



TI-P130-28  
ST Issue 9

## SGC40 and SGS40 Sight Glasses

### Description

The SGC40 cast carbon steel and SGS40 stainless steel are double window sight glasses having screwed, socket weld, sanitary clamp and flanged connections.

### Standards:

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

### Certification:

These products are available with a manufacturer's Typical Test Report and if specified certification to EN 10204 3.1.

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

### Optional extras:

- Visual flow indicator flap to check the flow of the liquid in the pipeline.
- Spring: The visual flow indicator flap can be spring loaded for applications on vertical lines or where there is high flowrates.
- Mica glass protectors for severe applications - When these have been specified the nomenclature becomes SGC40M and SGS40M.

Please see the table below to identify when Mica glass protectors are to be used.

| Application      | Glass choice to be used                              |
|------------------|--|
| Steam or > pH9   | Mica glass protectors and Borosilicate glass windows |
| >150°C and > pH7 | Mica glass protectors and Borosilicate glass windows |
| <150°C and < pH7 | Borosilicate glass windows only                      |

### Sizes and pipe connections

1/2", 3/4", 1", 1 1/4", 1 1/2" and 2"

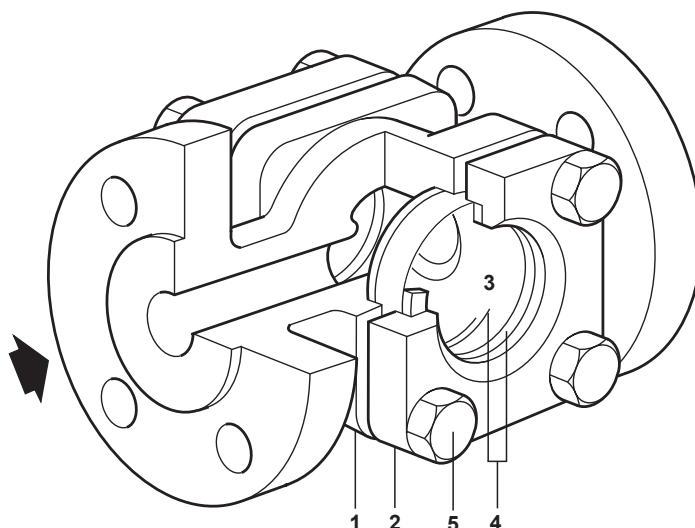
Screwed BSP, NPT and Socket weld.

DN15, DN20, DN25, DN40 and DN50  
Sanitary clamp connections to ASME BPE.

DN15, DN20, DN25, DN32, DN40, DN50, DN65, DN80 and DN100

Flanged EN 1092 PN40, ASME Class 150 and Class 300, JIS/KS 10 and JIS/KS 20.

Flanged versions have face-to-face dimensions in accordance with EN 558 Series 1.



**DN32 shown** having an integral flange

**Please note** that flanges are welded onto the body of the smaller DN15 to DN25 units.

### Material

| No. | Part  | Material   |
|-----|-------|--|
| 1   | Body* | <b>SGC40</b> Carbon steel EN 10213-2 1.0619+N / ASTM A216 WCB  |
|     |       | <b>SGS40</b> Stainless steel EN 10213-4 1.4308 / ASTM A351-CF8 |

\* The materials shown for the body are for all available connections and for the DN32 to DN100 integrally flanged units.

