



TDS46M

Stainless Steel

Thermodynamic Steam Trap with Maintainable Seat

Description

The TDS46M is a stainless steel, thermodynamic steam trap that has been specifically designed for low capacity applications up to 46 bar g (667 psi g) (where pipe connections permit).

As standard the unit is available with either screwed, socket weld or flanged connections.

- TDS46M benefits:**
- Integral strainer.
 - Integral air vent.
 - Insulation cap.
 - Replaceable seat.

Optional extras

At extra cost a **BDV1** integral blowdown valve can be pre-fitted to the strainer cap, please specify at the time of order placement.

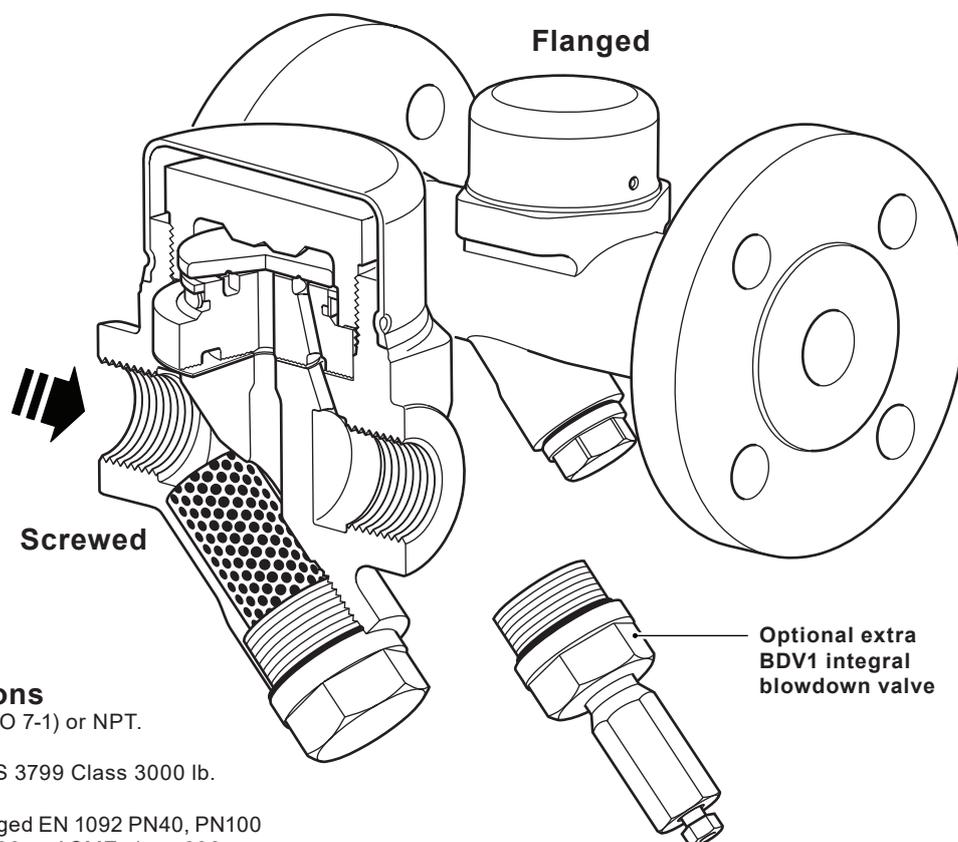
Standards

This product fully complies with the requirements of the European Pressure Equipment Directive 2014/68/EU.

Certification

These products are available with certification to EN 10204 3.1.

