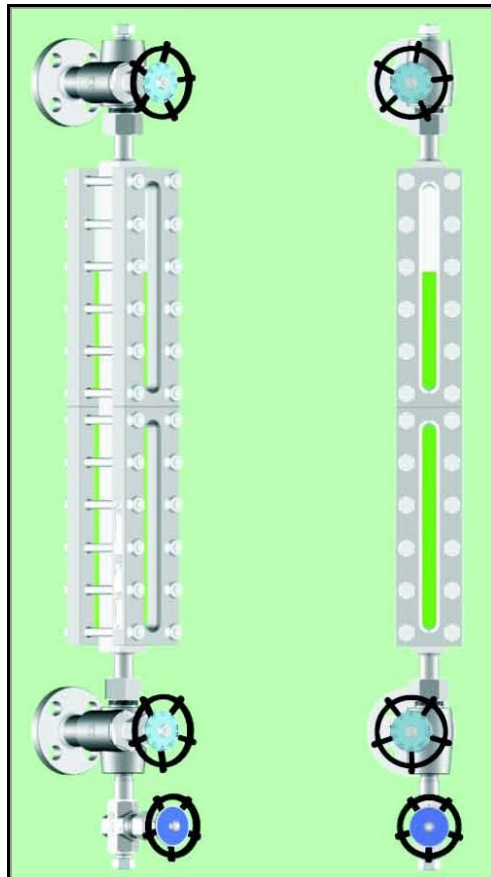


INTRA-AUTOMATION

MEASUREMENT AND CONTROL



TRANSPARENT LEVEL GAUGES



Technical Information

October 2008

International Headquarters

INTRA-AUTOMATION GmbH
Otto-Hahn-Str. 20
41515 Grevenbroich
GERMANY
☎ +49-(0)2181-75665-0
☎ +49-(0)2181-64492
✉ info@intra-automation.de

🌐 www.intra-automation.com

Subsidiary for BENELUX

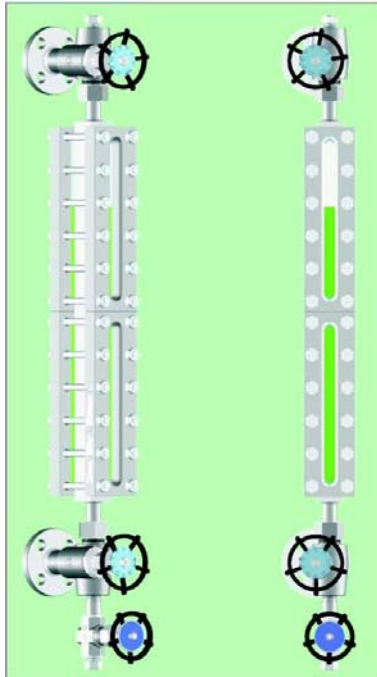
B.V. INTRA-AUTOMATION HTP
Bosschendijk 193
4731 DD Oudenbosch
THE NETHERLANDS
☎ +31-(0)165-322201
☎ +31-(0)165-322970
✉ info@intra-automation.nl

General description (STG series)

Transparent Liquid Level Gauges use the T-form sight glasses, designed and built for a wide range of high temperature and high pressure applications. Our transparent level gauge is used to make observation of the level of corrosion-proof and chromatic liquids. These types are utilized two pieces of tempered flat gauge glasses. in front and rear of which are enclosed with a gauge cover using stud bods. Where high temperature and corrossions are liable to occur, it can be furnished with a mica shield to prevent it from being corroded. There types are preferably used for reservoir tanks that require a relatively long visible length by constructing the supporter.

The transparent level gauge is assembled firmly with gasket, [Mica Shield], transparent glass, cushion gasket and gauge cover on the body by stud-bolts for all STG series.

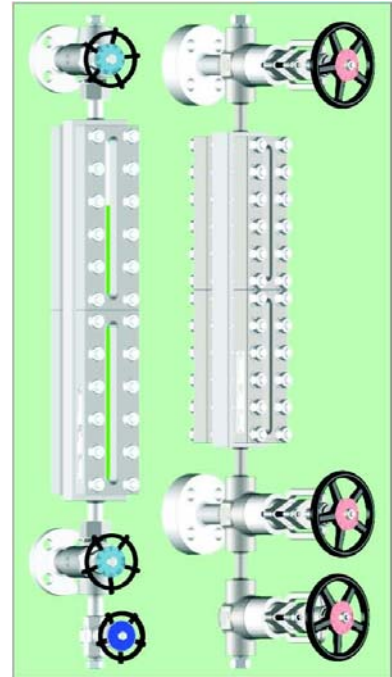
STG-1 / STG-2



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 300 mm of c to c)
- gauge valve (hand wheel with chain / arm lever)

