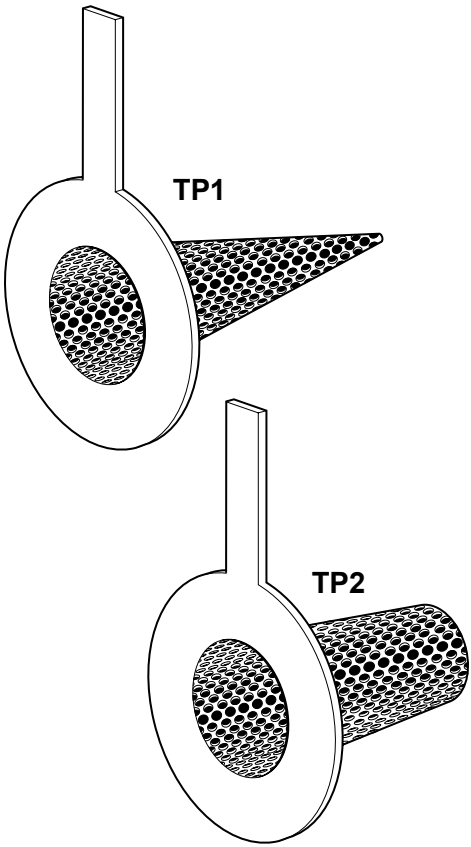
spirax sarco

TP1 and TP2
Temporary Cone Shaped Strainers
Installation and Maintenance Instructions



1. Safety information

Safe operation of this product can only be guaranteed if it is properly installed, commissioned, used and maintained by qualified personnel (see Section 1.11) 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.

1.1 Intended use

Referring to these Installation and Maintenance Instructions, Marking on the product and Technical Information Sheet, check that the product is suitable for the intended use / application.

i) These products have been specifically designed for use on steam, air or condensate / water. The products' use on other fluids may be possible but, if this is contemplated, Spirax Sarco should be contacted to confirm the suitability of the product for the application being considered.

ii) Check material suitability, pressure and temperature and their maximum and minimum values. If the maximum operating limits of the product are lower than those of the system in which it is being fitted, or if malfunction of the product could result in a dangerous overpressure or overtemperature occurrence, ensure a safety device is included in the system to prevent such over-limit situations.

iii) Determine the correct installation situation and direction of fluid flow.

iv) Spirax Sarco products are not intended to withstand external stresses that may be induced by any system to which they are fitted. It is the responsibility of the installer to consider these stresses and take adequate precautions to minimise them.

1.2 Access

Ensure safe access and if necessary a safe working platform (suitably guarded) before attempting to work on the product. Arrange suitable lifting gear if required.

1.3 Lighting

Ensure adequate lighting, particularly where detailed or intricate work is required.

1.4 Hazardous liquids or gases in the pipeline

Consider what is in the pipeline or what may have been in the pipeline at some previous time. Consider: flammable materials, substances hazardous to health, extremes of temperature.

1.5 Hazardous environment around the product

Consider: explosion risk areas, lack of oxygen (e.g. tanks, pits), dangerous gases, extremes of temperature, hot surfaces, fire hazard (e.g. during welding), excessive noise, moving machinery.

1.6 The system

Consider the effect on the complete system of the work proposed. Will any proposed action (e.g. closing isolation valves, electrical isolation) put any other part of the system or any personnel at risk?
Dangers might include isolation of vents or protective devices or the rendering ineffective of controls or alarms. Ensure isolation valves are turned on and off in a gradual way to avoid system shocks.

1.7 Pressure systems

Ensure that any pressure is isolated and safely vented to atmospheric pressure. Consider double isolation (double block and bleed) and the locking or labelling of closed valves. Do not assume that the system has depressurised even when the pressure gauge indicates zero.

1.8 Temperature

Allow time for temperature to normalise after isolation to avoid danger of burns.

1.9 Tools and consumables

Before starting work ensure that you have suitable tools and/or consumables available. Use only genuine Spirax Sarco replacement parts.

