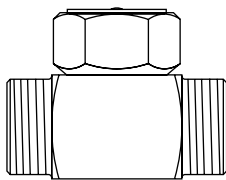
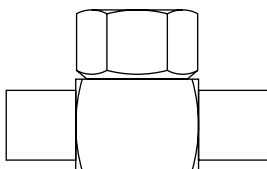
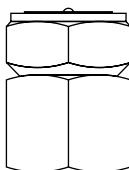

TD10, TD52M and TD259

Thermodynamic Steam Traps

Installation and Maintenance Instructions

**TD10****TD52M****TD259**

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 these units can only be guaranteed if they are 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

These products are recyclable. No ecological hazard is anticipated with the disposal of these products providing due care is taken.

— 2. General product information —

2.1 General description

The **TD10** is a miniature thermodynamic disc trap designed specifically for draining small steam users like steam irons and instrument tracers.

The **TD52M** is a maintainable thermodynamic steam trap manufactured in stainless steel specifically designed for relatively small condensate loads, such as steam mains drainage. For very low condensate loads, a low capacity version is available. This is designated by the letters LC e.g. TD52MLC. For those applications where the release of air is a concern an anti-air-binding disc is available. This version is designated by the letter A, e.g. TD52MA and TD52MLCA.

The **TD259** is a maintainable thermodynamic steam trap for use on instrument tracing or any small bore steam heating installations. It can be provided with an anti-air-binding disc for quick start-up on batch process and is designated **TD259A**.

Optional extras

An insulating cover (see Section 7, Spare parts) is available at extra cost for the $\frac{3}{8}$ " , $\frac{1}{2}$ " and $\frac{3}{4}$ " TD52M range of thermodynamic steam traps (not available for the 1" size). An insulating cover will prevent the trap being unduly influenced by excessive heat loss such as when subjected to low outside temperatures, wind, rain etc.

Note:

For additional information see the following Technical Information Sheets TI-P156-01 (TD10), TI-P068-18 (TD52M) and TI-P068-06 (TD259).

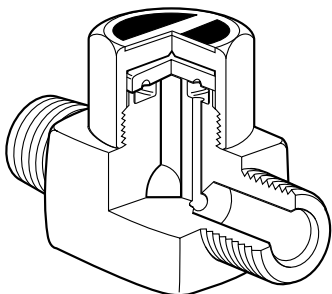


Fig.1 TD10

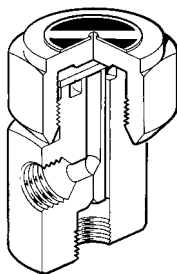


Fig. 3 TD259

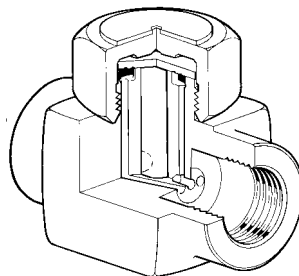
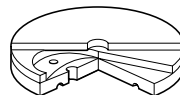


Fig. 2 TD52M

Anti-air-binding disc



2.2 Sizes and pipe connections

TD10	$\frac{1}{4}$ " screwed Swaglock outlet/screwed BSP inlet
	$\frac{1}{4}$ " screwed BSP taper male inlet/screwed BSP outlet
TD52M	$\frac{1}{4}$ " , $\frac{3}{8}$ " , $\frac{1}{2}$ " , $\frac{3}{4}$ " and 1" screwed BSP or NPT
TD52MLC	$\frac{1}{2}$ " screwed BSP or NPT
TD52MA	$\frac{3}{8}$ " , $\frac{1}{2}$ " , $\frac{3}{4}$ " and 1" screwed BSP or NPT
TD52MLCA	$\frac{1}{2}$ " screwed BSP or NPT
TD259	$\frac{1}{4}$ " screwed BSP or NPT

2.3 Limiting conditions (ISO 6552)

TD10

Body design conditions	PN16	
PMA - Maximum allowable pressure	16 bar g	(232 psi g)
TMA - Maximum allowable temperature	350°C	(662°F)
PMO - Maximum operating pressure	10 bar g	(145 psi g)
TMO - Maximum operating temperature	350°C	(662°F)
PMOB - Maximum operating back pressure must not exceed 50% of the upstream pressure.		
Designed for a maximum cold hydraulic test pressure of:	24 bar g	(348 psi g)