STG-3 / STG-4

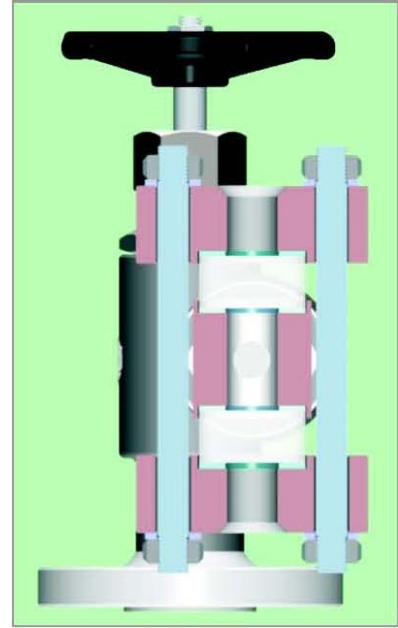
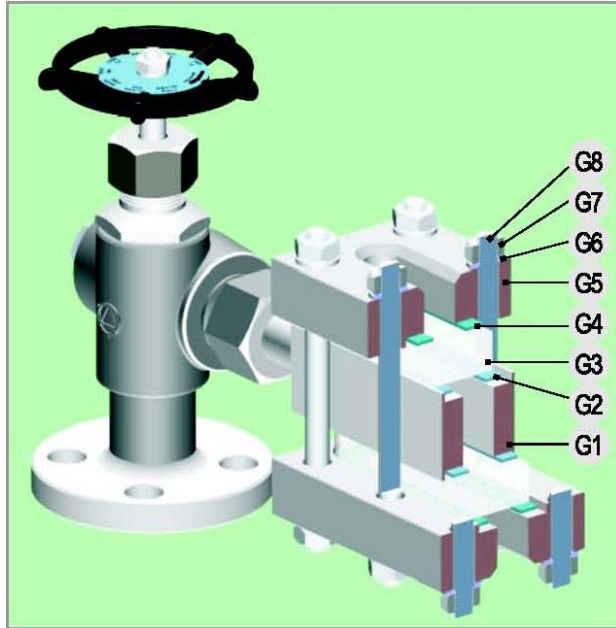


Specifications:

- material : CS, LTCS, stainless steel, A182F11, 22, 5, 9, 91 & Monel, Titanium, Hastelloy, Alloy-20 etc.
- visible length : 90...3510 mm
- max. no. of sections : 10 sections
- vessel connection : ¾" or 1" flanged ANSI 150...2500#
- gauge boy & gauge valve connection : not rotatable & 360° rotatable
- shell test pressure : 1,5 times max. working pressure.

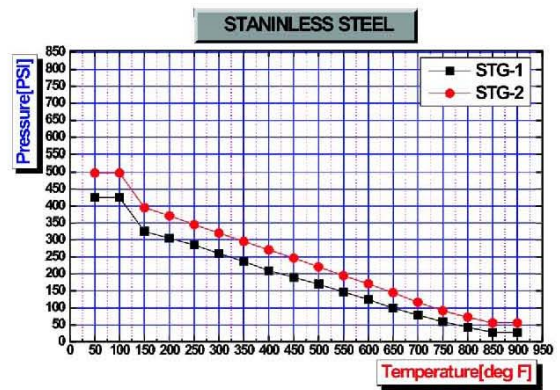
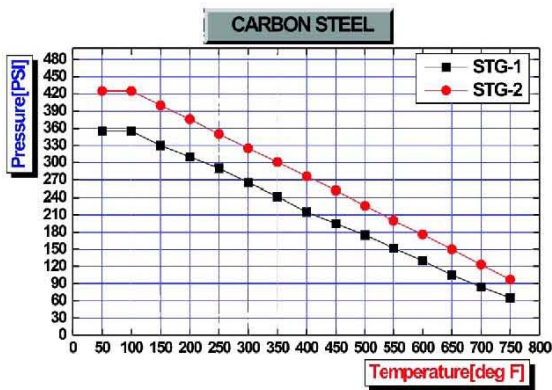
For other specifications, please let us have your request.

