



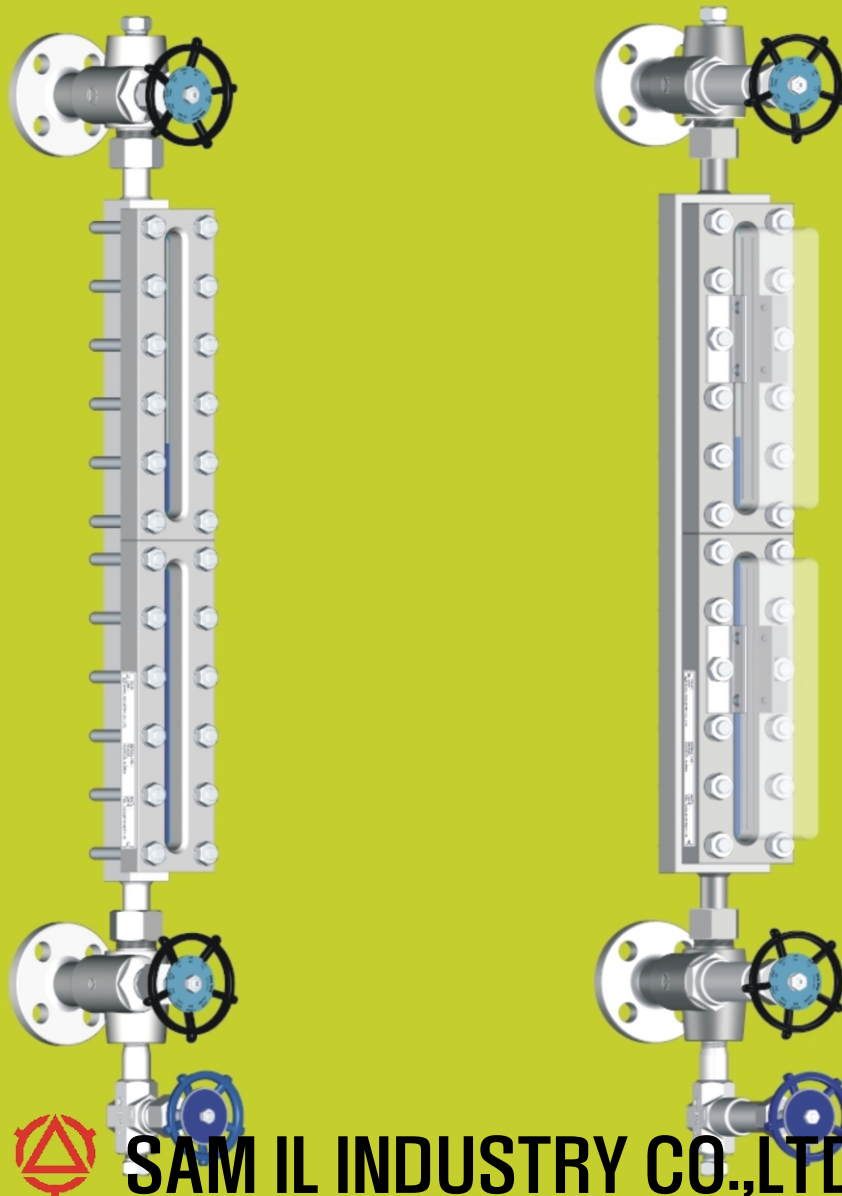
# CHAPTER- 3

## LIQUID LEVEL GAUGE

### REFLEX GAUGE SERIES

#### IN THIS CHAPTER-3

Here is explain the reflex type liquid level gauge series for **SAM IL**'s standard and there may be a little changed or revised for quality improvement and special requirements of our valuable customers. Included the model that is **SRG-1SM** in this chapter as a Flat Self-Closing Type for Marine.

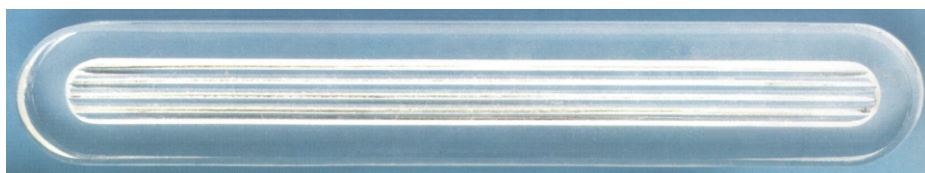


**SAM IL INDUSTRY CO.,LTD.**

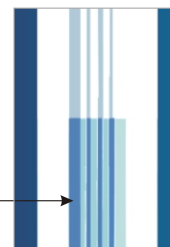
## PRESSURE - TEMPERATURE CHARTS FOR REFLEX GLASS

### INTRODUCTION :

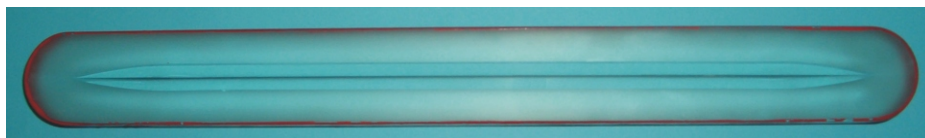
As the Reflex Glass is not used with mica shield, there is rather limited to use the glass according to fluid and its process conditions. When it is take account of the R-Type level gauge for any process conditions, there must make sure that an application conditions are satisfied reciprocally safety working conditions between the glass and the chamber. for maximum working condition of the chamber[=shell], refer to each pages for gauge chamber pressure-temperature charts. this type also have a number of highly advantageous including light weight, availability of longer visible lengths and lower price than the transparent series.



Color at portion to contact with fluid

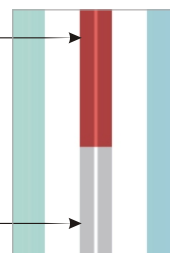


REFLEX GLASS



Upper portion of liquid level

Color at portion to contact with fluid

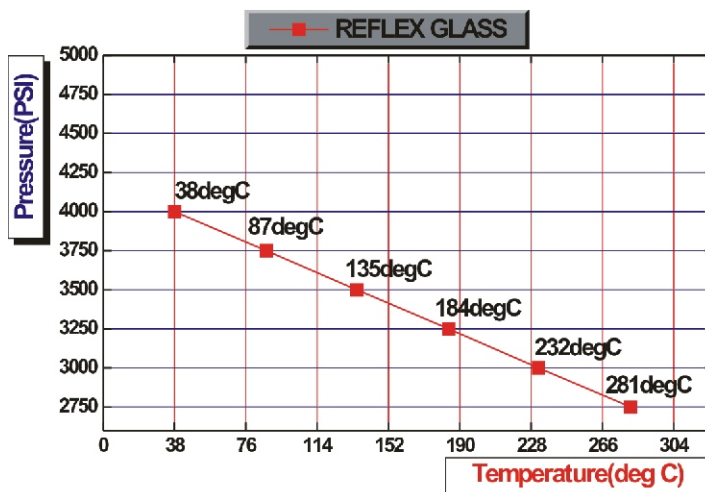


BI-COLOR REFLEX GLASS

### Reflex Glass Application Conditions

Saturated steam or hot water in direct contact with reflex sight glass is :

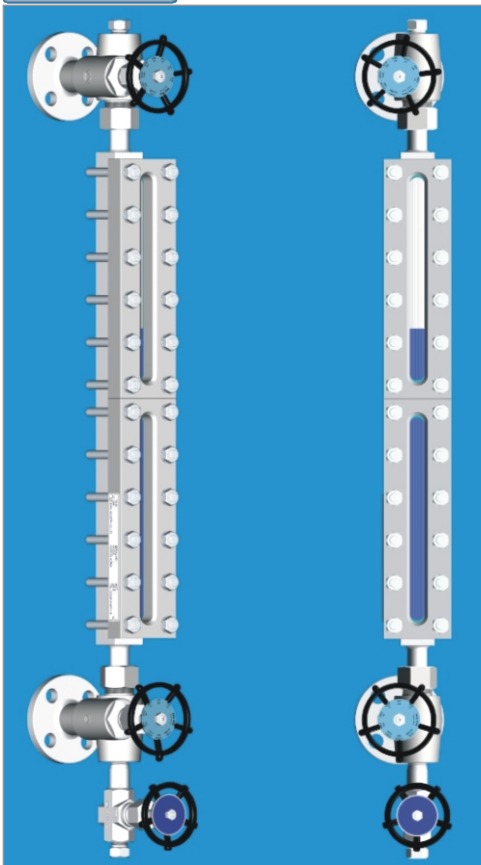
- Maximum Permissible Pressure : 500 psi[35bar] at 243 °C [470 °F]
- The chart shown on the right is range of application with no technically significant glass attack.
- Reflex Glasses can be used with all media except steam at service conditions up to 5800 psi[400bar] or temperature up to 750 °F [400 °C].



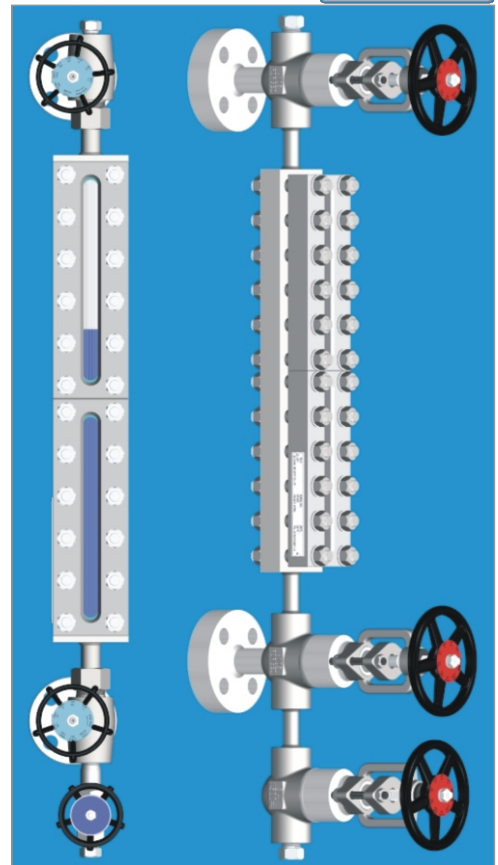
GENERAL DESCRIPTION

Reflex Liquid Level Gauge use the R - form sight glasses. One side surface of Reflex Glass to use flat glass has several grooves for reflecting prism. The principle of the Reflex Glass is based on the difference in the refractive indices of liquid and gas or in particular of water and steam. Liquid level shows conspicuously dark hard color for Liquid space and light white for empty space. These Reflex series are not used with the Mica shield. Thus, **SAM IL** does not recommend these series for Caustic, Hydrofluoric, Distilled Water or other liquid corrosive to glass. The Reflex Gauge is assembled firmly with gasket, reflex glass, cushion gasket and gauge cover on the body by U-Bolts for SRG-1 & 2 and Stud Bolts for SRG-3 & 4, in order.