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



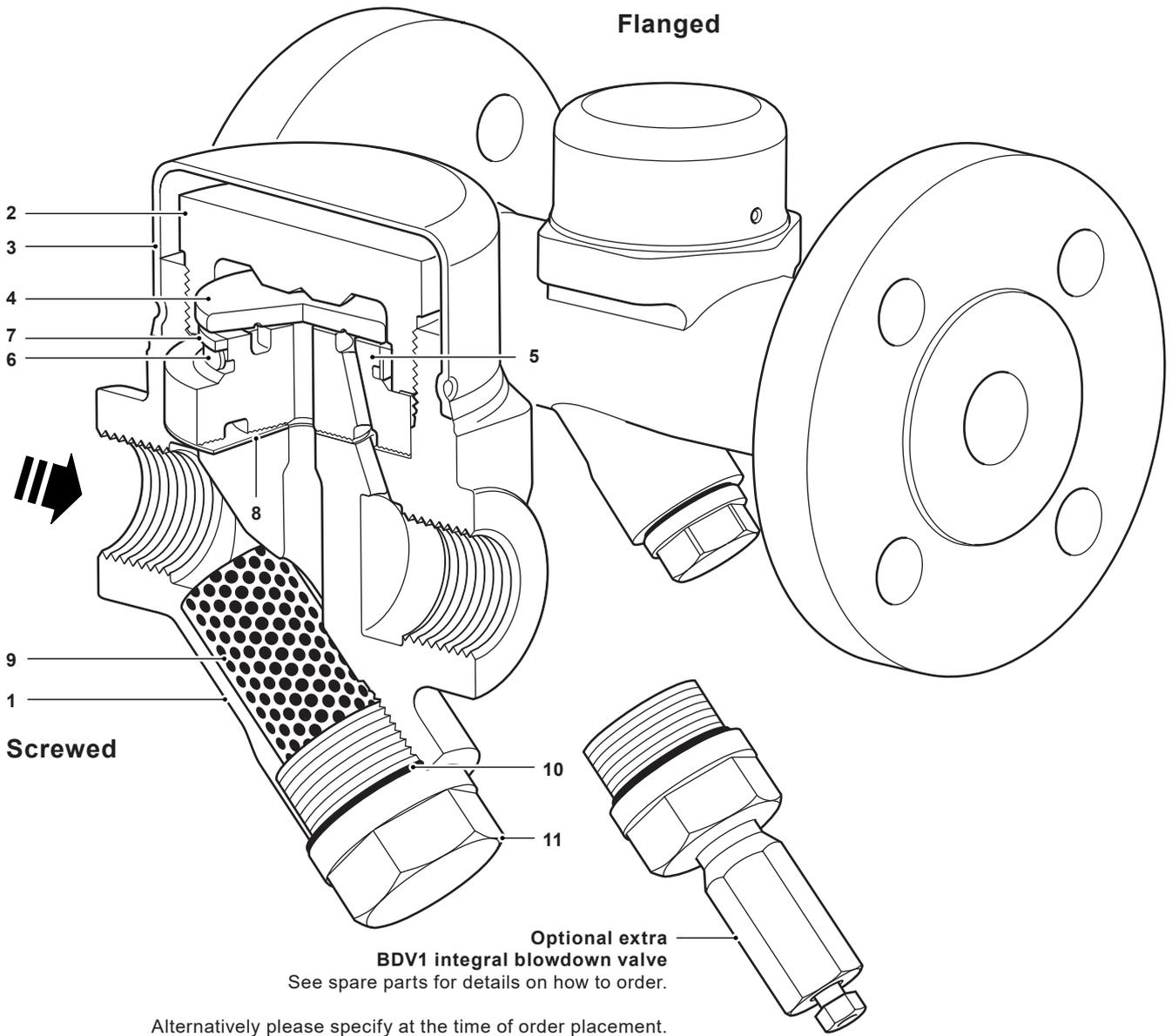
Sizes and pipe connections

½", ¾" and 1" screwed BSP T Rp (ISO 7-1) or NPT.

½", ¾" and 1" socket weld ends to BS 3799 Class 3000 lb.

DN15, DN20 and DN25 integrally flanged EN 1092 PN40, PN100 and ASME class 150, ASME class 300 or ASME class 600.