TD52M and TD52MA

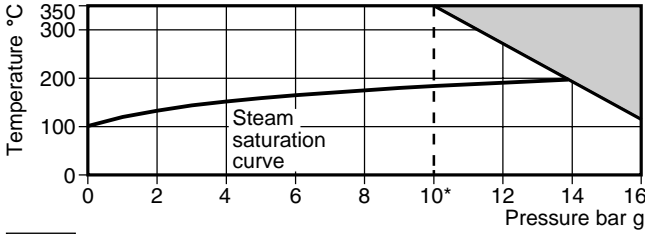
Body design conditions	PN63	
PMA - Maximum allowable pressure	63 bar g	(913 psi g)
TMA - Maximum allowable temperature	425°C	(797°F)
PMO - Maximum operating pressure	42 bar g	(609 psi g)
TMO - Maximum operating temperature	TD52M	400°C (752°F)
	TD52MA	255°C (491°F)
PMOB - Maximum operating back pressure must not exceed 80% of the upstream pressure.		
Minimum operating differential pressure for satisfactory operation is: 0.25 bar g (3.6 psi g) for the TD52M and TD52MLC and 0.8 bar (11.6 psi g) for the TD52MA and TD52MLCA.		
Designed for a maximum cold hydraulic test pressure of:	95 bar g	(1 377 psi g)

TD259 and TD259A

Body design conditions	PN63	
PMA - Maximum allowable pressure	63 bar g	(914 psi g)
TMA - Maximum allowable temperature	400°C	(752 °F)
PMO - Maximum operating pressure	42 bar g	(609 psi g)
TMO - Maximum operating temperature	TD259	400°C (752°F)
	TD259A	255°C (491°F)
PMOB - Maximum operating back pressure must not exceed 80% of the upstream pressure.		
Minimum operating differential pressure for satisfactory operation is 0.25 bar g (3.6 psi g).		
Designed for a maximum cold hydraulic test pressure of:	95 bar g	(1 378 psi g)

2.4 Operating ranges

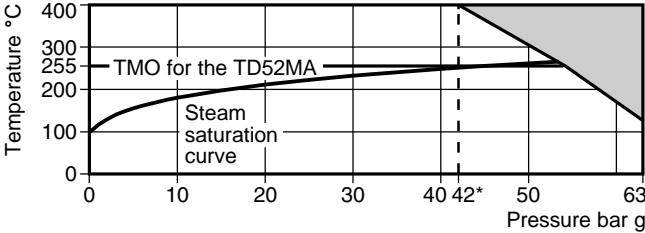
TD10



The product must not be used in this region.

* PMO Maximum operating pressure recommended 10 bar g (145 psi g).

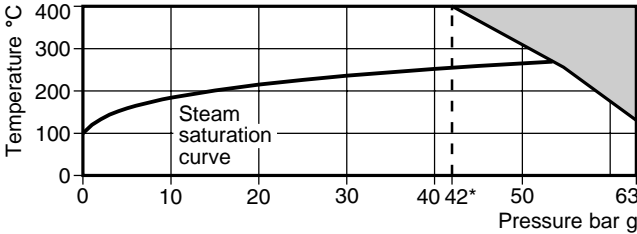
TD52M



The product must not be used in this area

*PMO Maximum operating pressure recommended 42 bar g (609 psi g).

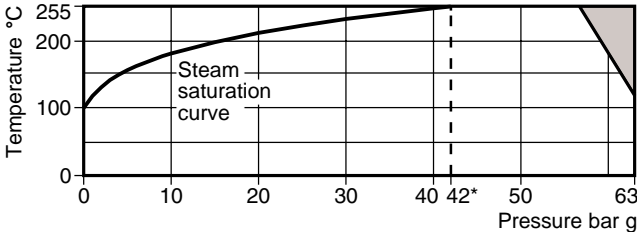
TD259



The product must not be used in this region.

* PMO Maximum operating pressure recommended 42 bar g (609 psi g).

TD259A



The product must not be used in this region.

* PMO Maximum operating pressure recommended 42 bar g (609 psi g).

3. Installation

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** Always ensure the correct tools, safety procedures and protective equipment are used at all times.
- 3.5** The trap should be installed in the horizontal plane, preferably preceded by a small drop leg.
- 3.6** Suitable isolation valves must be installed to allow for safe maintenance and trap replacement.
- 3.7** 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.
- 3.8** Always open isolation valves slowly until normal operating conditions are achieved - this will avoid system shocks. Check for leaks and correct operation.

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).