SRG-1 & 2



SRG-3 & 4



OPTIONS

- **Scale Plate**  
- units : Cm, Liter
- **Vent**  
- Needle Valve  
- Gate Valve  
- Globe Valve  
- Nipple & Cap
- **Drain**  
- Needle Valve  
- Gate Valve  
- Globe Valve  
- Nipple & Cap
- **Bracket**  
- Longer than 3000 mm of C to C
- **Gauge Valve**  
- Hand Wheel with Chain  
- Arm Lever

SRG REFLEX TYPE

SPECIFICATIONS

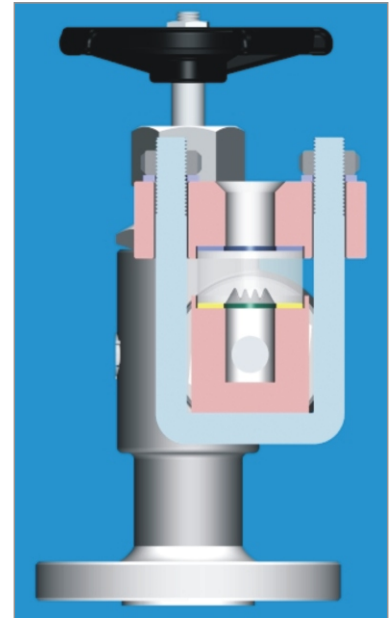
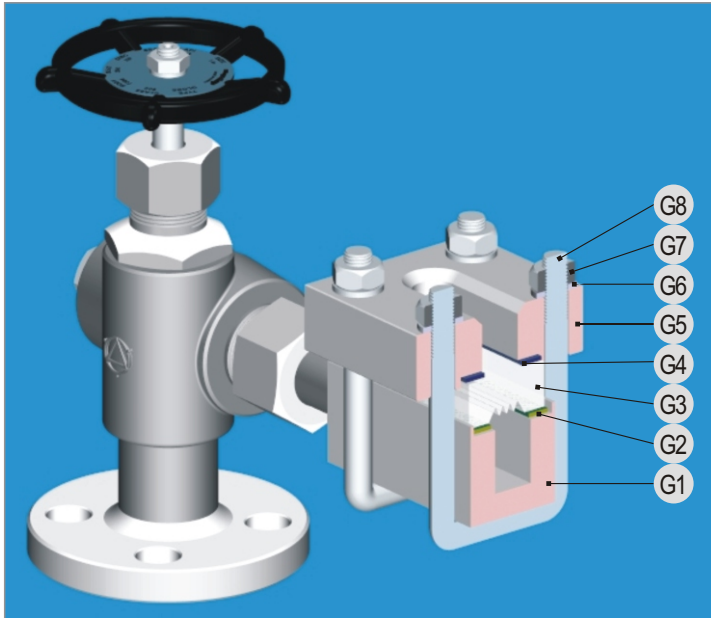
- **MATERIAL** : C.S, LTCS, Stainless Steel, A182-F11, 22, 5, 9, 91 & Monel, Titanium, Hastelloy, Alloy-20, etc.
- **VISIBLE LENGTH** : 90 to 3510 mm.
- **MAX. NO. OF SECTION** : 10 Sections.
- **VESSEL CONNECTION** : 3/4" or 1" Flanged ANSI 150# ~ 2500#.
- **GAUGE BODY & GAUGE VALVE CON'N** : Not Rotatable & 360° Rotatable [turn to page G-9].
- **SHELL TEST PRESSURE** : 1.5 Times at the Max. Working Pressure.

Others, except the above specification are available on request by customer.



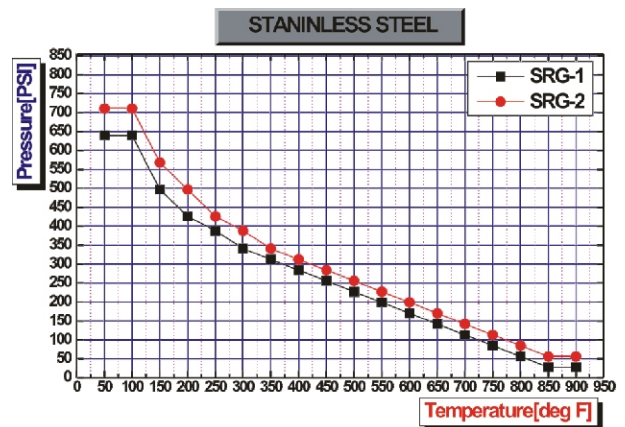
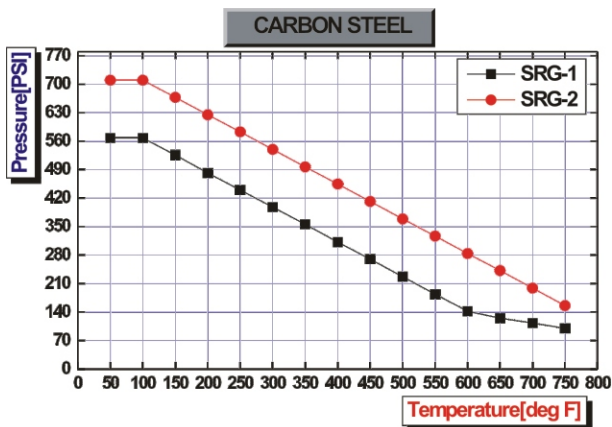
Reflex Gauge Glasses are designed for the direct observation of Liquid level in the tanks or drums.

## SECTION FOR MODEL : SRG-1 & 2



| NO. | PARTS          | MATERIAL               | NO. | PART        | MATERIAL   |
|-----|----------------|------------------------|-----|-------------|------------|
| G1  | Gauge Body     | C.S, Stainless Steel   | G5  | Gauge Cover | C.S        |
| G2  | Sealing Gasket | Graphite, Non-Asbestos | G6  | Washer      | SWRH-62B   |
| G3  | Reflex Glass   | Borosilicate           | G7  | Nuts        | A194 Gr.2H |
| G4  | Cushion Gasket | Non-Asbestos           | G8  | U - Bolts   | A193 Gr.B7 |

■ SAM IL has been carried out actual shell test and simulation using software for FEA and we found the safety ranges for Pressure - Temperature rating by the models.

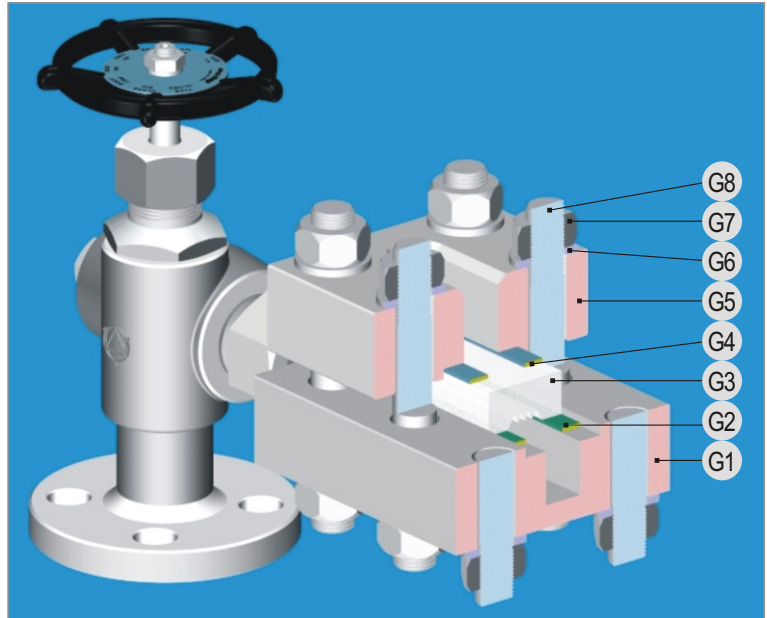
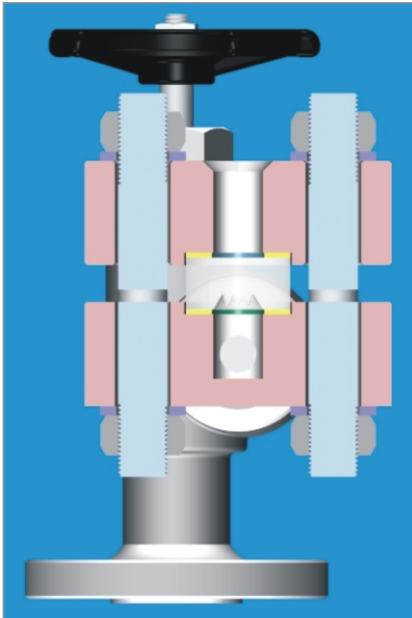


GAUGE CHAMBER PRESSURE - TEMPERATURE CHARTS FOR SAFETY OPERATING

Others, except the above materials of part are available on request by customer.

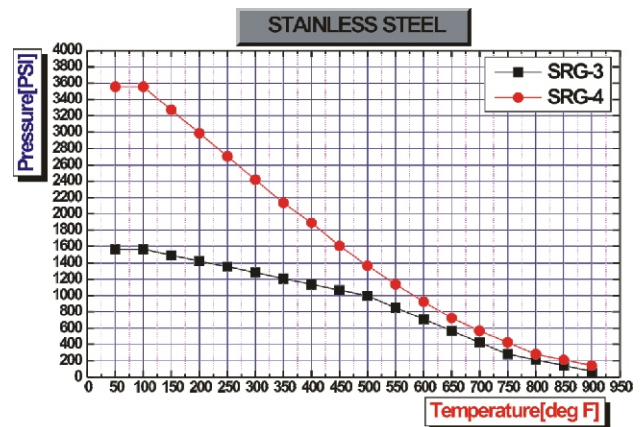
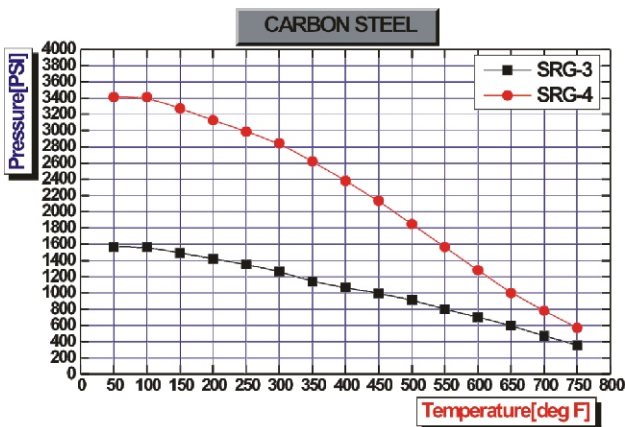


SECTION FOR MODEL : SRG-3 & 4



| NO. | PARTS          | MATERIAL               | NO. | PART         | MATERIAL   |
|-----|----------------|------------------------|-----|--------------|------------|
| G1  | Gauge Body     | C.S, Stainless Steel   | G5  | Gauge Cover  | C.S        |
| G2  | Sealing Gasket | Graphite, Non-Asbestos | G6  | Washer       | SWRH-62B   |
| G3  | Reflex Glass   | Borosilicate           | G7  | Nuts         | A194 Gr.2H |
| G4  | Cushion Gasket | Non-Asbestos           | G8  | Stud - Bolts | A193 Gr.B7 |

SRG REFLEX TYPE



GAUGE CHAMBER PRESSURE - TEMPERATURE CHARTS FOR SAFETY OPERATING

Others, except the above materials of part are available on request by customer.



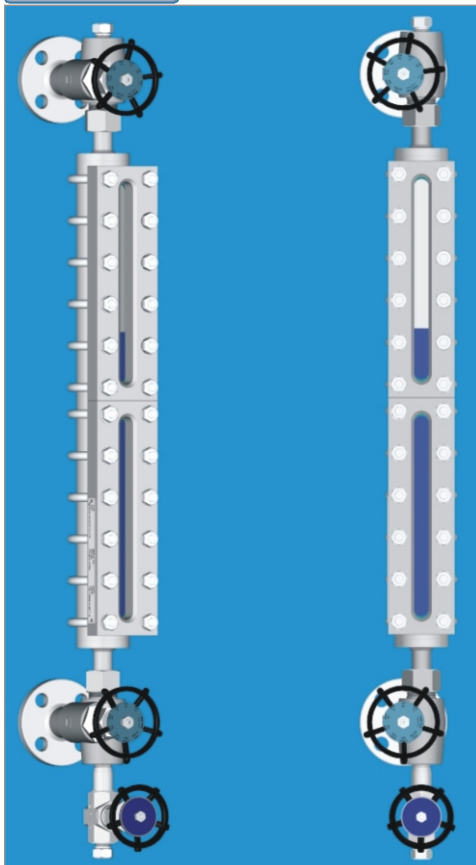
## GENERAL DESCRIPTION

The most advantage of this type is for easy level reading of boiling liquids. in the event of liquids boiling, its bubbling makes indistinct the surface level. in this type of gauge with the larger volume of the liquid chamber will be reduced bubbling. Thereby this type should facilitate to read its level of bubbling liquids. it has also provides highly advantages for highly dense and viscous liquid. the body is made of seamless pipe.