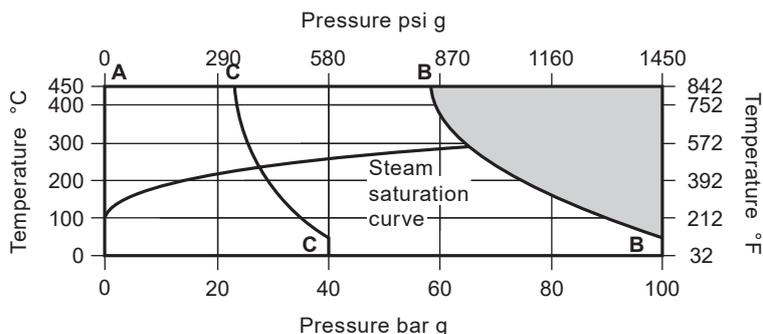
Materials



| No. | Part | Material | |
|-----|---------------------|------------------------------|----------------------|
| 1 | Body | Stainless steel | 1.4308/ASTM A351 CF8 |
| 2 | Top cap | Stainless steel (ENP coated) | 1.4301/ASTM A479 304 |
| 3 | Insulating cover | Stainless steel | EN 10088-1 1.4301 |
| 4 | Disc | Hardened steel | 1.2379 |
| 5 | Seat | Hardened steel | 1.2379 |
| 6 | Bimetal ring | Bimetal | |
| 7 | Support | Stainless steel | AISI 304 |
| 8 | Seat gasket | Graphite foil | |
| 9 | Strainer screen | Stainless steel | ASTM A478 316L |
| 10 | Strainer cap gasket | Stainless steel | AISI 304 |
| 11 | Strainer cap | Stainless steel (ENP coated) | 1.4308/ASTM A351 CF8 |

Pressure/temperature limits (ISO 6552) - Screwed, Socket weld and Flanged EN 1092

**Screwed
Socket weld
Flanged:
PN40
PN100**



The product **must not** be used in this region or beyond the parameter of the PMA or TMA of the relative end connection.

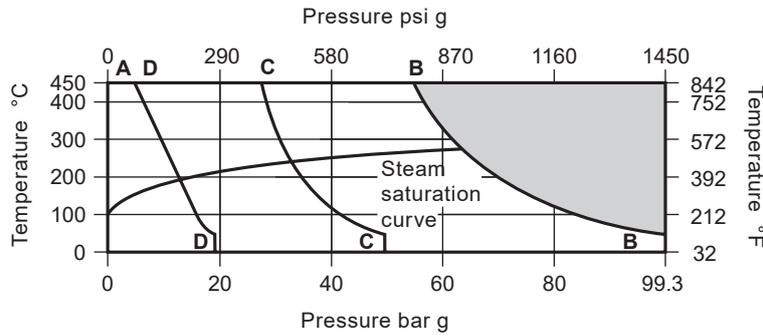
| | | | |
|--|--|--------------------------|---------------------|
| | Body design conditions | | PN100 |
| | PMA Maximum allowable pressure | 100 bar g @ 50 °C | 1450 psi g @ 122 °F |
| | TMA Maximum allowable temperature | 450 °C @ 58.3 bar g | 842 °F @ 846 psi g |
| | Minimum allowable temperature | -50 °C | -58 °F |
| | PMO Maximum operating pressure | 46 bar g @ 450 °C | 667 psi g @ 842 °F |
| | TMO Maximum operating temperature | 450 °C @ 46 bar g | 842 °F @ 667 psi g |
| | Minimum operating temperature | 0 °C | 32 °F |
| | Minimum operating pressure | 1.5 bar g | 22 psi g |
| | Maximum operating backpressure | 80% of upstream pressure | |
| | Product is safe for use under full vacuum conditions | | |
| | Designed for a maximum cold hydraulic pressure of: | 150 bar g | 2176 psi g |
| | Body design conditions | | PN40 |
| | PMA Maximum allowable pressure | 40 bar g @ 50 °C | 580 psi g @ 122 °F |
| | TMA Maximum allowable temperature | 450 °C @ 23.3 bar g | 842 °F @ 338 psi g |
| | Minimum allowable temperature | -50 °C | -58 °F |
| | PMO Maximum operating pressure for saturated steam service | 28.4 bar g @ 233 °C | 412 psi g @ 451 °F |
| | TMO Maximum operating temperature | 450 °C @ 23.3 bar g | 842 °F @ 338 psi g |
| | Minimum operating temperature | 0 °C | 32 °F |
| | Minimum operating pressure | 1.5 bar g | 22 psi g |
| | Maximum operating backpressure | 80% of upstream pressure | |
| | Product is safe for use under full vacuum conditions | | |
| | Designed for a maximum cold hydraulic pressure of: | 60 bar g | 870 psi g |