4. Commissioning

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

5. Operation

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 maintenance

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 the insulating cover (item 4, TD52M only), if fitted.
- Unscrew the cap (2) using a spanner. **Do not use** Stillsons or a wrench of similar type which may cause distortion of the cap.
- If the disc (3) and body seating surfaces (1) are only slightly worn they can be refaced by lapping individually on a flat surface such as the 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 and the disc replaced with a new one. The total amount of metal removed in this way should not exceed 0.25 mm (0.01").
- When reassembling, the disc is normally placed in position with the grooved side in contact with the body seating face.
- Screw on the cap (2); no gasket is required but a fine smear of Molybdenum Disulphide grease should be applied to the threads. Tighten the cap (2) to the recommended tightening torque (see Table 1).

Warning:

When torquing or untorquing the cap (2), some support should be given to the body of the trap to prevent over stressing and/or distortion of the end connections and system pipework.

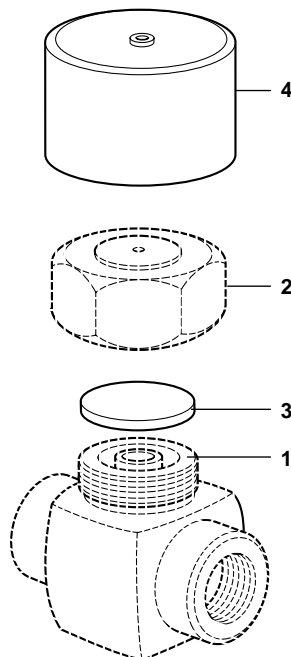




Fig. 4 TD52M shown

Table 1 Recommended tightening torques

Warning:

When torquing or untorquing the cap (2), some support should be given to the body of the trap to prevent over stressing and/or distortion of the end connections and system pipework.

Trap	Item	 mm or 	N m	(lbf ft)
TD10	2	17 A/F	22 - 25	(16 - 18)
TD52M	2 (1/4")	36 A/F	180 - 200	(132 - 147)
	2 (3/8")	36 A/F	180 - 200	(132 - 147)
	2 (1/2")	36 A/F	180 - 200	(132 - 147)
	2 (3/4")	41 A/F	180 - 200	(132 - 147)
	2 (1")	55 A/F	250 - 275	(184 - 202)
TD259	2	36 A/F	135 - 150	(99 - 110)

7. Spare parts

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

Note: There are no available spares for the TD10.

TD52M available spares

Disc	TD52M	(packet of 3)	3
	TD52MLC	(packet of 3)	3
	TD52MA	(packet of 3)	3
	TD52MLCA	(packet of 3)	3
Insulating cover (not available for the 1" size)			4

TD259 available spares

Disc	TD259	(packet of 3)	3
	TD259A	(packet of 3)	3

How to order spares

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

Example: 1 - Packet of three discs for the TD259A thermodynamic steam trap.

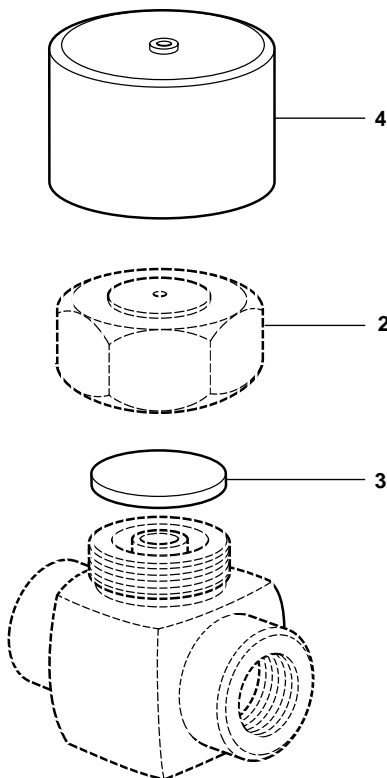


Fig. 5 TD52M

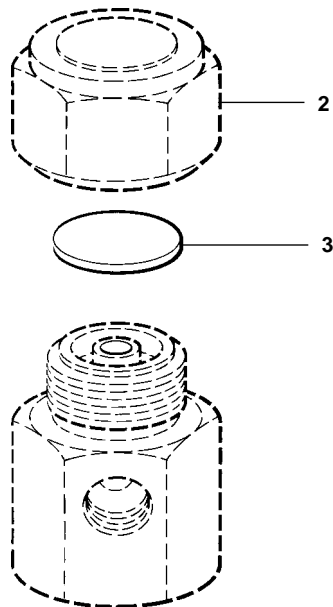


Fig. 6 TD259