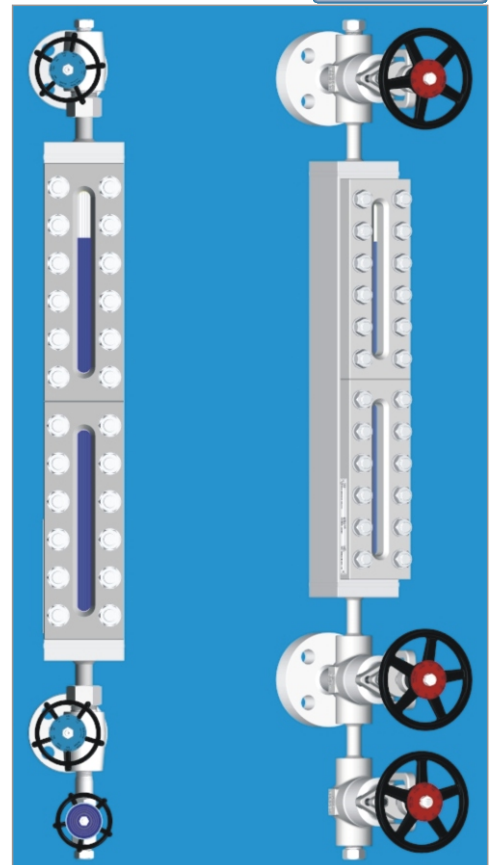
**SAM IL's** Large Chamber Reflex Types are classified into four[4] models, those are SRLG-1,2,3 & 4 according to process conditions which are max. working pressure & temperature [see page **G-4**].

This type is comprised of assembling order to fasten the nuts, set the sealing gasket, reflex glass, cushion gasket, gauge cover, bolts and nuts on the large chamber, in regular sequence.

**SRLG-1 & 2**



**SRLG-3 & 4**



### OPTIONS

- **Scale Plate**
  - units : Cm, Liter
- **Vent**
  - Needle Valve
  - Gate Valve
  - Globe Valve
  - Nipple & Cap
- **Drain**
  - Needle Valve
  - Gate Valve
  - Globe Valve
  - Nipple & Cap
- **Bracket**
  - Longer than 3000 mm of C to C
- **Gauge Valve**
  - Hand Wheel with Chain
  - Arm Lever

## SPECIFICATIONS

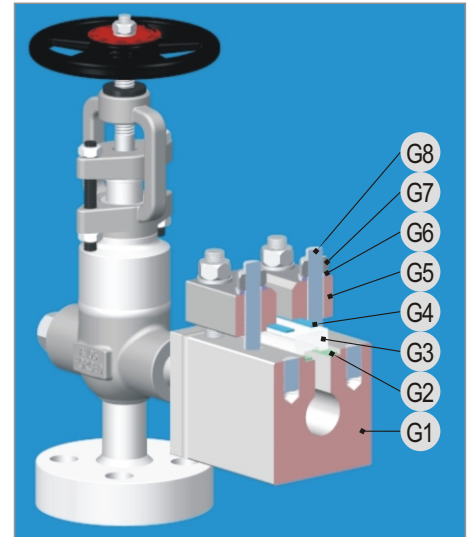
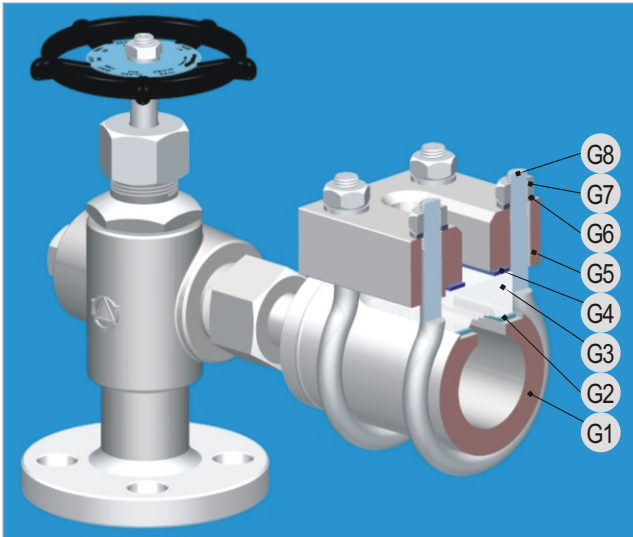
- **MATERIAL** : C.S, LTCS, Stainless Steel, A182-F11, 22, 5, 9, 91 & Monel, Titanium, Hastelloy, Alloy-20, etc.
- **VISIBLE LENGTH** : 90 to 3510 mm.
- **MAX. NO. OF SECTION** : 10 Sections.
- **VESSEL CONNECTION** : 3/4" or 1" Flanged ANSI 150# ~ 2500# [900# ~ 2500# : Special Type].
- **GAUGE BODY & GAUGE VALVE CON'N** : Not Rotatable & 360° Rotatable [turn to page **G-9**].
- **SHELL TEST PRESSURE** : 1.5 Times at the Max. Working Pressure.

Others, except the above specification are available on request by customer.

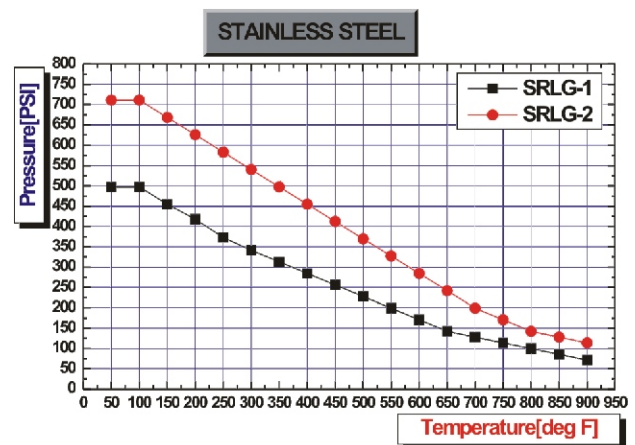
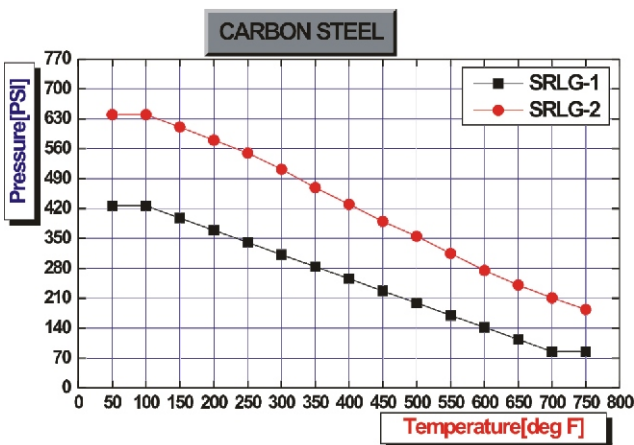


This SRLG is designed and manufactured for easy and accurate reading the liquid level of highly foamy liquids. the gauge has a relatively spacious internal area where foamy liquid is held from forming foams. thereby providing rather more accurate level observations.

SECTION FOR MODEL : SRLG-1,2 & 3,4



| NO. | PARTS          | MATERIAL               | NO. | PART        | MATERIAL   |
|-----|----------------|------------------------|-----|-------------|------------|
| G1  | Gauge Body     | C.S, Stainless Steel   | G5  | Gauge Cover | C.S        |
| G2  | Sealing Gasket | Graphite, Non-Asbestos | G6  | Washer      | SWRH-62B   |
| G3  | Reflex Glass   | Borosilicate           | G7  | Nuts        | A194 Gr.2H |
| G4  | Cushion Gasket | Non-Asbestos           | G8  | Bolts       | A193 Gr.B7 |



GAUGE CHAMBER PRESSURE - TEMPERATURE CHARTS FOR SAFETY OPERATING

Others, except the above materials of part are available on request by customer.



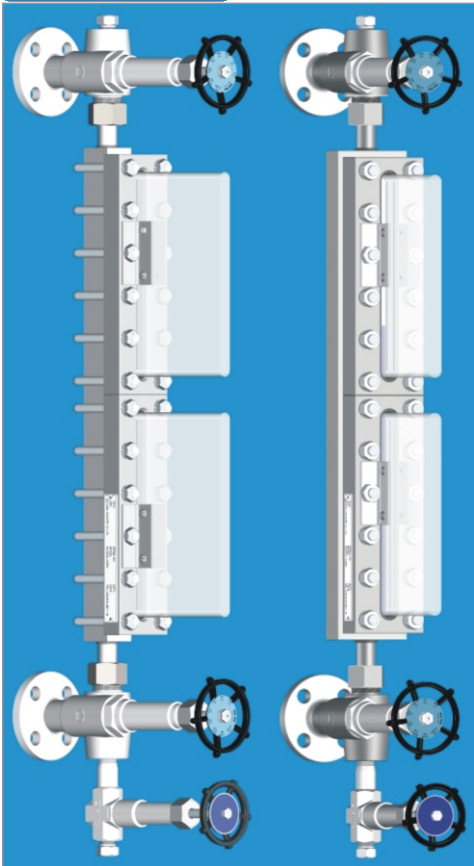
## GENERAL DESCRIPTION

If a conventional level gauge is used for extremely low-temperature applications, it becomes difficult to observe the level of liquid as the gauge front tends to freeze. To get rid of this problem, the acrylic non-frosting plate window is mounted in the front of the gauge like as below and you will observe the level easily far better.

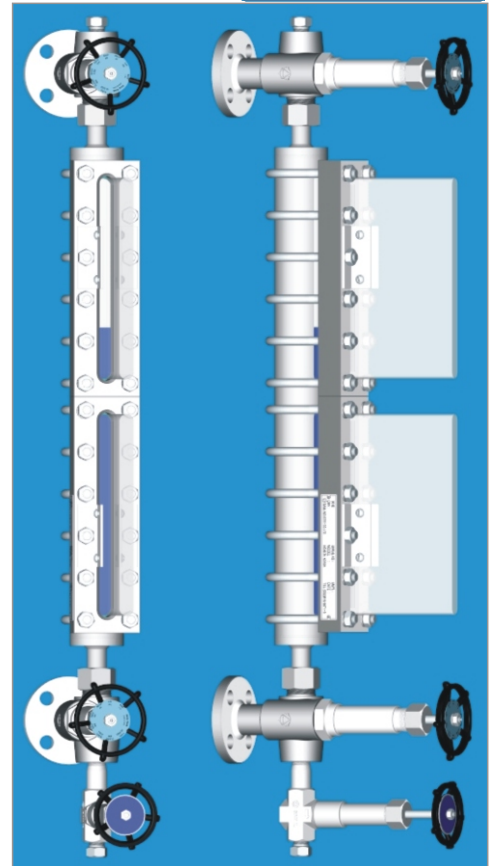
**SAM IL's** Non-Frosting Reflex Types are classified into two[2] types, Models are SRNG-1,2,3 & 4 and SRLNG-1,2,3 & 4 according to process conditions [see page **G-4**]. depending on the working temperature conditions, the height of the Non-Frosting plate window may be selected from 75 to 250 mm.

This type is comprised of assembling order to fasten the nuts, set the sealing gasket, reflex glass, cushion gasket, gauge cover, bolts and nuts on the Reflex Body, in order and then the Non-Frosting plate is mounted on it.

**SRNG-1,2,3 & 4**



**SRLNG-1,2,3 & 4**



### OPTIONS

- **Scale Plate**
  - units : Cm, Liter
- **Vent**
  - Needle Valve
  - Gate Valve
  - Globe Valve
  - Nipple & Cap
- **Drain**
  - Needle Valve
  - Gate Valve
  - Globe Valve
  - Nipple & Cap
- **Bracket**
  - Longer than 3000 mm of C to C
- **Gauge Valve**
  - Hand Wheel with Chain
  - Arm Lever

## SPECIFICATIONS

- **MATERIAL** : LTCS & Stainless Steel.
- **VISIBLE LENGTH** : 90 to 3510 mm.
- **MAX. NO. OF SECTION** : 10 Sections.
- **VESSEL CONNECTION** : 3/4" or 1" Flanged ANSI 150# ~ 2500# .
- **GAUGE BODY & GAUGE VALVE CON'N** : Not Rotatable & 360° Rotatable [turn to page **G-9**].
- **SHELL TEST PRESSURE** : 1.5 Times at the Max. Working Pressure.