**A - B - B PN100
Screwed
Socket weld**

A - C - C PN40

Pressure/temperature limits (ISO 6552) - Flanged ASME

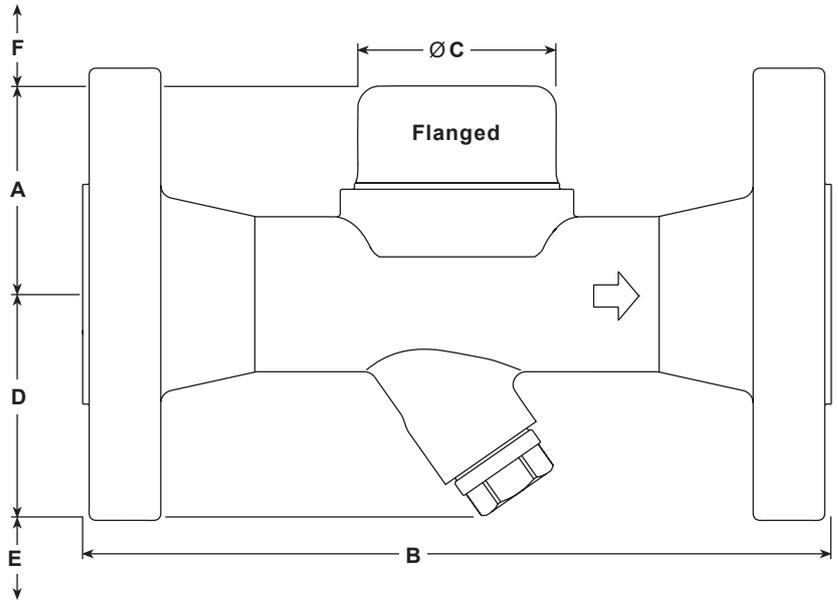
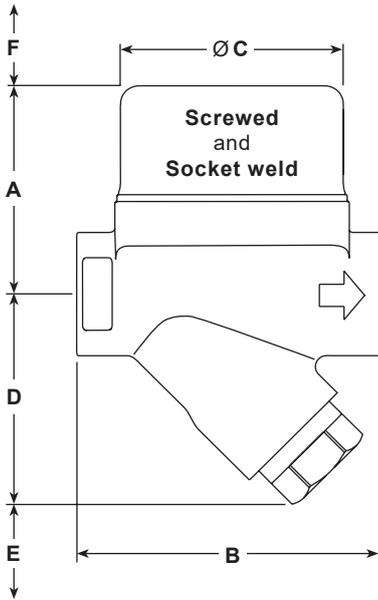
Flanged:
ASME Class 150
ASME Class 300
ASME Class 600



The product **must not** be used in this region or beyond the parameter of the PMA or TMA of the relative end connection.

