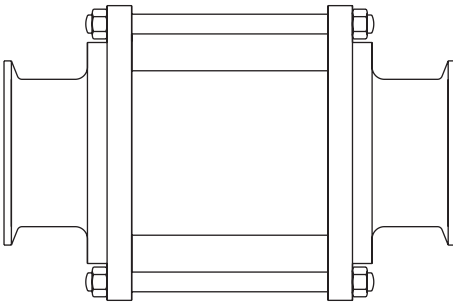


**SGS10 Stainless Steel
Sanitary Sight Glass
Installation and Maintenance Instructions**



- 1. Safety information*
- 2. General product information*
- 3. Installation*
- 4. Commissioning*
- 5. Maintenance and Spare parts*

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 the Installation and Maintenance Instructions, name-plate and Technical Information Sheet, check that the product is suitable for the intended use/application. The product listed below complies with the requirements of the European Pressure Equipment Directive 97/23/EC and carries the CE mark when so required. It should be noted that products rated as 'SEP' are required by the Directive not to carry the CE mark. The product falls within the following Pressure Equipment Directive categories:

Product	Group 1 Gases	Group 2 Gases	Group 1 Liquids	Group 2 Liquids
SGS10 sight glass DN15 - DN100	-	Sep	-	Sep

- i) The SGS10 has been specifically designed for use on steam, air or water/condensate which are in Group 2 of the above mentioned Pressure Equipment Directive. 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.
- v) Remove protection covers from all connections and protective film from all name-plates, where appropriate, before installation on steam or other high temperature applications.

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. Products fitted with PTFE seals must not be subjected to temperature above 260°C (500°F). Above this temperature toxic fumes may be given off. Avoid inhalation of fumes or skin contact.

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.

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 will exceed temperatures of 100°C (212°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, except:

PTFE:

- Can only be disposed of by approved methods, not incineration.
- Keep PTFE waste in a separate container, do not mix it with other rubbish, and consign it to a landfill site.

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.

— 2. General product information —

2.1 Description

The SGS10 sanitary sight glass is a full view, full port sight glass suitable for a wide range of high purity applications in the food, medical, and bio-pharmaceutical industries. The unit is designed in accordance with the 3A's sanitary standards and is manufactured from 316L stainless steel and toughened borosilicate.

Surface finish

Internal surface finish - $<0.4 \mu\text{Ra}$ (15 micro inch).

Standards:

- The SGS10 has been designed in full accordance with 3A's sanitary standard 65-00 - design criteria for sight glasses.
- All elastomers used comply with FDA regulation CFR 21 paragraph 177 Section 2600 for EPDM and Section 1550 for PTFE.
- Extended tube weld end material as per criteria outlined in the current edition of ASME BPE - to special order.

Certification

This product is available with the following certification:

- EN 10204 3.1 material certifications.
- Certification to 3A's standard No. 65-00 - design criteria for sight glasses.
- Certificate of conformity including internal surface finish.
- Certification of elastomer FDA compliance.

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

Packaging

Packaging for this product is conducted in a clean environment, segregated from other non stainless steel products, and in accordance with the current edition of ASME BPE. Inlet and outlet connections are capped and the product is sealed in a plastic bag or shrink wrapped prior to boxing.

Note: For further information see the following Technical Information sheet TI-P130-25.