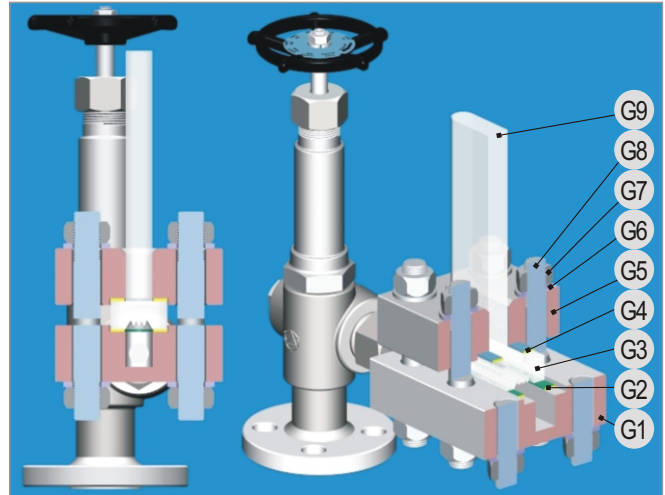
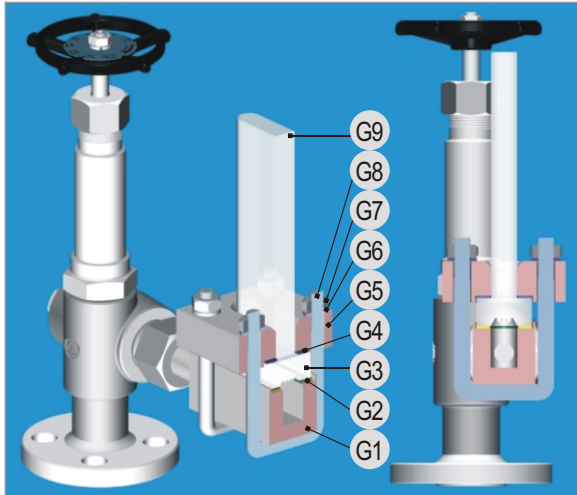
 Others, except the above specification are available on request by customer.





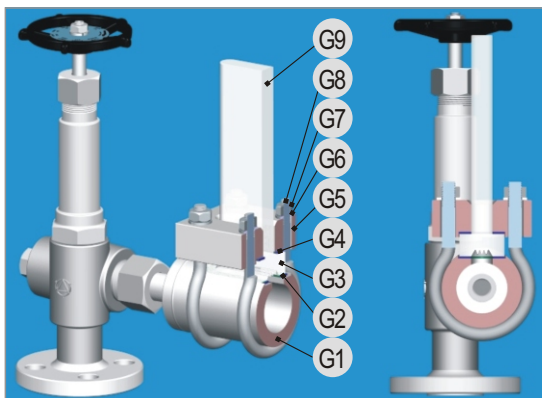
These SRNG and SRLNG is used for protecting the frost at low-temperature. thereby you can easily read level position through these SRNG & SRLNG Models.

### SECTION FOR MODEL : SRNG-1,2 & 3,4

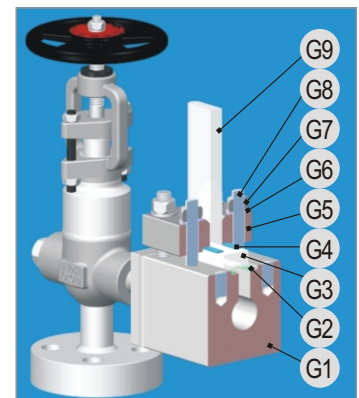


| NO. | PARTS          | MATERIAL              | NO. | PART           | MATERIAL               |
|-----|----------------|-----------------------|-----|----------------|------------------------|
| G1  | Gauge Body     | LTCS, Stainless Steel | G5  | Gauge Cover    | LTCS, Stainless Steel  |
| G2  | Sealing Gasket | Non-Asbestos          | G6  | Washer         | SWRH-62B               |
| G3  | Reflex Glass   | Borosilicate          | G7  | Nuts           | A194 Gr.2H, A194 Gr.4  |
| G4  | Cushion Gasket | Non-Asbestos          | G8  | Bolts          | A193 Gr.B7, A320 Gr.L7 |
|     |                |                       | G9  | Non - Frosting | Acrylic                |

### SECTION FOR MODEL : SRLNG-1,2 & 3,4



Since these types are used at a temperature below freezing point, gauge valve and drain valve is used with long bonnet type for preventing chilblains on your hands.



### TEMPERATURE RATING & DIMENSIONS OF NON-FROSTING PLATES

| Temperature [°C]   | 0 ~ -20 | -21 ~ -45 | -46 ~ -100 | -101 ~ -160 | -161 ~ -200 |
|--------------------|---------|-----------|------------|-------------|-------------|
| Materials          | LTCS    | LTCS      | 304SS      | 316SS       | 316LSS      |
| Acrylic Height [H] | 75      | 100       | 150        | 200         | 250         |

Others, except the above materials of part are available on request by customer.



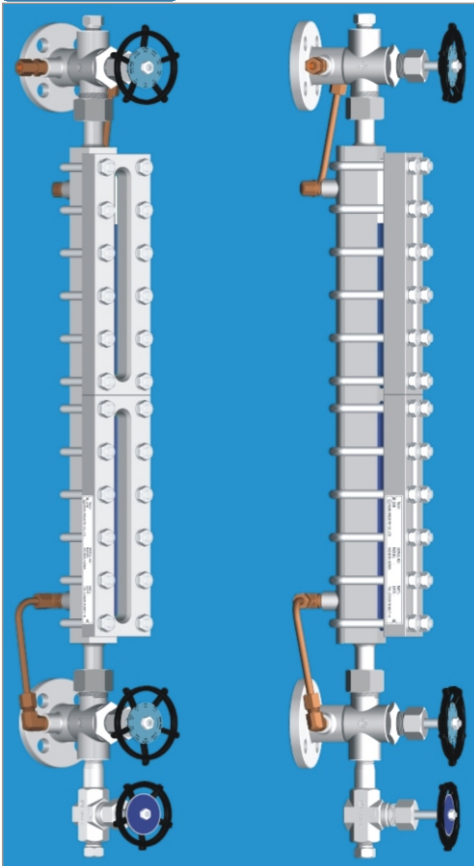
## GENERAL DESCRIPTION

This type is usually called a Jacket Type. This gauge is used to read the level of highly congealable or ebullient liquids. The principle is to inflow a steam for congealable liquids and a cold water for ebullient liquids through the inside of the jacket to ensure accurate and reliable level observation.

**SAM IL's** Jacket Reflex Types are classified into two[2] types, Models are SRJG-1,2,3 & 4 and SRLJG-1,2,3 & 4 according to process conditions which are max. working pressure & temperature [see page **G-4**].

This type is comprised of assembling order to fasten the nuts, set the sealing gasket, reflex glass, cushion gasket, gauge cover, bolts and nuts in regular sequence, on the Reflex Body equipped with Jacket for heating and cooling. Semi - Jacket may also be installed on the gauge body only, without gauge valve.

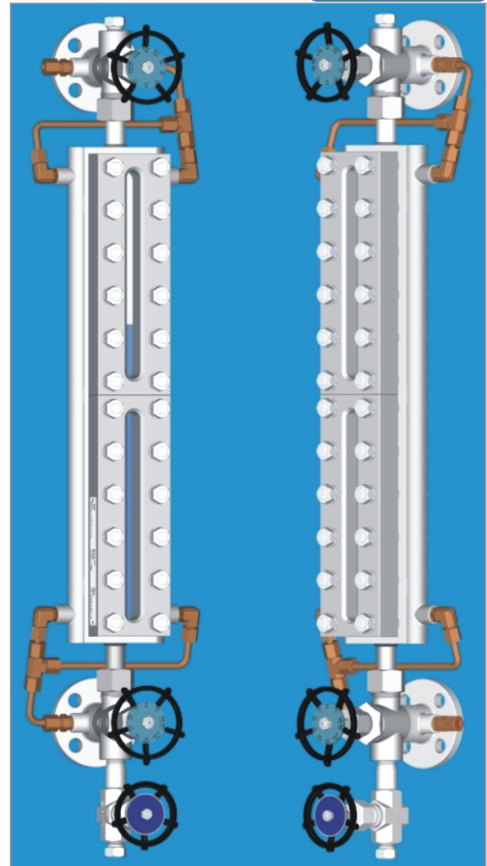
**SRJG-1 & 2**



### OPTIONS

- **Scale Plate**
  - units : Cm, Liter
- **Vent**
  - Needle Valve
  - Gate Valve
  - Globe Valve
  - Nipple & Cap
- **Drain**
  - Needle Valve
  - Gate Valve
  - Globe Valve
  - Nipple & Cap
- **Bracket**
  - Longer than 3000 mm of C to C
- **Gauge Valve**
  - Hand Wheel with Chain
  - Arm Lever

**SRJG-3 & 4**



## SPECIFICATIONS

- **MATERIAL** : C.S, LTCS, Stainless Steel, A182-F11,22,5,9,91 & Monel, Titanium, Hastelloy, Alloy-20, etc.
- **VISIBLE LENGTH** : 90 to 3510 mm.
- **MAX. NO. OF SECTION** : 10 Sections.
- **VESSEL CONNECTION** : 3/4" or 1" Flanged ANSI 150# to 2500#.
- **GAUGE BODY & GAUGE VALVE CON'N** : Not Rotatable & 360° Rotatable [turn to page **G-9**].
- **SHELL TEST PRESSURE** : 1.5 Times at the Max. Working Pressure.

 Others, except the above specification are available on request by customer.

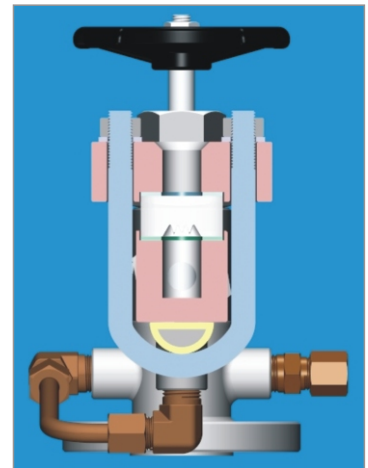
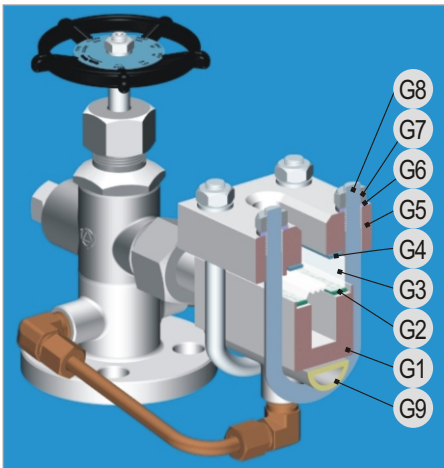


This type is used for observing the fluid by changing it into state of liquid after heating or cooling it through jacket according to features of fluid.

of **SAM IL** standard, the entrance of Jacket for inflowing a steam or cold water is 1/2" NPT[M]. other entrance sizes for the Jacket connection are available on request by customers.