| | | | | | |
|-----------|--|------------------------|--|------------------------------|---------------------|
| A - B - B | ASME 600 | Body design conditions | | ASME Class 600 | |
| | | PMA | Maximum allowable pressure | 99.3 bar g @ 38 °C | 1440 psi g @ 100 °F |
| | | TMA | Maximum allowable temperature | 450 °C @ 54.8 bar g | 842 °F @ 795 psi g |
| | | | Minimum allowable temperature | -50 °C | -58 °F |
| | | PMO | Maximum operating pressure | 46 bar g | 667 psi g |
| | | TMO | Maximum operating temperature | 450 °C @ 46 bar g | 842 °F @ 667 psi g |
| | | | Minimum operating temperature | 0 °C | 32 °F |
| | | | Minimum operating pressure | 1.5 bar g | 22 psi g |
| | | | Maximum operating backpressure | 80% of the upstream pressure | |
| | | | Product is safe for use under full vacuum conditions | | |
| | Designed for a maximum cold hydraulic pressure of: | 149 bar g | 2161 psi g | | |
| A - C - C | ASME 300 | Body design conditions | | ASME Class 300 | |
| | | PMA | Maximum allowable pressure | 49.6 bar g @ 38 °C | 719 psi g @ 100 °F |
| | | TMA | Maximum allowable temperature | 450 °C @ 27.4 bar g | 842 °F @ 397 psi g |
| | | | Minimum allowable temperature | -50 °C | -58 °F |
| | | PMO | Maximum operating pressure for saturated steam service | 33 bar g | 479 psi g |
| | | TMO | Maximum operating temperature | 450 °C @ 27.4 bar g | 842 °F @ 397 psi g |
| | | | Minimum operating temperature | 0 °C | 32 °F |
| | | | Minimum operating pressure | 1.5 bar g | 22 psi g |
| | | | Maximum operating backpressure | 80% of the upstream pressure | |
| | | | Product is safe for use under full vacuum conditions | | |
| | Designed for a maximum cold hydraulic pressure of: | 74.4 bar g | 1079 psi g | | |
| A - D - D | ASME 150 | Body design conditions | | ASME Class 150 | |
| | | PMA | Maximum allowable pressure | 19 bar g @ 38 °C | 276 psi g @ 100 °F |
| | | TMA | Maximum allowable temperature | 450 °C @ 4.6 bar g | 842 °F @ 67 psi g |
| | | | Minimum allowable temperature | -50 °C | -58 °F |
| | | PMO | Maximum operating pressure for saturated steam service | 14 bar g | 203 psi g |
| | | TMO | Maximum operating temperature | 450 °C @ 4.6 bar g | 842 °F @ 67 psi g |
| | | | Minimum operating temperature | 0 °C | 32 °F |
| | | | Minimum operating pressure | 1.5 bar g | 22 psi g |
| | | | Maximum operating backpressure | 80% of the upstream pressure | |
| | | | Product is safe for use under full vacuum conditions | | |
| | Designed for a maximum cold hydraulic pressure of: | 28.5 bar g | 22 psi g | | |

Dimensions (approximate) in mm (in)

