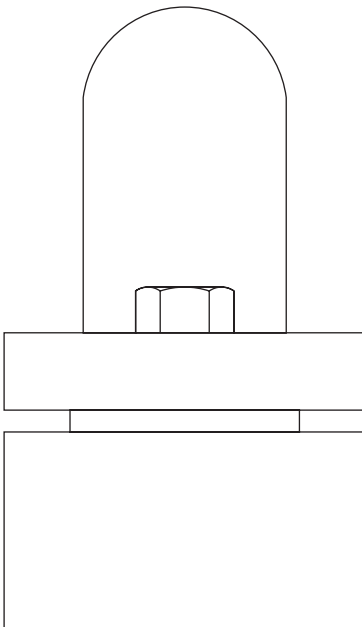


PBX Series
Quick Fit Connector Bimetallic Steam Traps
Installation and Maintenance Instructions



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

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.

Warning

The flange gasket contains a thin stainless steel support ring which may cause physical injury if not handled and disposed of carefully.

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 Spirax Sarco PBX series, quick fit connector bimetallic steam traps are made of 316L stainless steel. The connectors are available in stainless steel 316L or carbon steel to ASTM A105. Pre-set and maintenance free, these steam traps can be mounted in any position, and once the connector is installed, the bimetallic trap assembly can be fitted in a few minutes without having to disturb the pipework. PBX steam traps are particularly suitable for food, pharmaceutical and oil industries, and are designed for a wide range of applications such as tracing, drips and draining collectors.

Standards

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

Certification

This product is available with certification to EN 10204 3.1.B.

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

Note:

For additional information see Technical Information Sheet TI-P626-02.

2.2 Sizes and pipe connections

½", ¾" and 1" screwed BSP/NPT and socket weld

DN15, DN20 and DN25 flanged PN40, ANSI 150 and ANSI 300

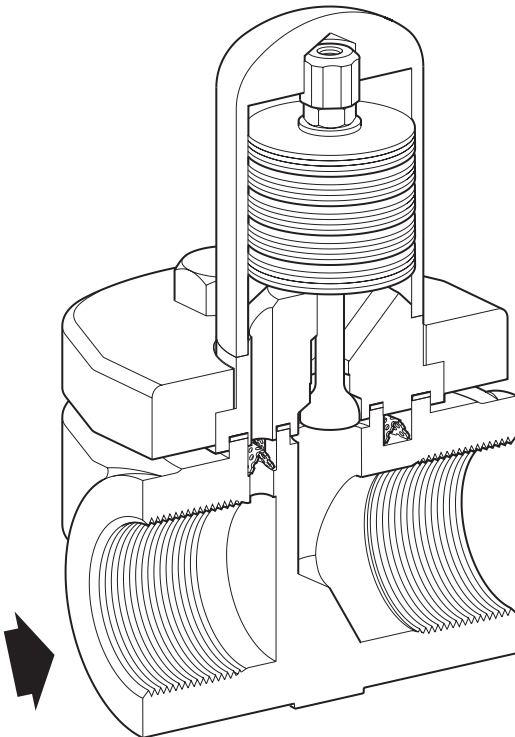
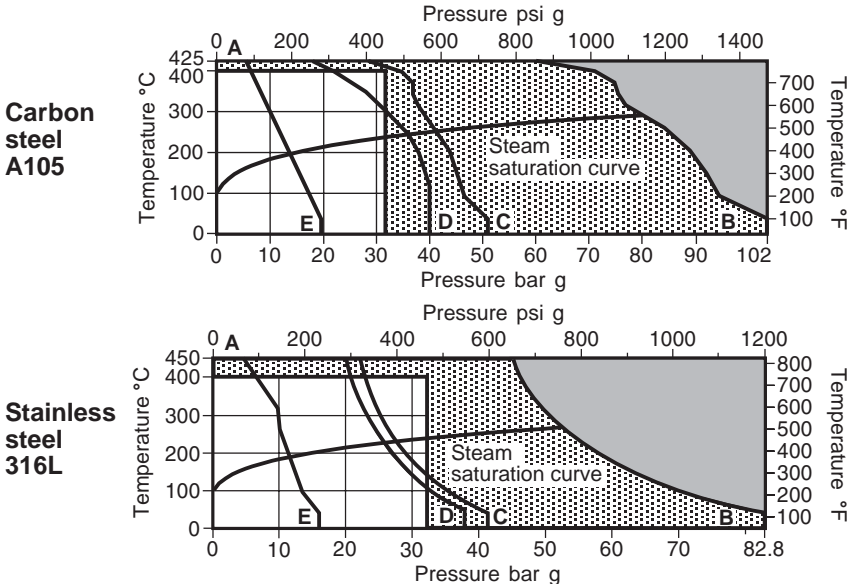


Fig. 1

2.3 Pressure/temperature limits



- The product **must not** be used in this region.