Section for types: STG-1 & 2

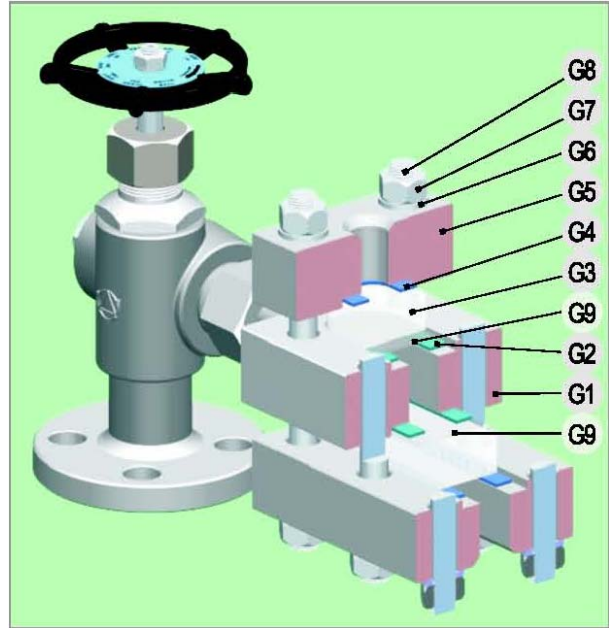
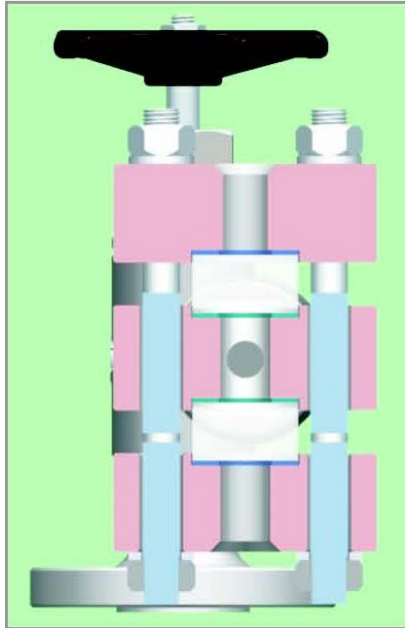


No.	Part	Material	No.	Part	Material
G1	Gauge Body	CS, SS	G5	Gauge Cover	CS
G2	Sealing Gasket	Graphite	G6	Washer	SWRH-62B
G3	Transp. Glass	Borosilicate	G7	Nuts	A194 Gr.2H
G4	Cushion Gasket	Non-Asbestos	G8	Stud-Bolts	A193 Gr.B7

Pressure-Temperature rating for the different types:

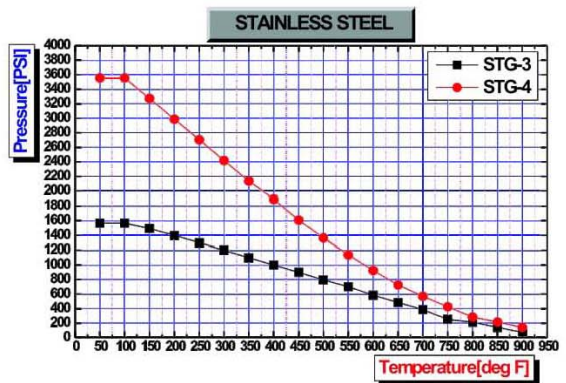
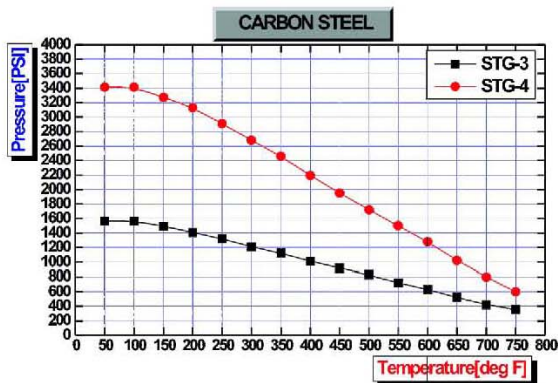


Section for types: STG-3& 4



No.	Part	Material	No.	Part	Material
G1	Gauge Body	CS, SS	G5	Gauge Cover	CS
G2	Sealing Gasket	Graphite	G6	Washer	SWRH-62B
G3	Transp. Glass	Borosilicate	G7	Nuts	A194 Gr.2H
G4	Cushion Gasket	Non-Asbestos	G8	Stud-Bolts	A193 Gr.B7

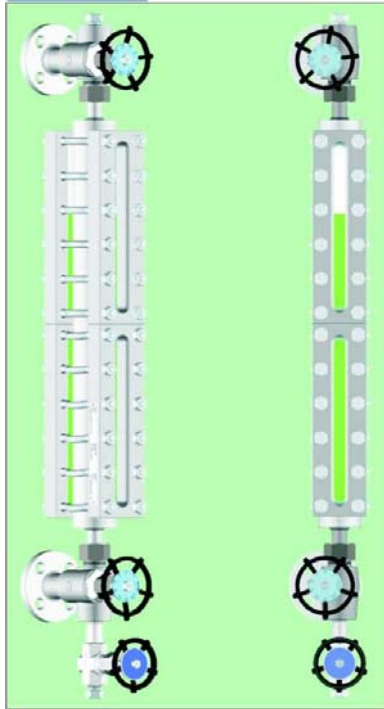
Pressure-Temperature rating for the different types:



General description (STLG series)

The most advantage of this type is for easy level reading of boiling liquids. When liquids are boiling, their bubbles make the surface level indistinct. The larger volume of this type reduces the bubbling. Therefore the STLG should ease to read the level or bubbling liquids. It also provides advantages for highly dense and viscous liquids, as the body is made of seamless pipe.