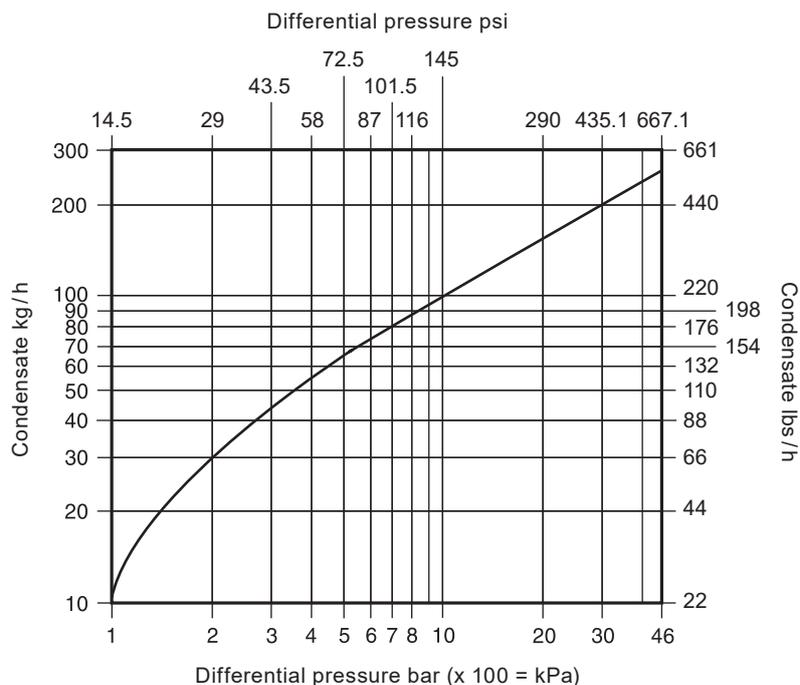


| Size | A | B | | C | D | E | F | | |
|-----------|--------------|--------------|--------------|----------------------------|---------------|--------------|--------------|--------------|---------------------|
| | | Screwed | Socket weld | | | | | Flanged | Withdrawal distance |
| | | | | PN40 ASME 150, 300, 600 | PN100 | | | | |
| 1/2" DN15 | 58 (2.28) | 78 (3.07) | 92 (3.62) | 150 (5.91) | 210 (8.27) | 61 (2.40) | 40 (1.57) | 30 (1.18) | |
| 3/4" DN20 | 61 (2.40) | 95 (3.74) | | 160 (6.29) | 230 (9.06) | | | | 59 (2.32) |
| 1" DN25 | 65 (2.56) | | | | | | | | 63 (2.48) |

Weights (approximate) in kg (lbs)

| Size | Screwed | Socket weld | Flanged | | | | |
|-----------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | | | ASME 150 | ASME 300 | ASME 600 | PN40 | PN100 |
| 1/2" DN15 | 1.38 (3.04) | 1.49 (3.28) | 2.46 (5.42) | 2.96 (6.53) | 3.06 (6.75) | 3.06 (6.75) | 4.36 (9.61) |
| 3/4" DN20 | 1.64 (3.62) | 1.64 (3.62) | 3.16 (6.97) | 4.06 (8.95) | 4.26 (9.39) | 3.96 (8.73) | 6.26 (13.8) |
| 1" DN25 | 1.90 (4.19) | 1.90 (4.19) | 4.16 (9.17) | 5.16 (11.4) | 5.46 (12.0) | 4.86 (10.7) | 8.16 (18.0) |

Capacities



Safety information, installation and maintenance

For full details see the Installation and Maintenance Instructions (IM-P187-05) supplied with the product.

Installation note:

The TDS46M is designed for installation with the disc in a horizontal plane with the insulating 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.

How to order

Example: 1 off Spirax Sarco DN15 TDS46M thermodynamic steam trap having flanged EN 1092 PN40 connections.

Spare parts

Please note that the spares shown are the same for the screwed, socket weld and flanged versions.

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

Available spares

| | |
|-----------------------------------|------------------|
| Insulating cover | 3 |
| Top cap, seat and disc assembly | 2, 4, 5, 6, 7, 8 |
| Strainer screen and gasket | 9, 10 |
| Set of gaskets (packet of 3 sets) | 8, 10 |
| BDV1 blowdown valve retrofit kit | |