1.10 Protective clothing

Consider whether you and/or others in the vicinity require any protective clothing to protect against the hazards of, for example, chemicals, high/low temperature, radiation, noise, falling objects, and dangers to eyes and face.

1.11 Permits to work

All work must be carried out or be supervised by a suitably competent person. Installation and operating personnel should be trained in the correct use of the product according to the Installation and Maintenance Instructions.
Where a formal 'permit to work' system is in force it must be complied with. Where there is no such system, it is recommended that a responsible person should know what work is going on and, where necessary, arrange to have an assistant whose primary responsibility is safety.
Post 'warning notices' if necessary.

1.12 Handling

Manual handling of large and/or heavy products may present a risk of injury. Lifting, pushing, pulling, carrying or supporting a load by bodily force can cause injury particularly to the back. You are advised to assess the risks taking into account the task, the individual, the load and the working environment and use the appropriate handling method depending on the circumstances of the work being done.
Warning - Never handle a Fig TP1 or Fig TP2 temporary cone shaped strainer by the screen.

1.13 Residual hazards

In normal use the external surface of the product may be very hot. If used at the maximum permitted operating conditions the surface temperature of some products may reach temperatures of 400°C (752°F).
Many products are not self-draining. Take due care when dismantling or removing the product from an installation (refer to 'Maintenance instructions').

1.14 Freezing

Provision must be made to protect products which are not self-draining against frost damage in environments where they may be exposed to temperatures below freezing point.

1.15 Disposal

Unless otherwise stated in the Installation and Maintenance Instructions, this product is recyclable and no ecological hazard is anticipated with its disposal providing due care is taken.

1.16 Returning products

Customers and stockists are reminded that under EC Health, Safety and Environment Law, when returning products to Spirax Sarco they must provide information on any hazards and the precautions to be taken due to contamination residues or mechanical damage which may present a health, safety or environmental risk. This information must be provided in writing including Health and Safety data sheets relating to any substances identified as hazardous or potentially hazardous.

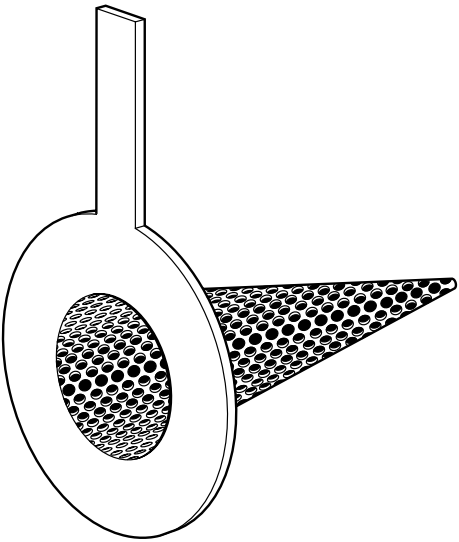


Fig. 1 TP1 conical strainer

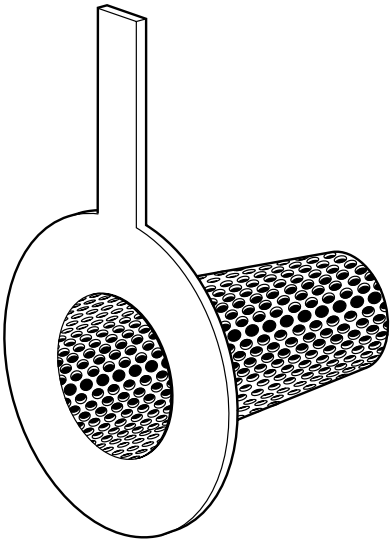


Fig. 2 TP2 truncated conical strainer

2. General product information

2.1 General description

The conical (TP1) and truncated conical (TP2) temporary strainers have been designed to fit between two flanges and are generally used during commissioning and start-up to remove any course debris. They are suitable for use on a wide range of fluids for applications in process lines, hot water systems, steam and condensate systems etc. The standard screens are manufactured using 304L or 316L stainless steel and have 3 mm perforations. Other perforations or material of construction are available on request.
Temporary strainers are not intended to be used for permanent applications. Contact Spirax Sarco when permanent applications are required.