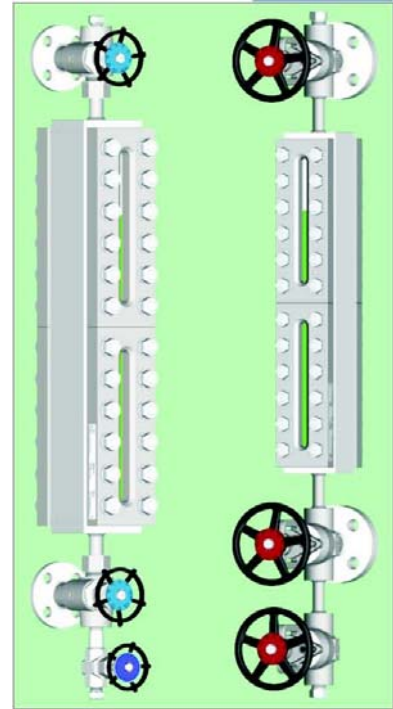
STLG-1 / STLG-2



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 300 mm of c to c)
- gauge valve (hand wheel with chain / arm lever)

STLG-3 / STLG-4



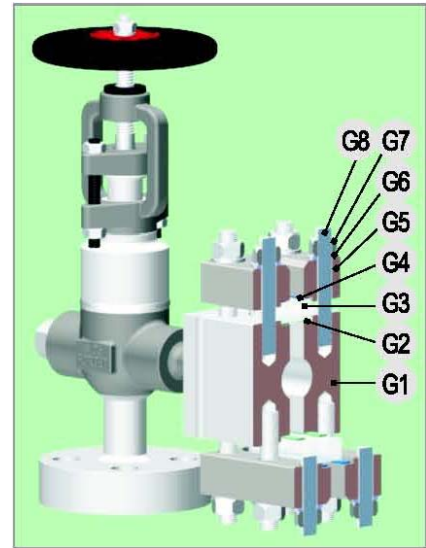
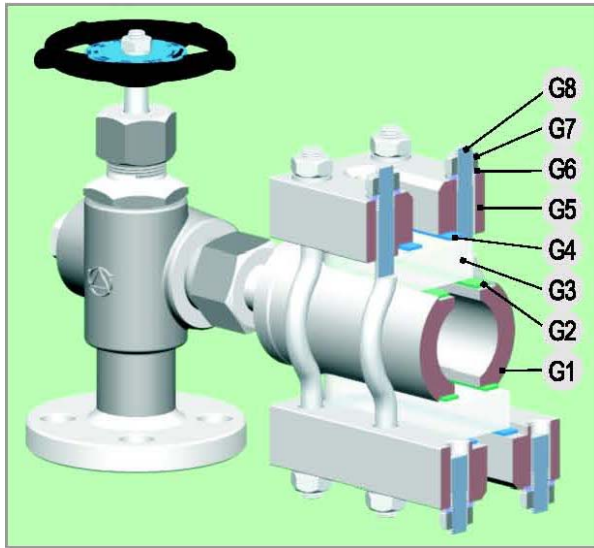
Specifications:

- material : CS, LTCS, stainless steel, A182F11, 22, 5, 9, 91 & Monel, Titanium, Hastelloy, Alloy-20 etc.
- visible length : 90...3510 mm
- max. no. of sections : 10 sections
- vessel connection : $\frac{3}{4}$ " or 1" flanged ANSI 150...2500#
[900...2500# = special type]
- gauge boy & gauge valve connection : not rotatable & 360° rotatable
- shell test pressure : 1,5 times max. working pressure.

For other specifications, please let us have your request.