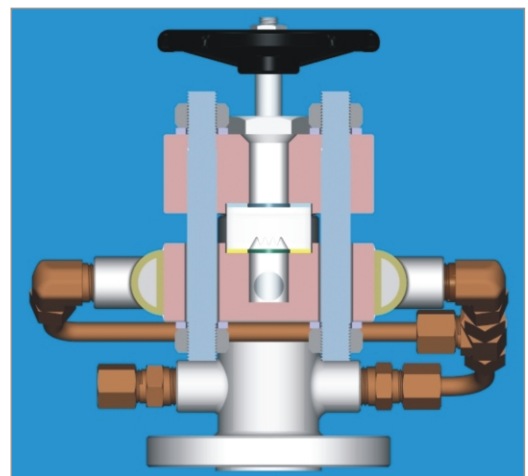
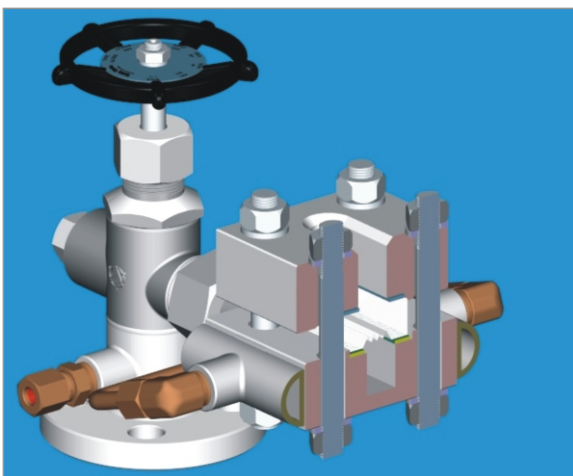
**Steam** or **Cooling Media** is circulated through the Jacket.

**SECTION FOR MODEL : SRJG-1 & 2**



| NO. | PARTS          | MATERIAL               | NO. | PART        | MATERIAL               |
|-----|----------------|------------------------|-----|-------------|------------------------|
| G1  | Gauge Body     | C.S, Stainless Steel   | G5  | Gauge Cover | C.S                    |
| G2  | Sealing Gasket | Graphite, Non-Asbestos | G6  | Washer      | SWRH-62B               |
| G3  | Reflex Glass   | Borosilicate           | G7  | Nuts        | A194 Gr.2H             |
| G4  | Cushion Gasket | Non-Asbestos           | G8  | Bolts       | A193 Gr.B7             |
|     |                |                        | G9  | Jacket Pipe | C.S or Stainless Steel |

**SECTION FOR MODEL : SRJG-3 & 4**



Others, except the above materials of part are available on request by customer.

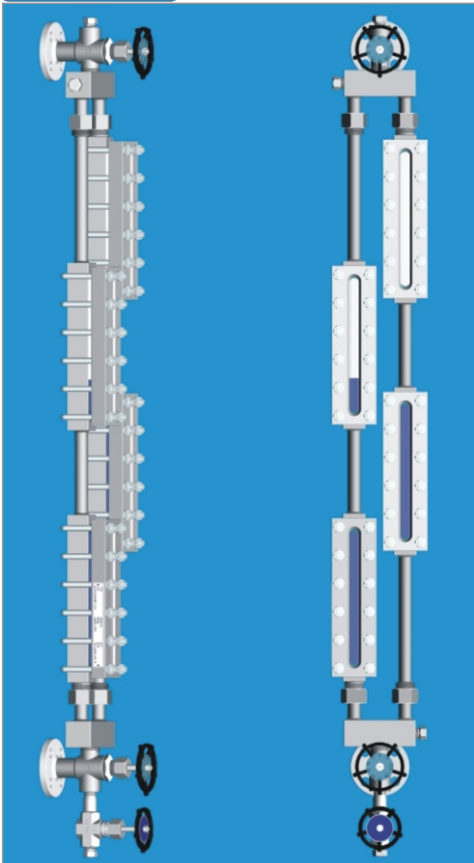


## GENERAL DESCRIPTION

The most advantage of this type have no invisible sections [Dead Band]. **SAM IL**'s standard overlapped section is ten [10] mm as minimum and the gauge is so designed that supporting brackets as illustrated on next page can be equipped to protect a long multiple connected gauge from distortion of fall down. The scale plate to mount along side the gauge may be available on request by customers to observe the liquid level more accurately.

This type is comprised of assembling order to fasten the nuts, set the sealing gasket, reflex glass, cushion gasket, gauge cover, bolts and nuts on the Reflex Body after making Zig-Zag formed the body.

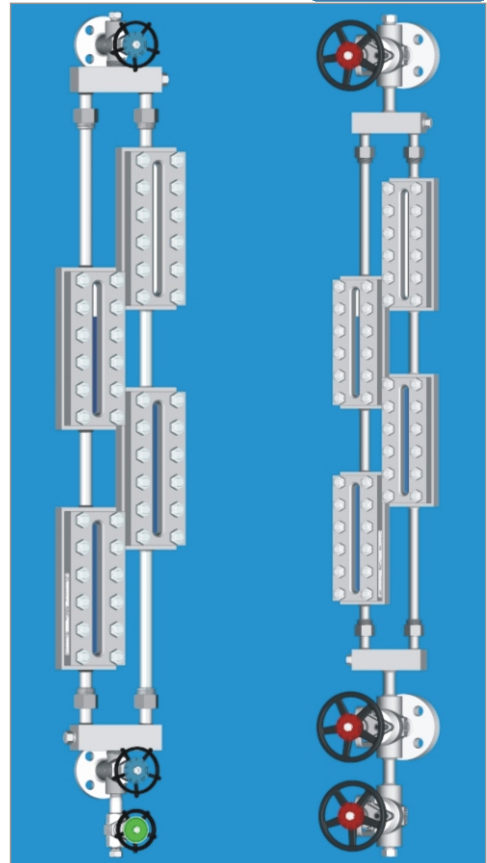
SRZG-1 & 2



### OPTIONS

- **Scale Plate**
  - units : Cm, Liter
- **Vent**
  - Needle Valve
  - Gate Valve
  - Globe Valve
  - Nipple & Cap
- **Drain**
  - Needle Valve
  - Gate Valve
  - Globe Valve
  - Nipple & Cap
- **Bracket**
  - Longer than 3000 mm of C to C
- **Gauge Valve**
  - Hand Wheel with Chain
  - Arm Lever

SRZG-3 & 4



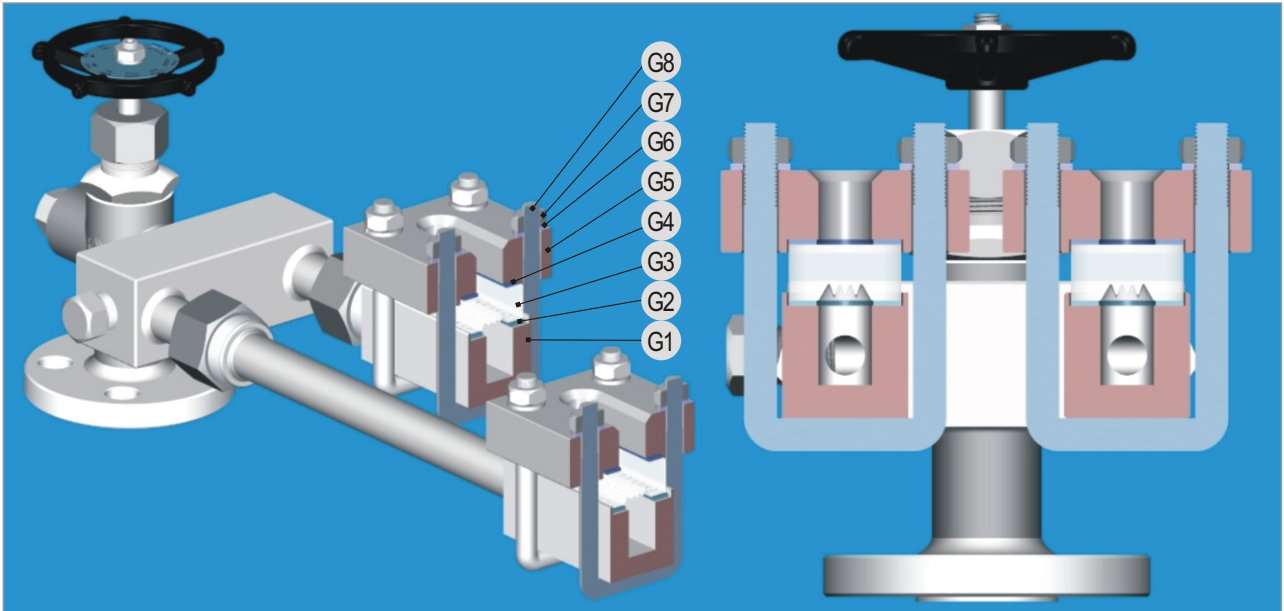
## SPECIFICATIONS

- **MATERIAL** : C.S, LTCS, Stainless Steel, A182-F11, 22, 5, 9, 91 & Monel, Titanium, Hastelloy, Alloy-20, etc.
- **VISIBLE LENGTH** : Max. 6050 mm.
- **MAX. NO. OF SECTION** : 20 Sections.
- **VESSEL CONNECTION** : 3/4" or 1" Flanged ANSI 150# to 2500#.
- **GAUGE BODY & GAUGE VALVE CON'N** : Not Rotatable & 360° Rotatable [turn to page G-9].
- **SHELL TEST PRESSURE** : 1.5 Times at the Max. Working Pressure.

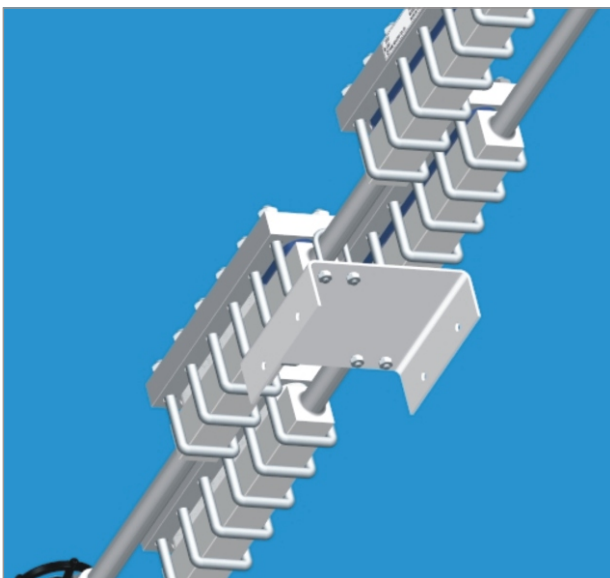
Others, except the above specification are available on request by customer.



SECTION FOR MODEL : SRZG-1 & 2



| NO. | PARTS          | MATERIAL               | NO. | PART        | MATERIAL   |
|-----|----------------|------------------------|-----|-------------|------------|
| G1  | Gauge Body     | C.S, Stainless Steel   | G5  | Gauge Cover | C.S        |
| G2  | Sealing Gasket | Graphite, Non-Asbestos | G6  | Washer      | SWRH-62B   |
| G3  | Reflex Glass   | Borosilicate           | G7  | Nuts        | A194 Gr.2H |
| G4  | Cushion Gasket | Non-Asbestos           | G8  | U - Bolts   | A193 Gr.B7 |



. Details of the Bracket dimension will be indicated on the drawing for submittal and may be changed on request by customers.

. As shown on the left-hand side illustrated, this is SAM IL's standard and you can connect the supporting from our supporting bracket to Vessel.