Standards

These products fully comply with the requirements of the European Pressure Equipment Directive 97 / 23 / EC and carry the CE mark when so required.

Certification

These products are available with certification to EN 10204 3.1 and NACE Approval. **Note:** All certifications / inspections requirements must be stated at the time of order placement.

Note: For additional data see the following Technical Information Sheets: TI-P169-06.

2.2 Sizes and pipe connections

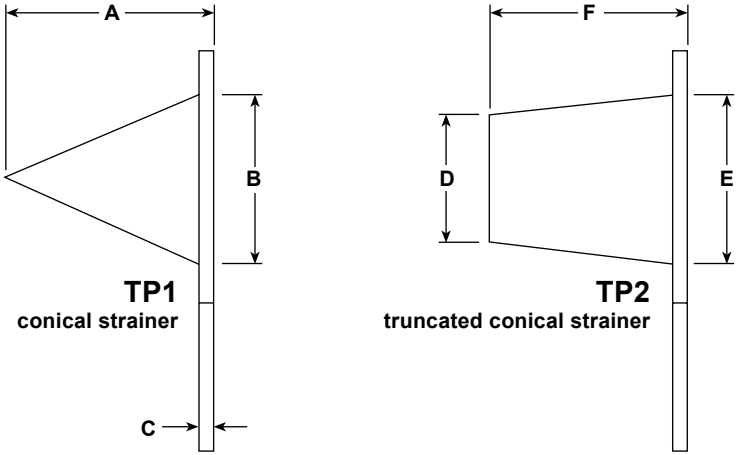
DN40 - DN700 (1½" - 28")
Designed for installation between the following flanges:
EN 1092 PN10, PN16, PN25 and PN40 or
ASME 150, ASME 300 and ASME 600

2.3 Optional extras

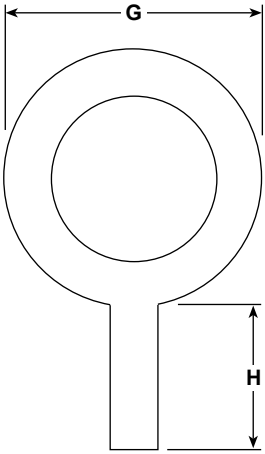
The following optional extras are available for all unit sizes at an extra cost and must be stated at the time of order placement:

Perforations	3 mm (standard), 1.6 mm and 6 mm Contact Spirax Sarco for availability of perforations not displayed.
Mesh	M40, M100 and M200 Contact Spirax Sarco for availability of mesh screens not displayed.
Screen material	AISI 304L (standard), AISI 316L and Monel 400
Specific surface finish for collar	Ra 0.025 µm to 50 µm

2.4 Dimensions / weights (approximate) in mm and kg



Size	A 100% = Standard unit			B	C	D	E	F	
	(100%)	(150%)	(200%)					PN	ASME
DN40 - 1½"	50	79	105	35	2	15	35	125	50
DN50 - 2"	68	105	142	47	2	20	47	130	68
DN65 - 2½"	88	137	184	61	2	30	61	140	88
DN80 - 3"	108	168	226	75	2	35	75	150	108
DN100 - 4"	140	215	290	96	2	40	96	210	140
DN125 - 5"	173	270	362	120	2	50	120	220	173
DN150 - 6"	210	325	438	145	2	70	145	250	210
DN200 - 8"	282	437	590	195	3	100	195	300	282
DN250 - 10"	355	550	740	245	3	110	245	360	355
DN300 - 12"	427	660	891	295	3	120	295	420	427
DN350 - 14"	477	740	1000	330	3	150	330	150	477
DN400 - 16"	558	865	1166	386	5	150	386	540	558
DN500 - 20"	704	1090	1468	486	5	180	486	640	704
DN600 - 24"	848	1313	1770	586	5	200	586	760	848
DN700 - 28"	993	1538	2072	686	5	220	686	960	993