How to order spares

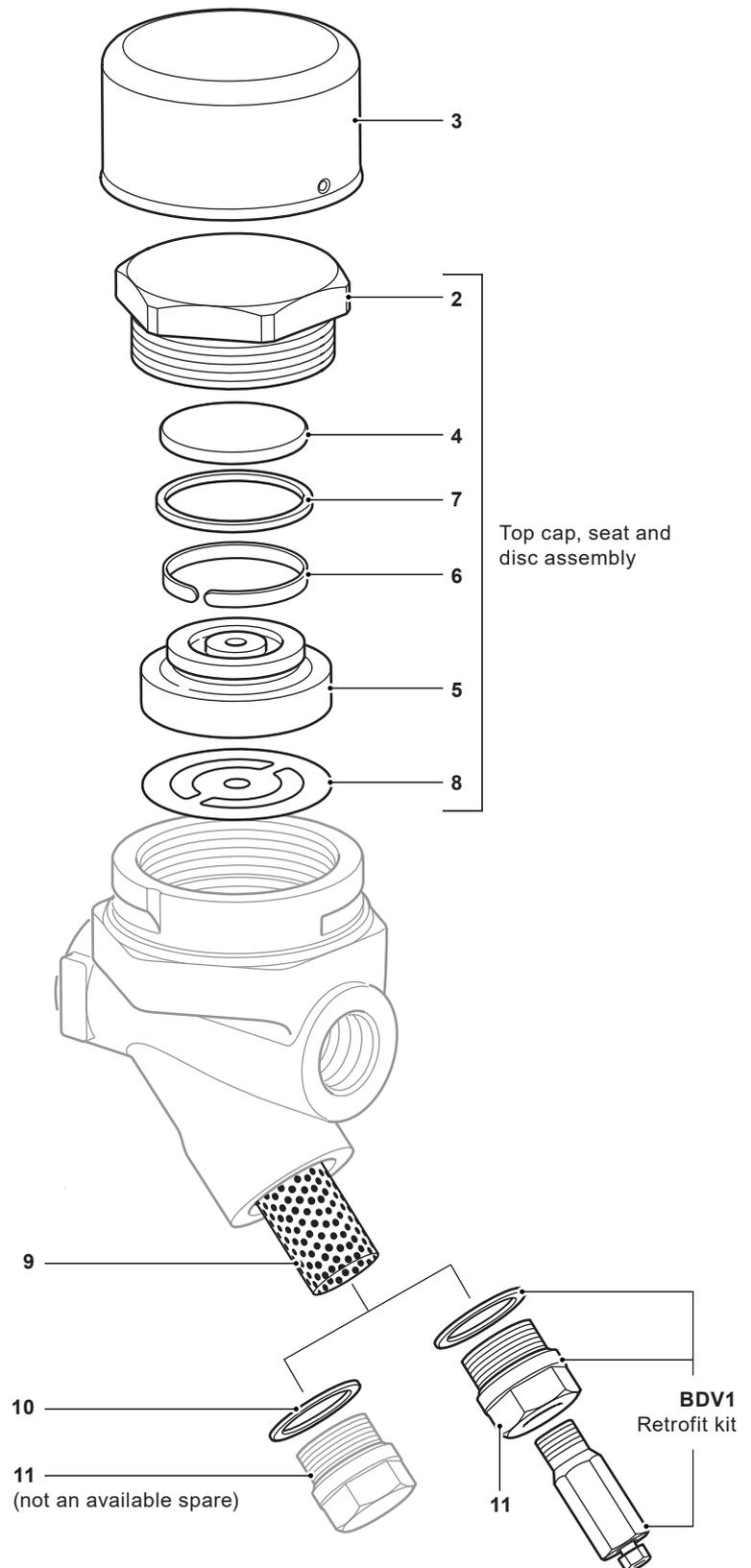
Always order spares by using the description given in the column headed 'Available spares' and state the size and type of trap.

Example: 1 off Top cap, seat and disc assembly for a Spirax Sarco DN15 TDS46M thermodynamic steam trap.

Cautionary note regarding disassembly and assembly of the unit:

Removal of the following parts:

- top cap (2),
- strainer cap (11) and the
- optional BDV2 retrofit kit should be carried out in a workshop, not whilst the trap is connected to the pipeline (PC) connector.



Recommended tightening torques (for suitably lubricated threads)

| Item | Part |  mm | N m | (lbf ft) |
|------|--------------|--|-----|-------------|
| 2 | Top cap | 50 A/F | 400 | 295 |
| 11 | Strainer cap | 24 A/F | 110 | 46.5 - 48.7 |