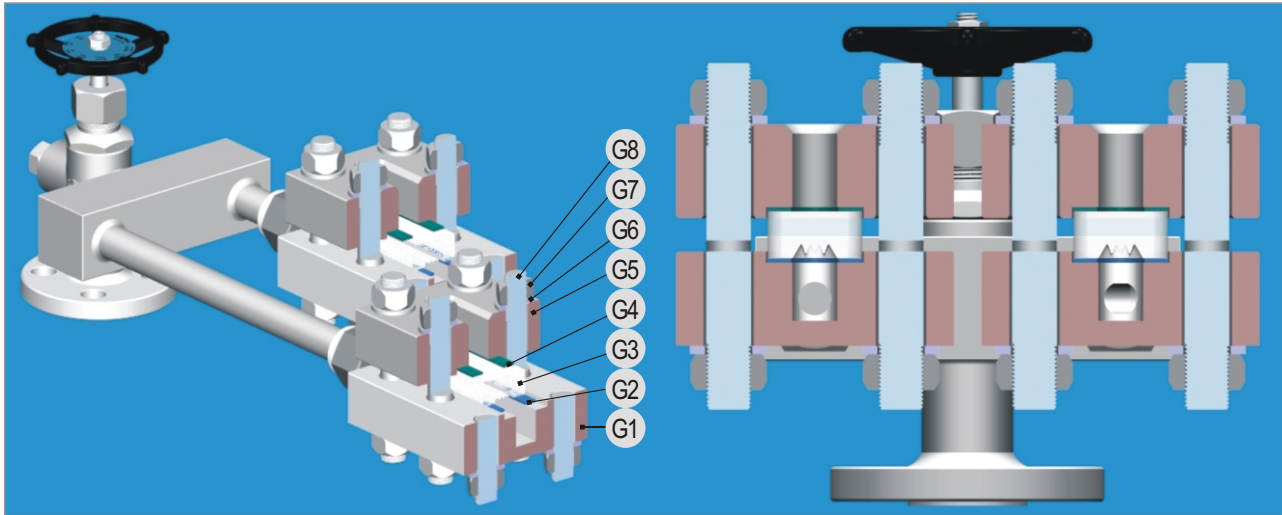
. Bracket for supporting is built on this model for 7 gauges(=7sections) and over as standard.

. Assembly - Dismantling on the body is easy.

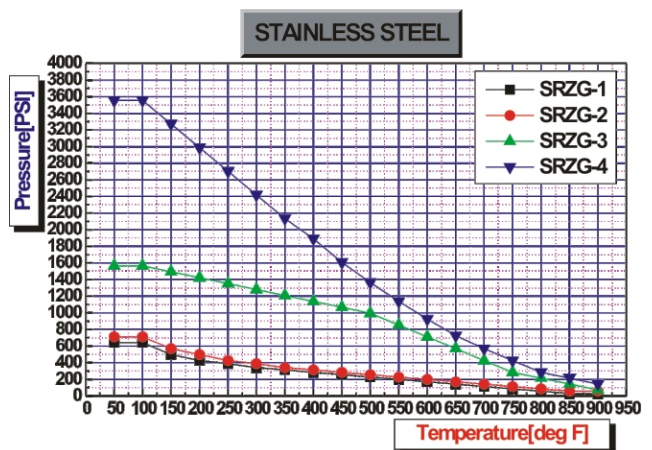
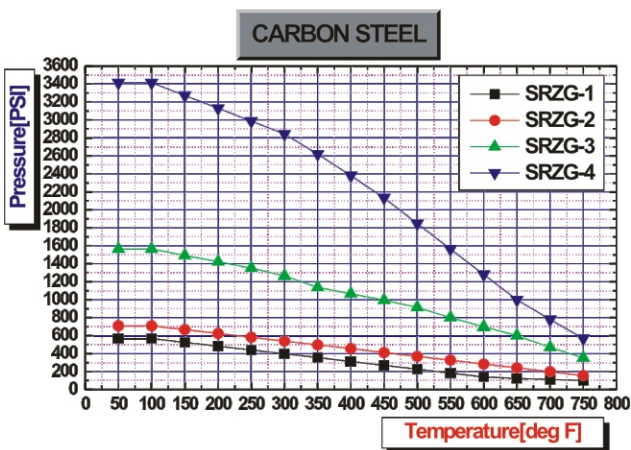
Others, except the above materials of part are available on request by customer.



## SECTION FOR MODEL : SRZG-3 & 4



| NO. | PARTS          | MATERIAL               | NO. | PART         | MATERIAL   |
|-----|----------------|------------------------|-----|--------------|------------|
| G1  | Gauge Body     | C.S, Stainless Steel   | G5  | Gauge Cover  | C.S        |
| G2  | Sealing Gasket | Graphite, Non-Asbestos | G6  | Washer       | SWRH-62B   |
| G3  | Reflex Glass   | Borosilicate           | G7  | Nuts         | A194 Gr.2H |
| G4  | Cushion Gasket | Non-Asbestos           | G8  | Stud - Bolts | A193 Gr.B7 |

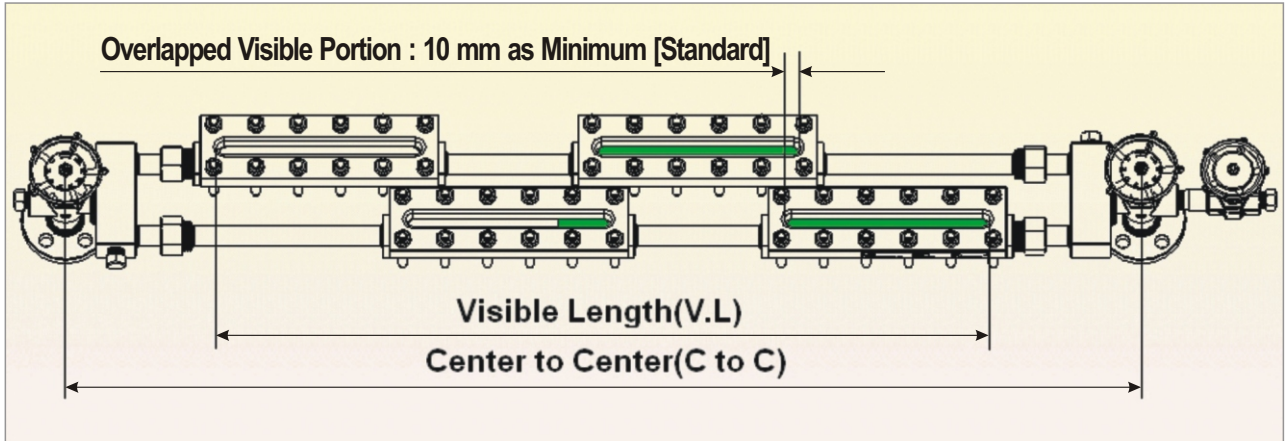


GAUGE CHAMBER PRESSURE - TEMPERATURE CHARTS FOR SAFETY OPERATING

Others, except the above materials of part are available on request by customer.



SOLID DRAWING & DIMENSIONS



| No. of Gauge Sections | Glass No. - 7 |          | Glass No. - 8 |          | Glass No. - 9 |          |
|-----------------------|---------------|----------|---------------|----------|---------------|----------|
|                       | C TO C [mm]   | V•L [mm] | C TO C [mm]   | V•L [mm] | C TO C [mm]   | V•L [mm] |
| 2 Gauges              | 800           | 500      | 880           | 580      | 920           | 620      |
| 3 Gauges              | 1040          | 740      | 1160          | 860      | 1220          | 920      |
| 4 Gauges              | 1290          | 990      | 1450          | 1150     | 1520          | 1220     |
| 5 Gauges              | 1530          | 1230     | 1720          | 1420     | 1820          | 1520     |
| 6 Gauges              | 1770          | 1470     | 2000          | 1700     | 2120          | 1820     |
| 7 Gauges              | 2000          | 1700     | 2300          | 2000     | 2420          | 2120     |
| 8 Gauges              | 2250          | 1950     | 2550          | 2250     | 2720          | 2420     |
| 9 Gauges              | 2500          | 2200     | 2850          | 2550     | 3020          | 2720     |
| 10 Gauges             | 2750          | 2450     | 3100          | 2800     | 3300          | 3000     |
| 11 Gauges             | 3000          | 2700     | 3400          | 3100     | 3600          | 3300     |
| 12 Gauges             | 3200          | 2900     | 3700          | 3400     | 3900          | 3600     |
| 13 Gauges             | 3450          | 3150     | 3950          | 3650     | 4200          | 3900     |
| 14 Gauges             | 3700          | 3400     | 4250          | 3950     | 4500          | 4200     |
| 15 Gauges             | 3950          | 3650     | 4550          | 4250     | 4800          | 4500     |
| 16 Gauges             | 4200          | 3900     | 4800          | 4500     | 5100          | 4800     |
| 17 Gauges             | 4400          | 4100     | 5100          | 4800     | 5400          | 5100     |
| 18 Gauges             | 4650          | 4350     | 5400          | 5100     | 5700          | 5400     |
| 19 Gauges             | 4900          | 4600     | 5650          | 5350     | 6000          | 5700     |
| 20Gauges              | 5100          | 4800     | 5900          | 5600     | 6300          | 6000     |

Visible + 300 mm = C to C [For Gauge Valve Model : SS, SO, SB at Page G-9].

Others, except the above dimensions are available on request by customer.



## GENERAL DESCRIPTION

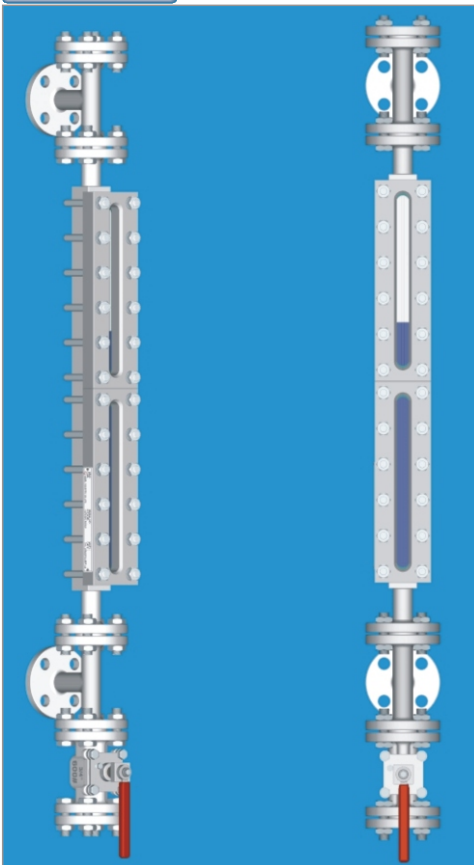
More severe demands may be often required on liquid level gauges in terms of resistance to corrosion, and this is accomplished by lining or coating all parts to contact with the liquid. The most important aspect of this process is the preparation of the metal substrate. For this, **SAM IL** employs only the latest machinery and highly an expert personnel.

**SAM IL**'s Lined Reflex Types are classified into two[2] models, Models are SRG-1LD and SRLG-1LD according to the properties of fluids [see page **G-4**].

This type is comprised of assembling order to fasten the nuts, set the sealing gasket, reflex glass, cushion gasket, gauge cover, bolts and nuts in regular sequence, on the Reflex Body to Lined.