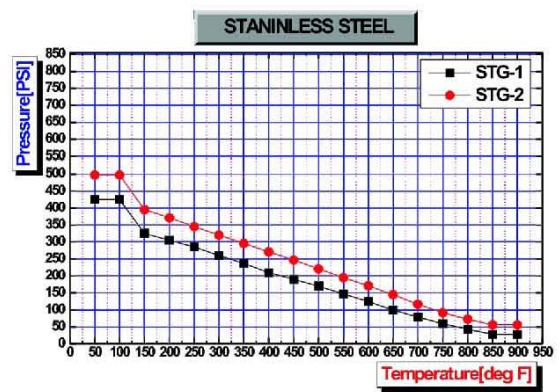
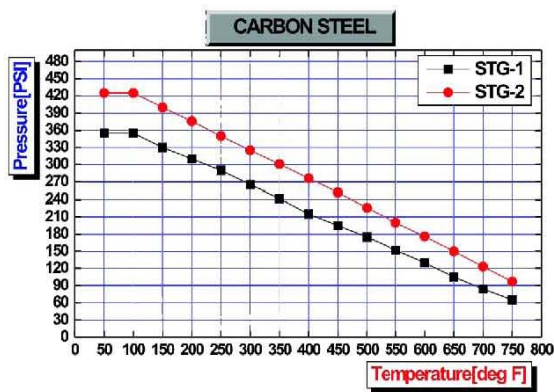
The STLG is designed and manufactured for easy and accurate reading the liquid level of highly foamy liquids. The gauge has a relatively spacious internal area where foamy liquid is held from forming foams.

Section for types: STLG 1 & 2 / STLG-3 & 4



No.	Part	Material	No.	Part	Material
G1	Gauge Body	CS, SS	G5	Gauge Cover	CS
G2	Sealing Gasket	Graphite	G6	Washer	SWRH-62B
G3	Transp. Glass	Borosilicate	G7	Nuts	A194 Gr.2H
G4	Cushion Gasket	Non-Asbestos	G8	Stud-Bolts	A193 Gr.B7

Pressure-Temperature rating for the different types:

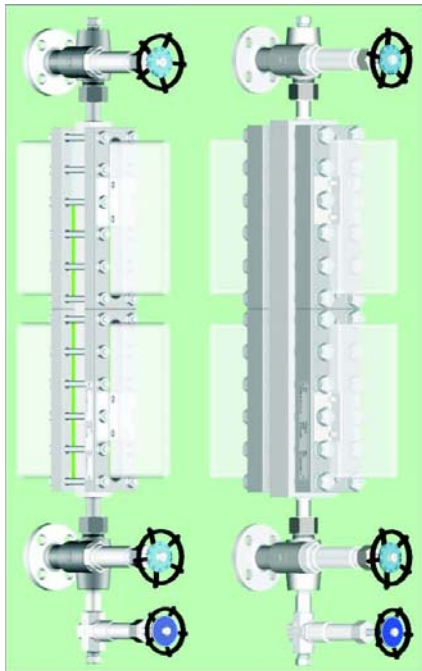


General description (STNG / STLNG series)

If a conventional level gauge is used for extreme 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, an acrylic non-frosting plate is mounted in front of the gauge like as below. So the observation of the liquid level is much easier this way.

Our Non-Frosting Transparent Level Gauges are classified into two types with 4 models each (STNG-1 /-2 /-3 /-4 & STLNG-1 /-2 /-3 /-4) according to the process conditions. Depending on the process temperature, the height of the non-frosting plate window may be selected from 75 to 250 mm.

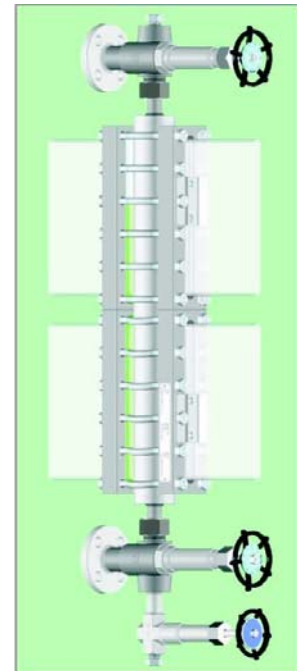
STNG-1 /-2 /-3 /-4



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 300 mm of c to c)
- gauge valve (hand wheel with chain / arm lever)