**Please note** that flanges are welded onto the body of the smaller DN15 to DN25 units - See flange material below:

|   |             |  |  |
|---|-------------|--|--|
| 2 | Cover       | * Flange material for sizes DN15 to DN25 | <b>SGC40</b> Carbon steel C22.8 according EN 10222-2 / A105N according ASTM A105     |
|   |             |  | <b>SGS40</b> Stainless steel 1.4571 according EN 10222-5 / 316Ti according ASTM A182 |
|   |             | DN15 to DN50                             | Carbon steel C22.8 according EN 10222-2 / A105N according ASTM A105                  |
|   |             | DN65 to DN100                            | Carbon steel EN 10213-2 1.0619+N / ASTM A216 WCB                                     |
|   |             |  | <b>SGS40</b> Stainless steel EN 10213-4 1.4308 / ASTM A351-CF8                       |
| 3 | Window      |  | Borosilicate glass DIN 7080  |
| 4 | Gaskets     |  | Reinforced exfoliated graphite   |
| 5 | Cover bolts |  | Stainless steel EN ISO 3506-1 A2-70  |

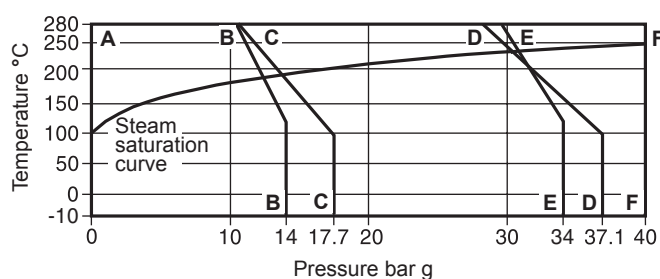
### Materials - Optional extras

Please note that the optional extras listed below are not shown in the above illustration.

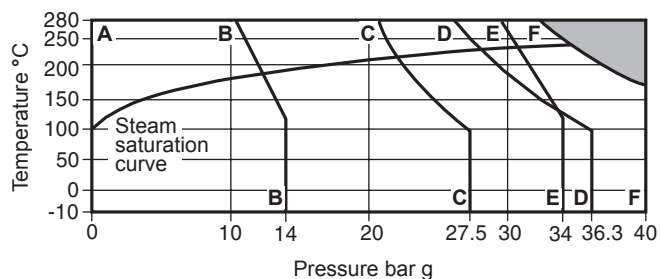
|   |                            |                 |
|---|----------------------------|-----------------|
| 6 | Visual flow indicator flap | Stainless steel |
| 7 | Spring                     | Stainless steel |
| 8 | Glass protectors           | Mica            |


## Pressure / temperature limits

### SGC40 Carbon steel



### SGS40 Stainless steel



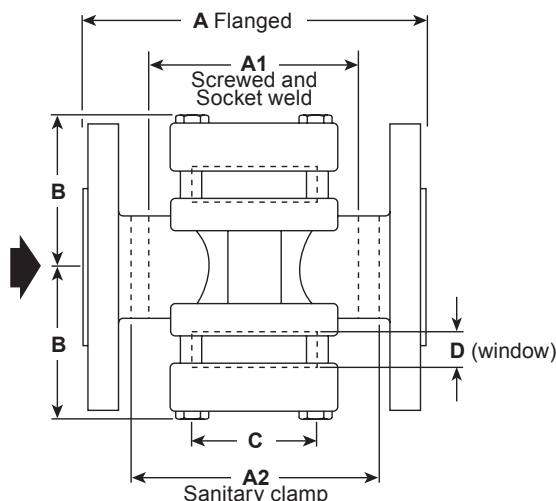
 The product **must not** be used in this region.

- A-B-B** Flanged JIS 10 and KS 10.
- A-C-C** Flanged ASME 150.
- A-D-D** Flanged EN 1092 PN40.
- A-E-E** Flanged JIS 20 and KS 20.
- A-F-F** Screwed BSP, NPT, Sanitary clamp, Socket weld and Flanged ASME 300.