LINED REFLEX TYPE SRG-LD, SRLG-LD

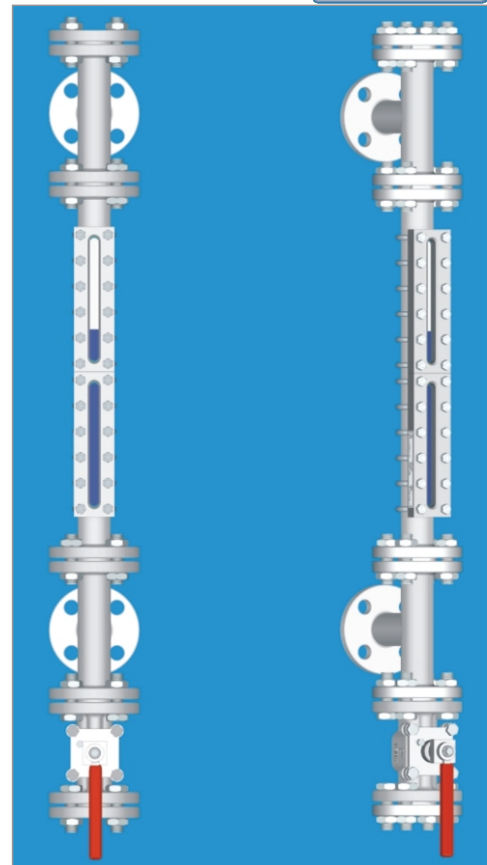
**SRG-1LD**



### OPTIONS

- **Scale Plate**  
- units : Cm, Liter
- **Vent**  
- Consult Us  
- Plug Valve
- **Drain**  
- Consult Us  
- Plug Valve
- **Bracket**  
- Longer than 3000 mm of C to C

**SRLG-1LD**



## SPECIFICATIONS

- |                              |   |
|------------------------------|---|
| ■ <b>MATERIAL</b>            | : Carbon Steel & Stainless Steel          |
| ■ <b>VISIBLE LENGTH</b>      | : 90 to 3510 mm.                          |
| ■ <b>MAX. NO. OF SECTION</b> | : 10 Sections.                            |
| ■ <b>VESSEL CONNECTION</b>   | : 3/4" to 2" Flanged ANSI 150# ~ 300#.    |
| ■ <b>SHELL TEST PRESSURE</b> | : 1.5 Times at the Max. Working Pressure. |

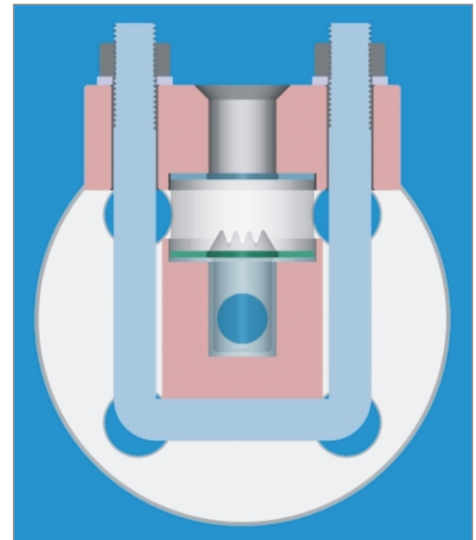
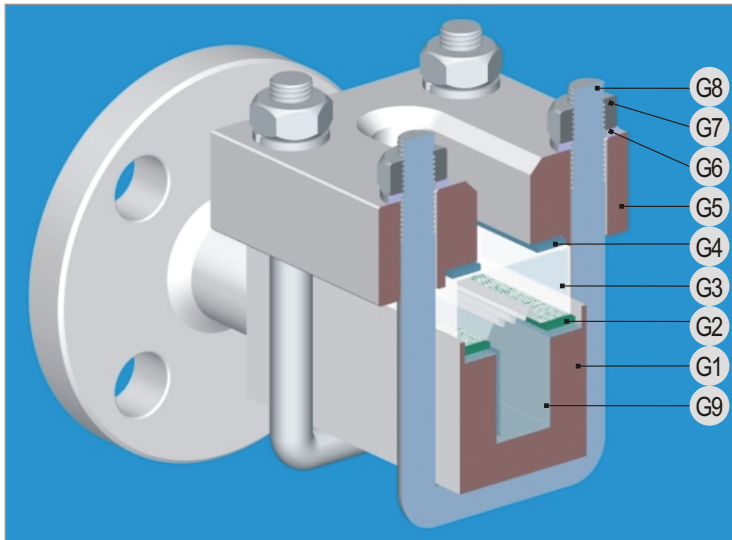
Others, except the above specification are available on request by customer.





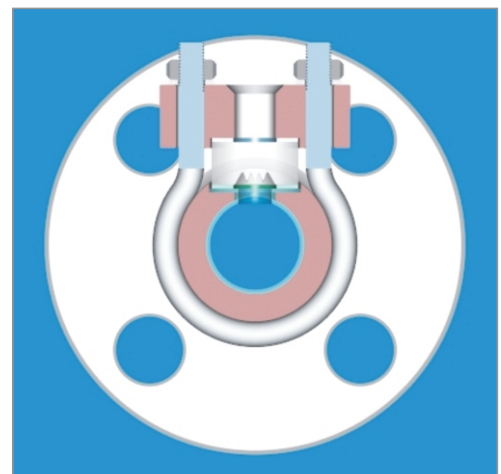
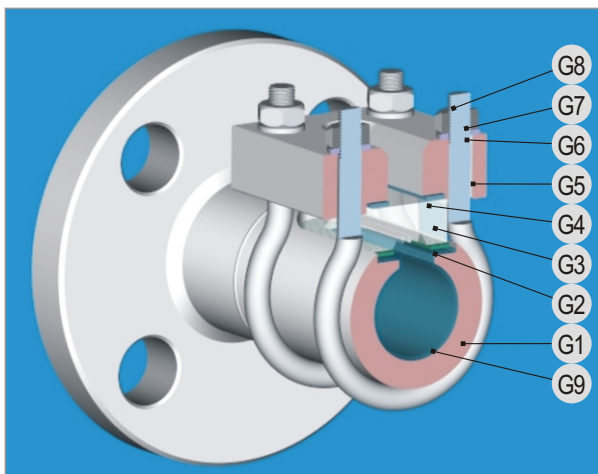
Block Valve, Drain and Vent Valve of Lined Reflex Type are available on Plug Valve, etc., any request.

**SECTION FOR MODEL : SRG-LD**



| NO. | PARTS          | MATERIAL             | NO. | PART        | MATERIAL            |
|-----|----------------|----------------------|-----|-------------|---------------------|
| G1  | Gauge Body     | C.S, Stainless Steel | G5  | Gauge Cover | C.S                 |
| G2  | Sealing Gasket | Rubber, Soft Teflon  | G6  | Washer      | SWRH-62B            |
| G3  | Reflex Glass   | Borosilicate         | G7  | Nuts        | A194 Gr.2H          |
| G4  | Cushion Gasket | Non-Asbestos         | G8  | Bolts       | A193 Gr.B7          |
|     |                |                      | G9  | Lining      | Hard Rubber, Teflon |

**SECTION FOR MODEL : SRLG-LD**



Others, except the above materials of part are available on request by customer.

SRG-LD, SRLG-LD LINED REFLEX TYPE



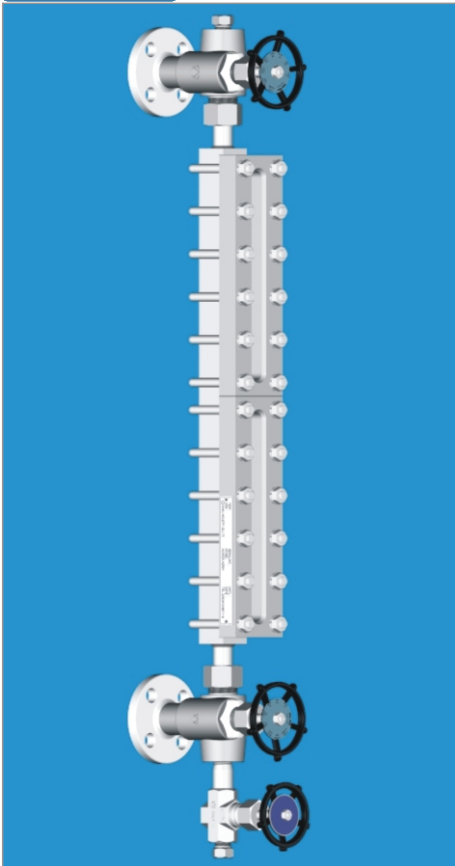
## GENERAL DESCRIPTION

This gauge is used with a special reflex type gauge glass which has wider V - Shaped single refractive groove and red coating on the outside all of the glass. It provides a clear observation of liquid level because of made refracting red color on the V - Groove for steam or beyond portion of the level and its color of fluid itself for liquid portions.

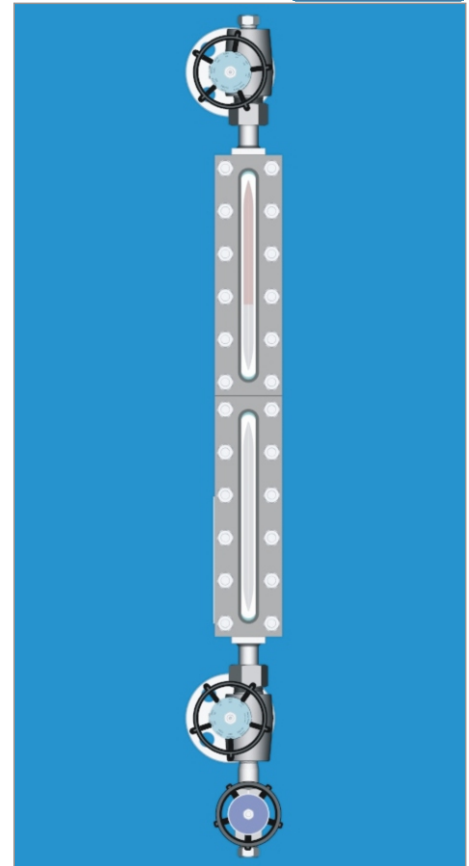
**SAM IL's** Bi-Color Reflex Types are classified into two[2] models, those are SRG-1 & 2BC according to process conditions which are max. working pressure & temperature [see page **G-4**].

This type is comprised of assembling order to fasten the nuts, set the sealing gasket, bi-color reflex glass, cushion gasket, gauge cover, bolts and nuts on the Reflex Body.

**SRG-1BC**



**SRG-2BC**



### OPTIONS

- **Scale Plate**
  - units : Cm, Liter
- **Vent**
  - Needle Valve
  - Gate Valve
  - Globe Valve
  - Nipple & Cap
- **Drain**
  - Needle Valve
  - Gate Valve
  - Globe Valve
  - Nipple & Cap
- **Bracket**
  - Longer than 3000 mm of C to C
- **Gauge Valve**
  - Hand Wheel with Chain
  - Arm Lever

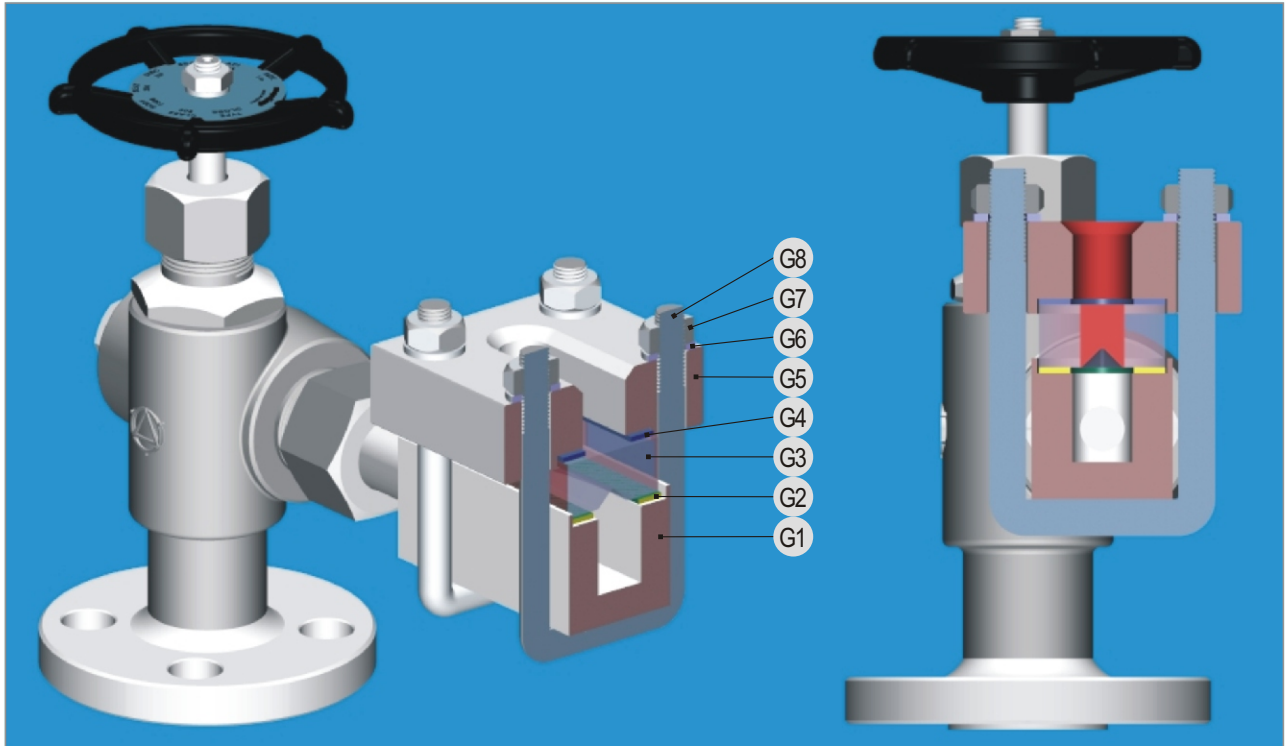
## SPECIFICATIONS

- **MATERIAL** : C.S, LTCS, Stainless Steel, A182-F11, 22, 5, 9, 91 & Monel, Titanium, Hastelloy, Alloy-20, etc.
- **VISIBLE LENGTH** : 90 to 3510 mm.
- **MAX. NO. OF SECTION** : 10 Sections.
- **VESSEL CONNECTION** : 3/4" or 1" Flanged ANSI 150# ~ 600# .
- **GAUGE BODY & GAUGE VALVE CON'N** : Not Rotatable & 360° Rotatable [turn to page **G-9**].
- **SHELL TEST PRESSURE** : 1.5 Times at the Max. Working Pressure.