 The product should not be used in this region or beyond its operating range as damage to the internals may occur.

- A - B** Screwed BSP/NPT and socket weld. **A - D** Flanged PN40
A - C Flanged ANSI 300. **A - E** Flanged ANSI 150.

Body design conditions		PN110, Class 600 to ANSI B 16.34	
PMA	Maximum allowable pressure	Stainless steel	82.8 bar g @ 37.8°C (1200.6 psi g @ 100°F)
		Carbon steel	102 bar g @ 37.8°C (1479 psi g @ 100°F)
TMA	Maximum allowable temperature	Stainless steel	450°C (842°F)
		Carbon steel	425°C (797°F)
Minimum allowable temperature	Stainless steel	- 10°C (14°F)	
	Carbon steel	- 10°C (14°F)	
PMO	Maximum operating pressure	PBX20	21.0 bar g @ 400°C (305 psi g @ 752°F)
		PBX30	32.0 bar g @ 400°C (464 psi g @ 752°F)
		PBX40	12.0 bar g @ 400°C (174 psi g @ 752°F)
		PBX50	21.0 bar g @ 400°C (305 psi g @ 752°F)
TMO	Maximum operating temperature	400°C (752°F)	
Minimum operating temperature		0°C (32°F)	
Minimum operating pressure for satisfactory operation is:	PBX20	0.1 bar g (1.5 psi g)	
	PBX30	10.0 bar g (145 psi g)	
	PBX40	0.1 bar g (1.5 psi g)	
	PBX50	1.0 bar g (14.5 psi g)	
ΔPMX The backpressure for correct operation must not exceed 90% of the upstream pressure Designed for a maximum cold hydraulic test pressure of: 124 bar g (1798 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 correct direction of fluid flow.
- 3.3** Remove protective covers from all connections and protective film from all name-plates, where appropriate, before installation on steam or other high temperature applications.
- 3.4** Install the steam trap downstream of the equipment to be drained, ensuring that it is easily accessible for inspection and maintenance.
- 3.5** The steam trap may be installed in any position.
- 3.6** Before installing the trap, ensure all connecting pipework is clean and free of debris.
- 3.7** Mount the steam trap with the arrow on the body pointing in the direction of the flow of the liquid.
- 3.8** The steam trap can be welded onto the pipework without removing the internal components. For socket welded traps, observe qualified welding procedures. It is not necessary to remove the trap internals when welding, but avoid excessive heat.
- 3.9** The steam trap is factory set.

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).

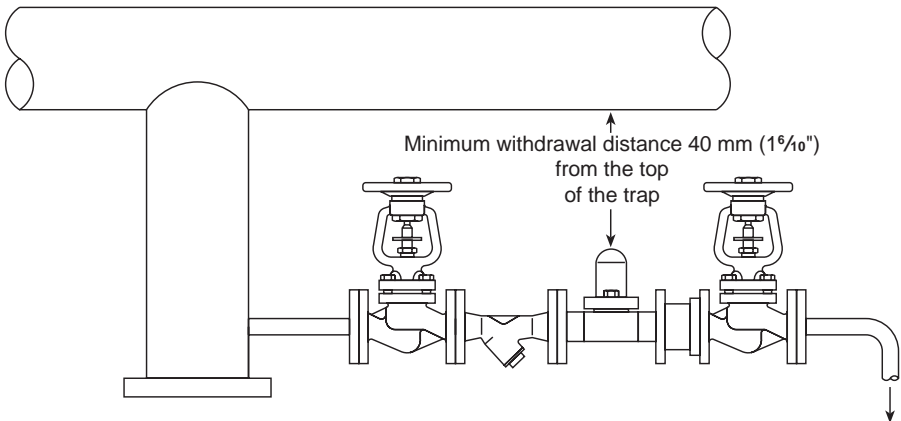


Fig. 3 Recommended installation

4. Commissioning

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

5. Operation

The Spirax Sarco PBX range are bimetallic steam traps.

These traps operate on the basis of two opposing forces acting on the valve - an opening force created by system pressure, and a closing force resulting from the condensate temperature acting on the bimetallic elements.

The PBX range operates with no loss of steam and automatically and quickly drains air, non-condensable gases and large quantities of cold water on start-up.

6. Maintenance

Note:

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

Warning

The flange gasket contains a thin stainless steel support ring which may cause physical injury if not handled and disposed of carefully.

Safety note:

These traps are installed in high pressure steam lines. Personnel doing the adjustment work should wear heavy gloves, long sleeve shirt, and other safety equipment designed to protect the wearer (goggles, face shield, etc.) in the event of a leak.

The equipment needed to proceed with any maintenance programme is listed in Table 1.