STLNG-1 /-2 /-3 /-4



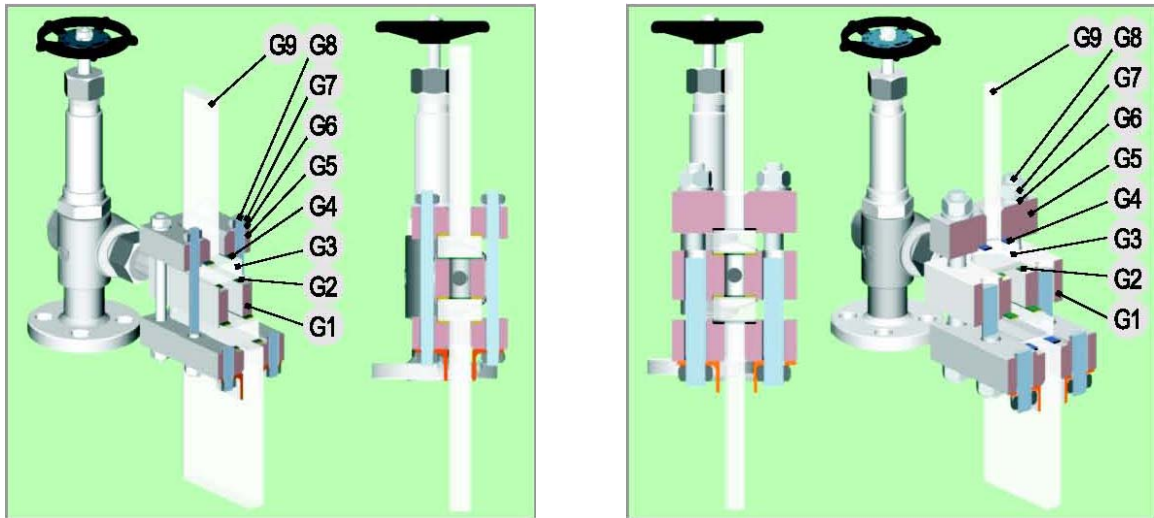
Specifications:

- material : LTCS & stainless steel
- visible length : 90...3510 mm
- max. no. of sections : 10 sections
- vessel connection : 3/4" or 1" flanged ANSI 150...2500#
- gauge boy & gauge valve connection : not rotatable & 360° rotatable
- shell test pressure : 1,5 times max. working pressure.

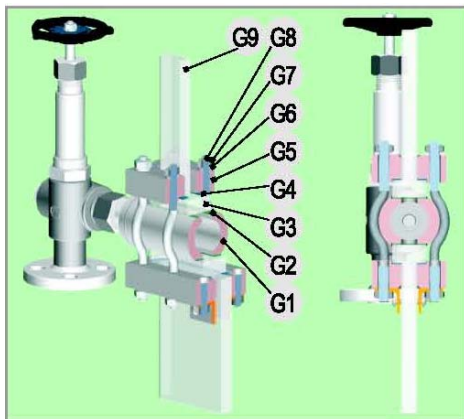
For other specifications, please let us have your request.

Section for types: STNG-1 /-2 /-3 /-4 & STLNG-1 /-2 /-3 /-4

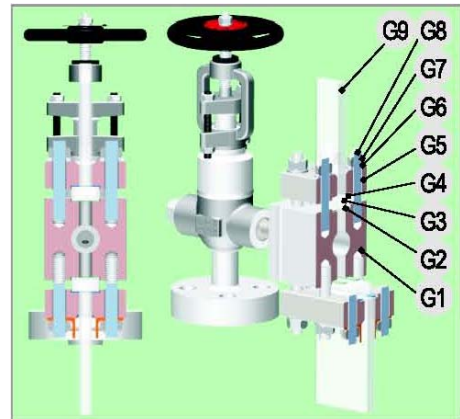
STNG-1 /-2 /-3 /-4



STLNG-1 /-2 /-3 /-4



Since these types are used at a temperature below freezing point, gauge valve and drain valve are used with long bonnet type to prevent you from chilblains on your hands.



No.	Part	Material	No.	Part	Material
G1	Gauge Body	LTCS, SS	G6	Washer	SWRH-62B
G2	Sealing Gasket	Graphite	G7	Nuts	A194 Gr.2H, A194 Gr.4
G3	Transp. Glass	Borosilicate	G8	Stud-Bolts	A193 Gr.B7, A320 Gr.L7
G4	Cushion Gasket	Non-Asbestos	G9	Non-Frosting	Acrylic
G5	Gauge Cover	LTCS, SS			

Temperature rating and dimensions of non-frosting plates

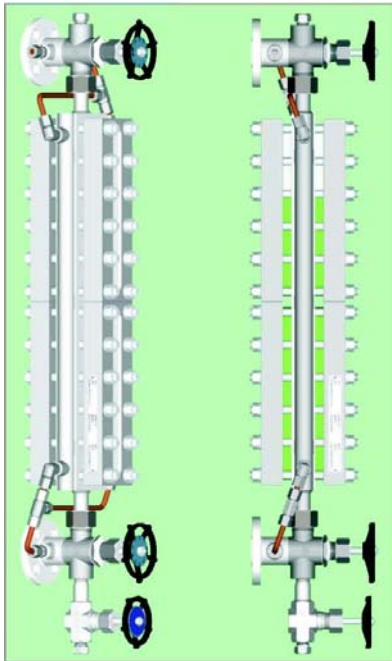
Temperature °C	0...-20	-21...-45	-46...-100	-101...-160	-161...-200
Materials	LTCS	LTCS	304SS	316SS	316LSS
Acrylic Height mm	75	100	150	200	250

General description (STJG / STLJG series)

This type is usually called a jacket type. This gauge is used to read the level of high 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.