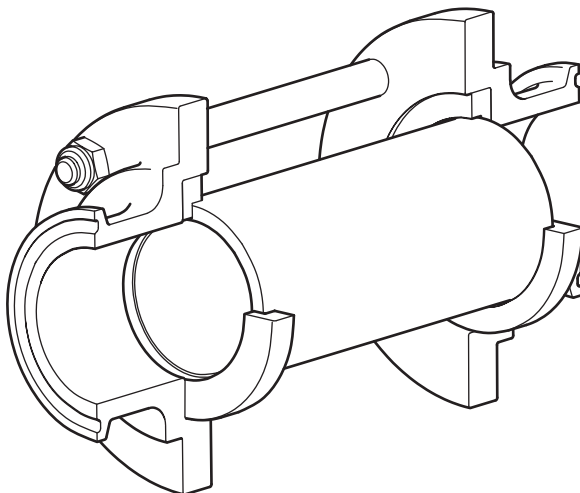


Fig. 1 SGS10

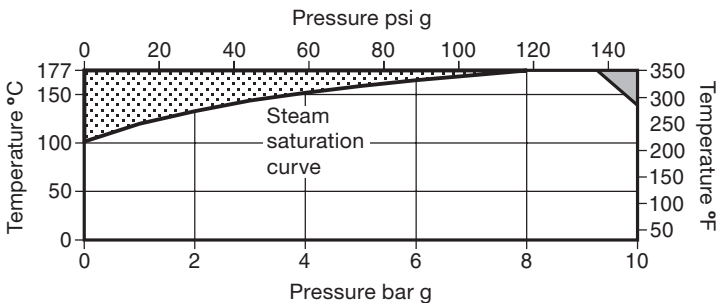
2.2 Sizes and pipe connections

½", ¾", 1", 1½" and 2" available as standard. 2½", 3" and 4" are available to special order.


Note: DIN connections are marked by the tube O/D dimension: ½" = 18 mm, ¾" = 22 mm, 1" = 28 mm, 1½" = 40 mm, 2" = 52 mm, 2½" = 70mm, 3" = 84 mm and 4" = 104 mm.

Sanitary clamp	ASME BPE clamp.		
Connections available to special order	Sanitary clamp to DIN 32676.		
	Extended tube weld ends to ASME BPE.		
	Extended tube weld ends to DIN 11850	DN15 to DN50	Series 1
		DN65 to DN100	Series 2

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.

Note: For hygienic/sanitary clamp ends the maximum pressure / temperature may be restricted by the gasket or sanitary clamp used. Please consult Spirax Sarco.

Body design conditions	PN10	
PMA Maximum allowable pressure	10 bar g @ 140°C	(145 psi g @ 284°F)
TMA Maximum allowable temperature	177°C @ 9.2 bar g	(350°F @ 133 psi g)
Minimum allowable temperature	-254°C	(-425°F)
PMO Maximum operating pressure for saturated steam service	6 bar g	(87 psi g)
TMO Maximum operating temperature	165°C @ 6 bar g	(329°F @ 87 psi g)
Minimum operating temperature	0°C	(32°F)
Designed for a maximum cold hydraulic test pressure of:	15 bar g	(217 psi g)

3. Installation

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 flow.
Note: To facilitate orbital welding extended tube end connections are provided with 40 mm (1½" - 2½") and 50 mm (3" and 4") tube extensions as specified in ASME BPE.
- 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** The SGS10 can be fitted in both horizontal and vertical lines.
- 3.5** Fittings, clamps and gaskets for the connecting tubing are not supplied.

Note: This product must be handled carefully to ensure that the glass and surface finish are not damaged.

4. Commissioning

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

Note: If installed on a steam / condensate system, it is very important that the pressure is built up slowly to avoid possible damage to the unit.

— 5. Maintenance and Spare parts —

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

Before undertaking any maintenance on this product, it must be isolated from the supply and return lines and any pressure allowed to normalise to atmosphere. The unit should then be allowed to cool.

Warning: In some applications the fluids can act as a solvent for the glass. It is recommended that the glass be periodically checked for thinning. The glass should be replaced immediately if there is any evidence of thinning.

Note: The unit must be handled carefully to ensure the glass and surface finish are not damaged.

5.1 How to renew the sight glass:

- Dismantle the inlet and the outlet connections and remove the unit from the system.
- Loosen nuts (4), remove tie bars (3), remove glass (2) and remove the used seals (5).
- Fit new seals and glass. Re-assemble the tie bars and tighten them evenly and without excessive force.

Warning: In some applications the fluids can act as a solvent for the glass. It is recommended that the glass be periodically checked for thinning. **The glass should be replaced immediately** if there is any evidence of thinning.

5.2 Spare parts

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

Available spares

Glass and seal kit	2, 5
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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 sight glass.

Example: 1 off Glass and seal kit for a 1" Spirax Sarco SGS10 sanitary sight glass with ASME BPE clamp ends.