Size	G							H	Weight *	
	PN10	PN16	PN25	PN40	ASME 150	ASME 300	ASME 600		PN	ASME
DN40 - 1½"	88	88	88	88	73	73	73	102	0.30	0.24
DN50 - 2"	102	102	102	102	92	92	92	102	0.38	0.30
DN65 - 2½"	122	122	122	122	104	104	104	102	0.45	0.40
DN80 - 3"	158	158	162	162	127	127	127	102	0.65	0.60
DN100 - 4"	188	188	188	188	157	157	157	102	1.00	0.60
DN125 - 5"	212	212	218	218	185	185	185	127	1.30	1.10
DN150 - 6"	268	268	278	285	215	215	215	127	2.00	1.60
DN200 - 8"	320	320	335	345	269	269	269	127	3.60	2.80
DN250 - 10"	370	378	395	410	323	323	323	153	5.00	3.90
DN300 - 12"	430	438	450	465	381	381	381	153	6.50	5.30
DN350 - 14"	482	490	505	535	412	412	412	153	8.40	6.40
DN400 - 16"	532	550	555	560	469	469	469	153	11.80	9.20
DN500 - 20"	585	610	615	615	584	584	584	203	14.60	13.50
DN600 - 24"	685	725	720	735	692	692	692	203	20.30	18.60
DN700 - 28"	800	795	820	840	800	800	800	203	27.80	26.00

* **Please note** that the weights displayed are approximate and can be ±10%

3. Installation and commissioning

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

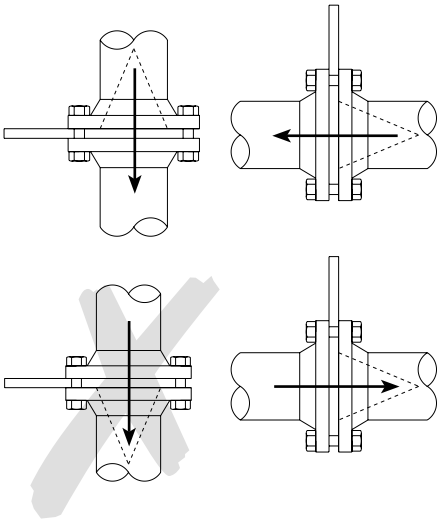
Referring to the installation and Maintenance Instructions, name-plate and Technical Information Sheet, check that the product is suitable for the intended installation:

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 Temporary strainers can be fitted in either a horizontal or vertical line. **Note:** Flanges, bolts (or studs), nuts and joint gaskets are to be supplied by the installer.

3.4 Fig TP1 and Fig TP2 temporary cone shaped strainers simply fit between two pipe flanges (see Figure 3). A standard gasket is required on both sides of the strainer collar together with longer bolts or studs. Note: Fanges, bolts (or studs), nuts and joint gaskets are to be supplied by the installer. Normal sensible flange bolting practice should be followed e.g.: torque tightening the bolts in opposite sequence.



Caution:
There is mesh and a differential pressure within the application

Fig. 3

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

4. Operation and fault finding

Temporary strainers are passive items that will prevent the onward movement of dirt and debris which is larger than the holes in the screen. The pressure drop across the temporary strainer will increase as the screen becomes blocked. The resistance of the screen will depend on the fluid and the pressure going through the system. Do not fit a temporary strainer as a permanent fitment without first consulting asking Spirax Sarco. The maximum differential pressure possible is dependant on the system conditions.

Fault finding

Symptom	Possible cause	Remedy
No flow through strainer	Blocked screen	Clean or replace screen
	System is isolated	Check isolation valves
Increased pressure drop across strainer	Screen is blocked up	Clean or replace screen