Our jacket transparent level gauges are classified into 2 types and 4 models each (STJG-1 /-2 /-3 /-4 & STLJG-1 /-2 /-3 /-4) according to the process conditions which are max. working pressure and temperature.

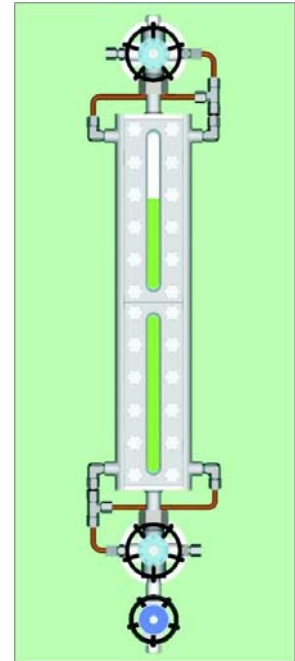
STJG-1 /-2 /-3 /-4



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 (c to c > 3000 mm)
- Gauge valve (Hand wheel with chain / Arm lever)

STLJG-1 /-2 /-3 /-4



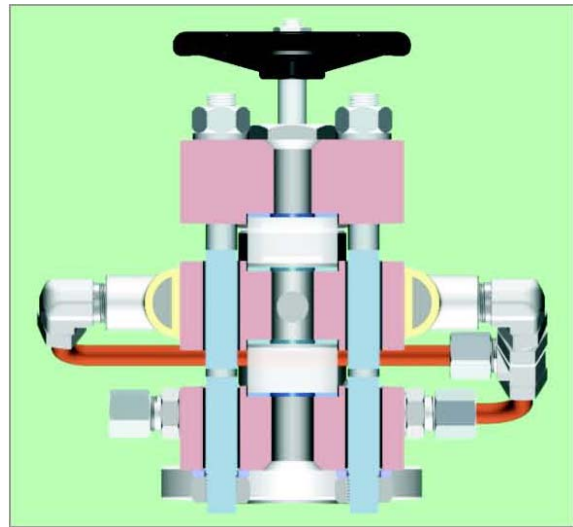
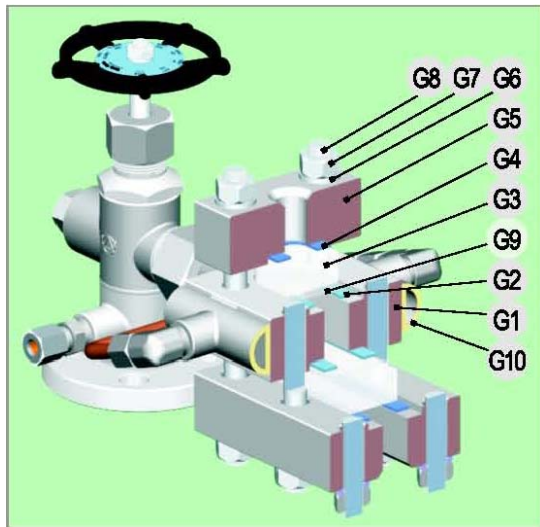
Specifications:

- material : CS, LTCS, stainless steel, A182F11, 22, 5, 9, 91 & Monel, Titanium, Hastelloy, Alloy-20 etc.
- visible length : 90...3510 mm
- max. no. of sections : 10 sections
- vessel connection : ¾" or 1" flanged ANSI 150...2500#
- gauge boy & gauge valve connection : not rotatable & 360° rotatable
- shell test pressure : 1,5 times max. working pressure.

For other specifications, please let us have your request.

This type is used for observing the fluid by changing it into state of liquid after heating or cooling it through jacket according to fluid's features. Our standard is that the inlet of the jacket for steam or cold water is ½" NPT(M). Others are available on request.