| Body design conditions                                      |  |                  | PN40                        |
|---|--|------------------|-----------------------------|
| PMA   | Maximum allowable pressure                             | SGC40            | 40 bar g @ 280°C            |
|   |  | SGS40            | 40 bar g @ 178°C            |
| TMA   | Maximum allowable temperature                          | SGC40            | 280°C @ 40 bar g            |
|   |  | SGS40            | 280°C @ 32.5 bar g          |
| Minimum allowable temperature                               |  |                  | -10°C                       |
| PMO   | Maximum operating pressure for saturated steam service | PN40             | SGC40<br>31.3 bar g @ 238°C |
|   |  |                  | SGS40<br>28 bar g @ 230°C   |
|   |  | ASME 150         | SGC40<br>14 bar g @ 198°C   |
|   |  |                  | SGS40<br>22.5 bar g @ 220°C |
|   |  | ASME 300         | SGC40<br>40 bar g @ 250°C   |
|   |  |                  | SGS40<br>33 bar g @ 240°C   |
|   |  | JIS 10 and KS 10 | 14 bar g @ 120°C            |
|   |  | JIS 20 and KS 20 | 34 bar g @ 120°C            |
| TMO   | Maximum operating temperature                          | SGC40            | 280°C @ 40 bar g            |
|   |  | SGS40            | 280°C @ 32.5 bar g          |
| Minimum operating temperature                               |  |                  | -10°C                       |
| Note: For lower operating temperatures consult Spirax Sarco |  |                  |                             |
| Designed for a maximum cold hydraulic test pressure of:     |  |                  | 60 bar g                    |

## Dimensions / weights (approximate) in mm and kg

| Size  | A   | A1  | A2  | B   | C   | D  | Flg  | Weight<br>Scr<br>SW | Sanitary<br>clamp |
|-------|-----|-----|-----|-----|-----|----|------|---------------------|-------------------|
| DN15  | 130 | 95  | 120 | 50  | 45  | 10 | 3.0  | 2.5                 | 2.5               |
| DN20  | 150 | 95  | 140 | 50  | 45  | 10 | 4.0  | 3.0                 | 3.0               |
| DN25  | 160 | 95  | 155 | 70  | 63  | 15 | 5.0  | 3.5                 | 4.5               |
| DN32  | 180 | 150 | -   | 70  | 63  | 15 | 6.0  | 4.0                 | -                 |
| DN40  | 200 | 150 | 200 | 90  | 80  | 20 | 9.0  | 5.5                 | 6.0               |
| DN50  | 230 | 150 | 230 | 90  | 80  | 20 | 11.0 | 7.5                 | 8.0               |
| DN65  | 290 | -   | -   | 130 | 115 | 30 | 28.0 | -                   | -                 |
| DN80  | 310 | -   | -   | 150 | 115 | 30 | 37.0 | -                   | -                 |
| DN100 | 356 | -   | -   | 160 | 115 | 30 | 43.0 | -                   | -                 |



## Safety information, installation and maintenance

For full details see the Installation and Maintenance Instructions (IM-P130-29) supplied with the product.

### Warning:

Under certain conditions corrosive elements in the flow media can affect the inside face of the window, particularly where caustic alkali and hydrofluoric acid are present. Mica glass protectors must be used to protect the glass when the unit is used on steam applications or when the pH is higher than pH9 or when the temperature is above 150°C with a pH greater than pH7. Regular inspection of the glass to check for thinning of the window must be undertaken based on an assessment of your system. If there is evidence of thinning or erosion damage then the window should be replaced immediately. Always wear eye protection when viewing the contents of the sight glass. Reasonable steps should be taken to protect personnel from injury in the unlikely event that the window breaks.

### Installation and maintenance note:

Apply the appropriate grease to SGS40 stainless steel connections and bolting to avoid cold welding. Sight glasses should have stop valves fitted on both the inlet and outlet. It is imperative that the upstream stop valve is closed first in order to prevent overpressurisation. Sight glasses must be fitted on the outlet side of a steam trap in either a horizontal or vertical pipeline in accordance with the flow arrow on the body. Warning: when the optional visual flow indicator flap is requested for horizontal flow applications the hinge must be placed uppermost otherwise it will not work for the purpose intended. Where the trap is a blast discharge type e.g. thermodynamic, the sight glass must be fitted at least 1 m from the trap. This is to ensure that the glass is not subjected to thermal shock or pressure. Ensure access is available for maintenance purposes.

