  
**Note: the disc (3) should always be replaced with a new one.** The total amount of metal removed in this way should not exceed 0.25 mm (0.010").
- When reassembling, the disc (3) is normally placed in position with the grooved side in contact with the body seating face.
- Screw on the cap (2) to the recommended tightening torque (see Table 1); no gasket is required but a suitable high temperature anti-seize grease should be applied to the threads.

### 6.2 How to clean or replace the strainer:

- Unscrew the strainer cap (5) using a suitable spanner.
- Withdraw the screen (4) and clean or, if damaged, replace with a new one.
- To reassemble, insert the screen (4) into the strainer cap (5), then screw the strainer cap into place. A fine smear of 'Molybdenum Disulphide' grease should be applied to the first few threads. Care should be taken to ensure that the gasket and gasket faces are clean.
- Tighten to the recommended torque (see Table 1).
- When maintenance is complete open isolation valves slowly and check for leaks.

**Table 1 Recommended tightening torques**

| Item | Part         |  or <br>mm | N m    | (lbf ft)              |
|------|--------------|--|--------|-----------------------|
| 2    | Cap          | DN15LC   | 36 A/F | 135 - 150 (100 - 110) |
|      |              | DN15   | 36 A/F | 180 - 200 (132 - 147) |
|      |              | DN20   | 41 A/F | 180 - 200 (132 - 147) |
|      |              | DN25   | 55 A/F | 250 - 275 (184 - 202) |
| 5    | Strainer cap | 32 A/F   | M28    | 170 - 190 (125 - 140) |

## 7. Spare parts

The spare parts available are shown in heavy outline. Parts drawn in broken line are not supplied as spares.

### Available spares

|   |         |
|---|---------|
| Disc for TD32F or TD32FLC (packet of 3)                 | 3       |
| Disc, strainer screen and gasket for TD32FA or TD32FALC | 3, 4, 6 |
| Strainer screen and gasket                              | 4, 6    |
| Strainer cap gasket (packet of 3)                       | 6       |
| Insulating cover (for the DN15 and 20 only)             | 7       |

### 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 trap.

**Example:** 1 - Strainer screen for a DN15 Spirax Sarco TD32F thermodynamic steam trap.

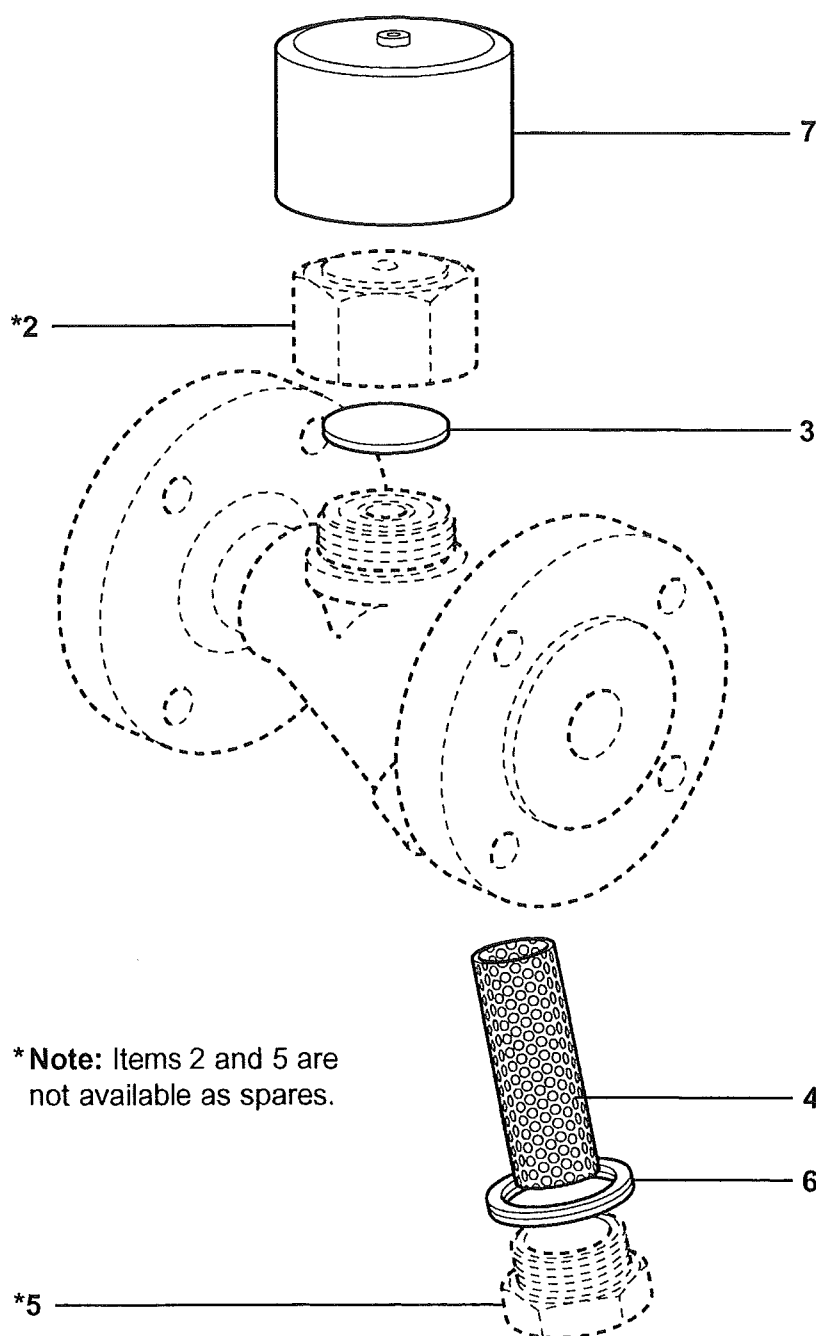


Fig. 4