Maintenance can be completed with the trap in the pipeline, once the safety procedures have been observed. It is recommended that new gaskets and spares are used whenever maintenance is undertaken. Ensure that the correct tools and necessary protective equipment are used at all times. When maintenance is complete open isolation valves slowly and check for leaks.

6.1 Replacing the bimetallic element

Spares available to repair steam traps (see Section 7).

6.2 Replacing the bimetallic trap assembly:

- Isolate the steam trap.
- Unscrew the 2 cover bolts (5).
- Remove the fixing flange (4) and gasket (6).
- Remove the bimetallic trap assembly (3).
- Remove the strainer screen (2) and clean the sealing surfaces in the body (1).
- The replacement bimetallic trap assembly comes complete with new gaskets and strainer screen, ensure that if the replacement strainer screen is vee shaped, it is installed with the apex pointing upwards.
- Place the new gasket (6) over the trap before fitting the fixing flange assembly (4).
- Screw the 2 cover bolts (5) in place ensuring they are tightened evenly to the recommended torque (see Table 1).

7. Spare parts

The spare parts available are detailed below. No other parts are supplied as spares.

Available spares

Bimetallic trap assembly with gasket and strainer screen

2, 3, 6

How to order spares

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

Example: 1 - Bimetallic trap assembly with gasket and strainer screen for a Spirax Sarco ½" PBX20 quick fit connector bimetallic steam trap.

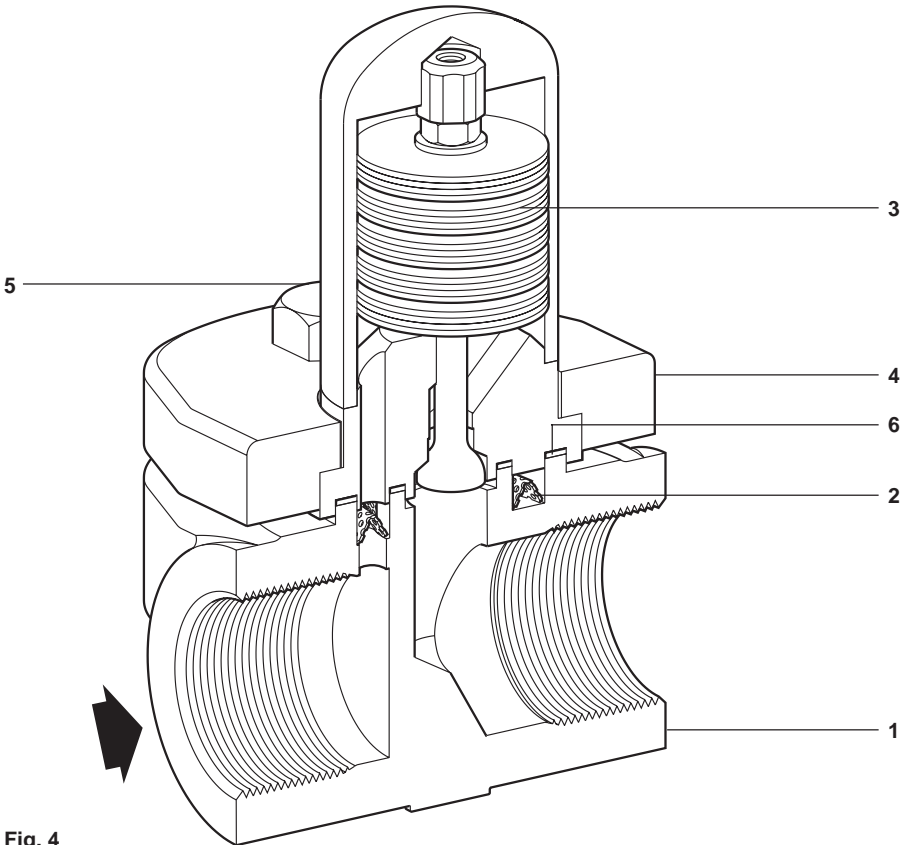




Fig. 4

Item	Option	 or  mm	N m	lbf ft
5	PBX20 PBX30	16 A/F	45 - 55	33 - 40
	PBX40 PBX50	19 A/F	45 - 55	33 - 40

8. *Fault finding*

Trap fails to pass condensate	1. Make sure upstream and downstream valves are open.
	2. Check external strainers for clogging; blowdown or dismantle and clean.
	3. Backpressure too high. Downstream system must be corrected. Backpressure will also lower the discharge temperature.
	4. Valve port or internal filter clogged with dirt. Dismantle, inspect and clean.
	5. Dismantle and inspect internals.
	6. Bimetallic element failed. Replace trap module.
Trap blows live steam	1. Dirt on seating surface. Replace trap module.
	2. Bimetallic element failed. Replace trap module.
	3. Worn valve seat. Replace trap module.