### Disposal

The product is recyclable. No ecological hazard is anticipated with disposal of this product providing due care is taken.

## How to order

**Example:** 1 off Spirax Sarco DN20 SGS40 sight glass having a stainless steel body, removable toughened glass windows and flanged EN 1092 PN40 connections. The unit must be supplied complete with the optional 'visual flow indicator flap' and the 'Mica glass protectors'.

## Spare parts

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

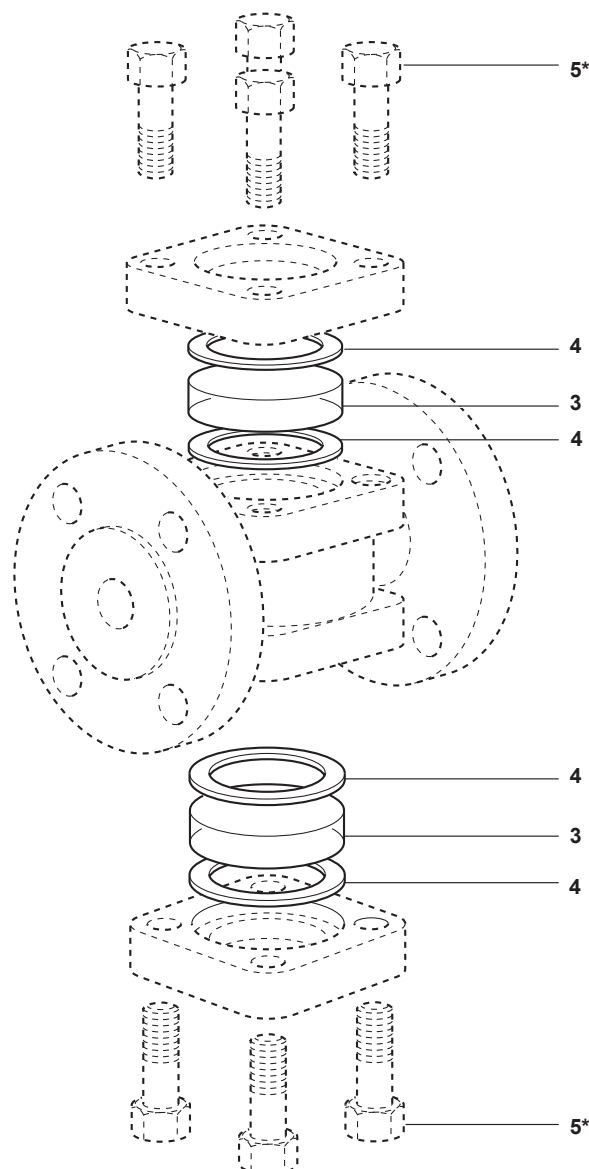
### Available spares

|  |      |
|--|------|
| Set of windows and gaskets             | 3, 4 |
| Set of gaskets                         | 4    |
| Visual flow indicator flap (not shown) | 6    |
| Mica glass protectors (not shown)      | 8    |

### 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 the sight glass.

**Example:** 1 off Set of windows and gaskets for a Spirax Sarco SGS40 sight glass.



\* Item 5 is not an available spare.

### Recommended tightening torques

| Item | Size         | Qty |  or<br>mm |  | N m |
|------|--------------|-----|--|---|-----|
| 5    | DN15 - DN20  | 8   | 17 A/F   | M10 x 35  | 12  |
|      | DN25 - DN32  | 8   | 19 A/F   | M12 x 50  | 28  |
|      | DN40 - DN50  | 8   | 19 A/F   | M12 x 60  | 38  |
|      | DN65 - DN100 | 8   | 23 A/F   | M16 x 85  | 132 |