 Others, except the above specification are available on request by customer.



SECTION FOR MODEL : SRG-1 & 2BC



SRG-BC  
BI - COLOR REFLEX TYPE

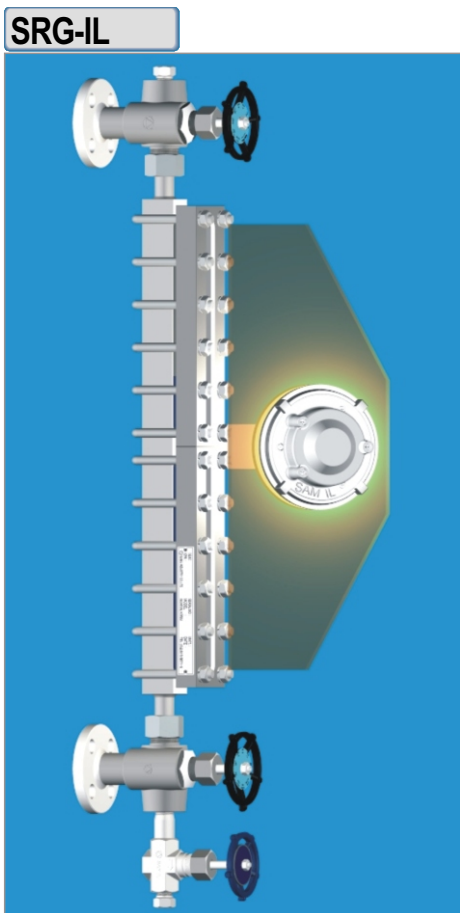
| NO. | PARTS                 | MATERIAL               | NO. | PART        | MATERIAL   |
|-----|-----------------------|------------------------|-----|-------------|------------|
| G1  | Gauge Body            | C.S, Stainless Steel   | G5  | Gauge Cover | C.S        |
| G2  | Sealing Gasket        | Graphite, Non-Asbestos | G6  | Washer      | SWRH-62B   |
| G3  | Bi-Color Reflex Glass | Borosilicate           | G7  | Nuts        | A194 Gr.2H |
| G4  | Cushion Gasket        | Non-Asbestos           | G8  | U - Bolts   | A193 Gr.B7 |

Others, except the above materials of part are available on request by customer.

## GENERAL DESCRIPTION

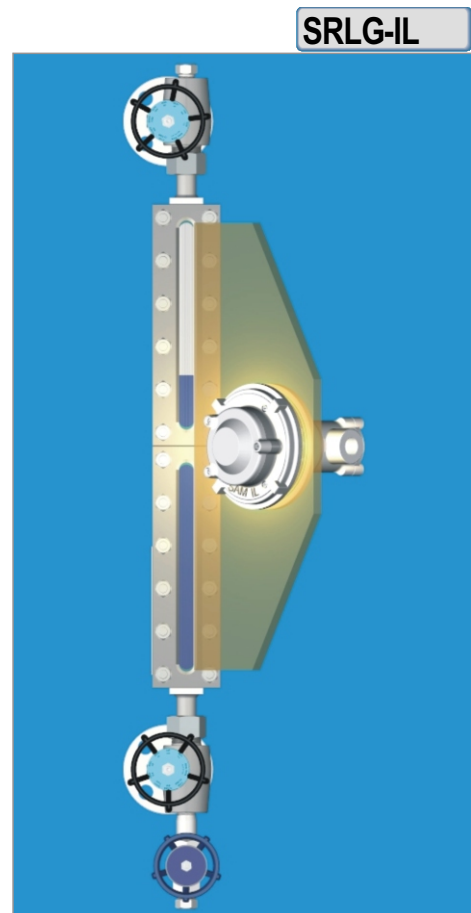
Features and Principles of this type is the same with basic Reflex Gauges except for the fact that the illuminator is mounted on the Reflex Gauge. Reflex Type with illuminator of **SAM IL** is useful for observing the fluid in a dim place or at night by using an explosion-proof and weather-proof. The illuminator is possible to construct on all Reflex Models and SRG-IL Model is shown as below.

REFLEX TYPE WITH ILLUMINATOR SRG-IL



### OPTIONS

- **Scale Plate**
  - units : Cm, Liter
- **Vent**
  - Needle Valve
  - Gate Valve
  - Globe Valve
  - Nipple & Cap
- **Drain**
  - Needle Valve
  - Gate Valve
  - Globe Valve
  - Nipple & Cap
- **Bracket**
  - Longer than 3000 mm of C to C
- **Gauge Valve**
  - Hand Wheel with Chain
  - Arm Lever



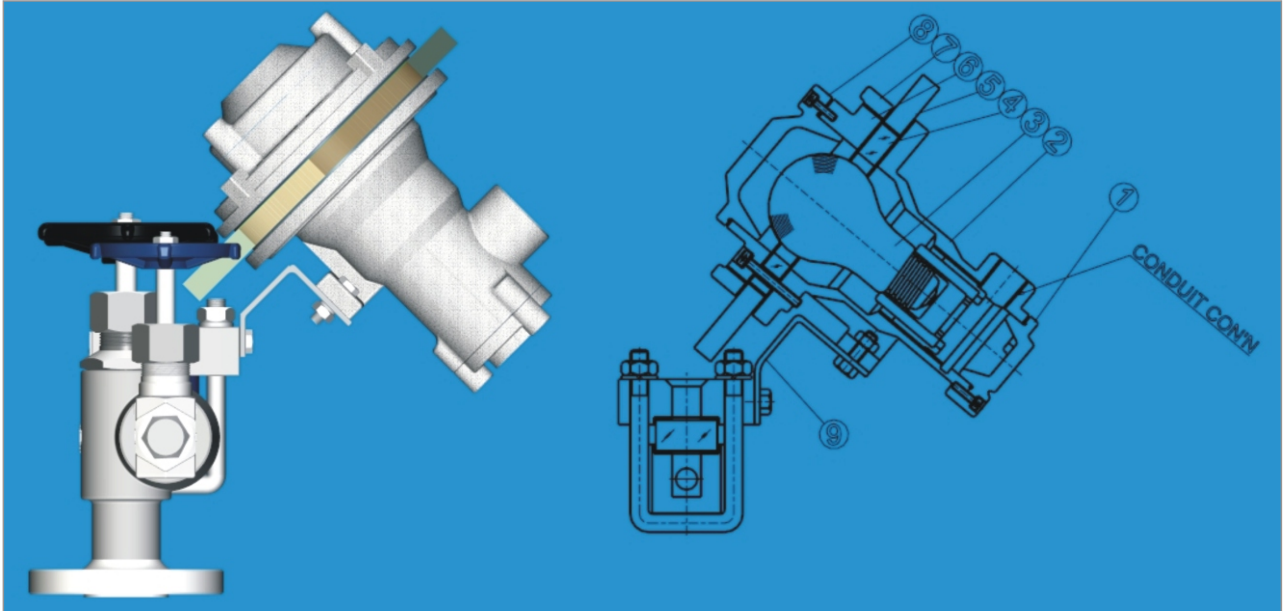
## SPECIFICATIONS

- **MATERIAL** : C.S, LTCS, Stainless Steel, A182-F11, 22, 5, 9, 91 & Monel, Titanium, Hastelloy, Alloy-20, etc.
- **VISIBLE LENGTH** : 90 to 3510 mm.
- **MAX. NO. OF SECTION** : 10 Sections.
- **VESSEL CONNECTION** : 3/4" or 1" Flanged ANSI 150# ~ 2500# .
- **GAUGE BODY & GAUGE VALVE CON'N** : Not Rotatable & 360° Rotatable [turn to page G-9].
- **SHELL TEST PRESSURE** : 1.5 Times at the Max. Working Pressure.

Others, except the above specification are available on request by customer.



SECTION FOR MODEL : SRG-IL



SRG-IL REFLEX TYPE WITH ILLUMINATOR

**ELECTRICITY**

**STANDARD :**

- **Voltage** : AC 110~220V, 50Hz, 60Hz.
- **Bulb Light** : 11W~60W.
- **Explosion-Proof** : for Domestic ; KOSHA  
 11 W =>Ex d C T6 IP65  
 60W =>Ex d C T4 IP65  
 : for Overseas ; ATEX  
 11W =>Ex d C T6 IP66

| NO. | PARTS       | CONDUIT CON'N DIMENSION |                       |                 |
|-----|-------------|-------------------------|-----------------------|-----------------|
|     |             | Size [PT,NPT]           | Outside Diameter [mm] | Thread per Inch |
| 1   | Cover       | 1/2"                    | 21.34                 | 14              |
| 2   | Bulb Hosing | 3/4"                    | 26.67                 | 14              |
| 3   | Bulb        | 1"                      | 33.40                 | 11½             |
| 4   | Glass Plate |                         |                       |                 |
| 5   | Reflector   |                         |                       |                 |
| 6   | Glass Cover |                         |                       |                 |
| 7   | Front Cover |                         |                       |                 |
| 8   | Bulb Cover  |                         |                       |                 |
| 9   | Bracket     |                         |                       |                 |

| Size | Major Diameter [mm] | Pitch [mm] |
|------|---------------------|------------|
| M16  | 15.97               | 1.5        |
| M20  | 19.97               | 1.5        |
| M25  | 24.97               | 1.5        |

- **Others** : The Certificate of Explosion-Proof : Division 1 and 2 ; Class : Group B, C, D ;  
 Class : Group E, F, G ;  
 Class : Type 4 at FM Approved.  
 Division 1 and 2 ; Class : Group B, C, D ;  
 Class : Group E, F, G ;  
 Class : Type 4 at CSA Certified Ex d.

: The Certificate of CENELEC is available on EExd B + H<sub>2</sub> T4, IP66.  
 : The Certificate of U.L is available on Class : Groups C and D Temp. Code T4A ; Division 1.  
 Class : Group B Temp. Code T2A : Division 2.

Others, except the above SAM IL's standard electricity are available on request by customer.



## GENERAL DESCRIPTION

Marine Gauge is used for observing the fluid of oil tank for ship and it's light weight rather than typical level gauge for land.



## OPTIONS

- **Scale Plate**  
- units : Cm, Liter

Marine Gauge mainly use to the following places :

1. Fuel and Water tanks on diesel locomotives.
2. Marine Water tanks.
3. Vehicle fuelling installations.
4. Liquid Chemical, Industrial & Agricultural Storage tanks for low pressure.

## SPECIFICATIONS

- **MATERIAL** : Stainless Steel & Bronze.
- **VISIBLE LENGTH** : 90 to 3510 mm.
- **MAX. NO. OF SECTION** : 10 Sections.
- **VESSEL CONNECTION** : 3/4" or 1" ANSI 150# Flanged.
- **GAUGE BODY & GAUGE VALVE CON'N** : Not Rotatable & 360° Rotatable [turn to page G-9].
- **SHELL TEST PRESSURE** : 1.5 Times at the Max. Working Pressure.

Others, except the above specification are available on request by customer.