Section for types: STJG-1 /-2 /-3 /-4

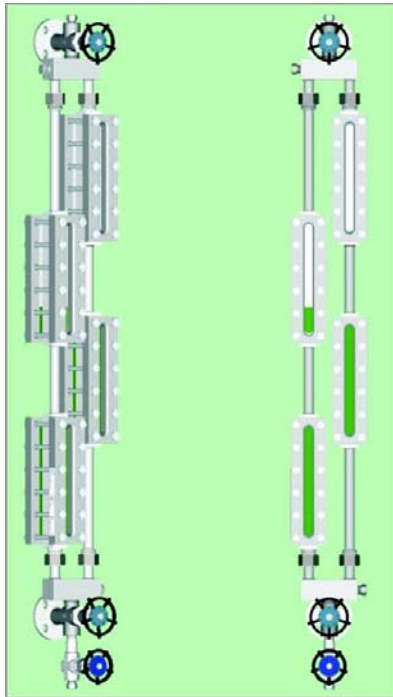


No.	Part	Material	No.	Part	Material
G1	Gauge Body	CS, SS	G6	Washer	SWRH-62B
G2	Sealing Gasket	Graphite	G7	Nuts	A194 Gr.2H
G3	Transp. Glass	Borosilicate	G8	Stud-Bolts	A193 Gr.B7
G4	Cushion Gasket	Non-Asbestos	G9	Shield	Mica
G5	Gauge Cover	CS	G10	Jacket Pipe	CS or SS

General description (STZG series)

The most advantage of this type is that it has no invisible sections (dead band). Our standard overlapped section is 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 alongside the gauge may be available on request by customers to observe the liquid level more accurately.

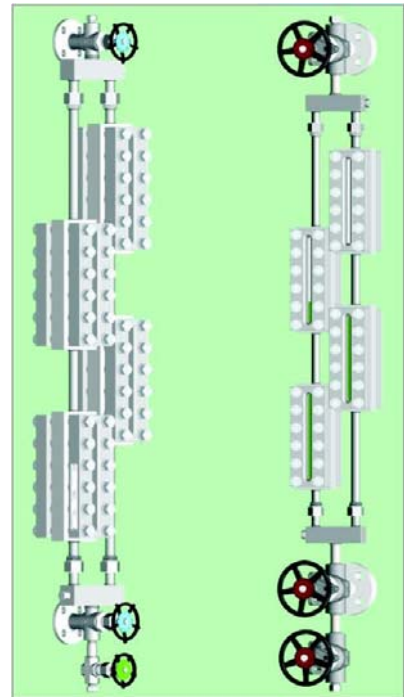
STZG-1 / STZG-2



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 (c to c > 3000 mm)
- Gauge valve (Hand wheel with chain / Arm lever)

STZG-3 / STZG-4

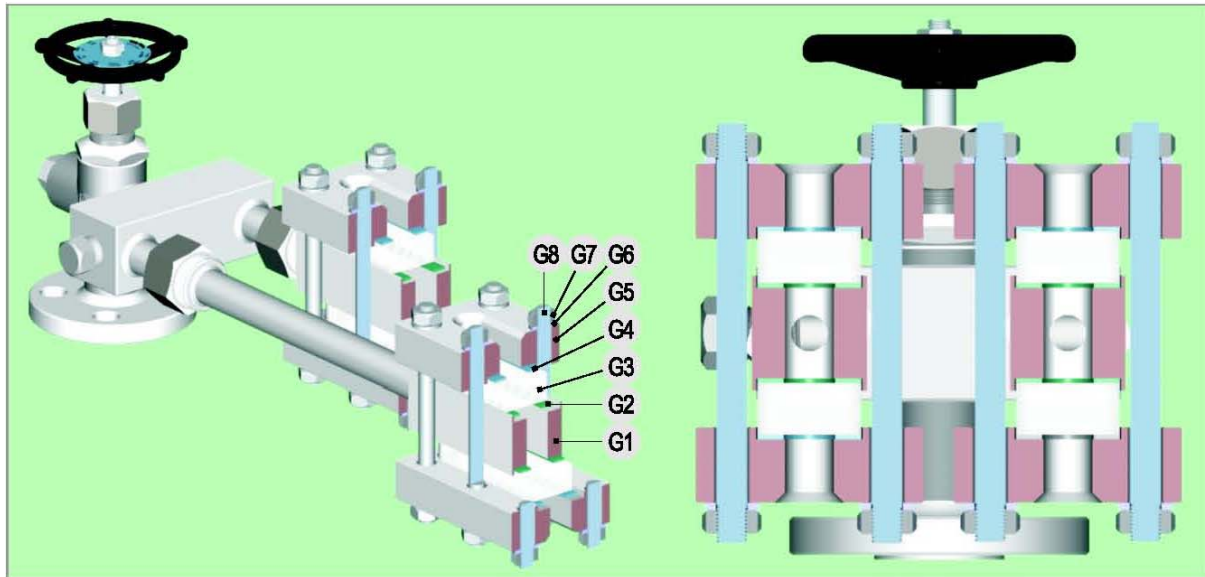


Specifications:

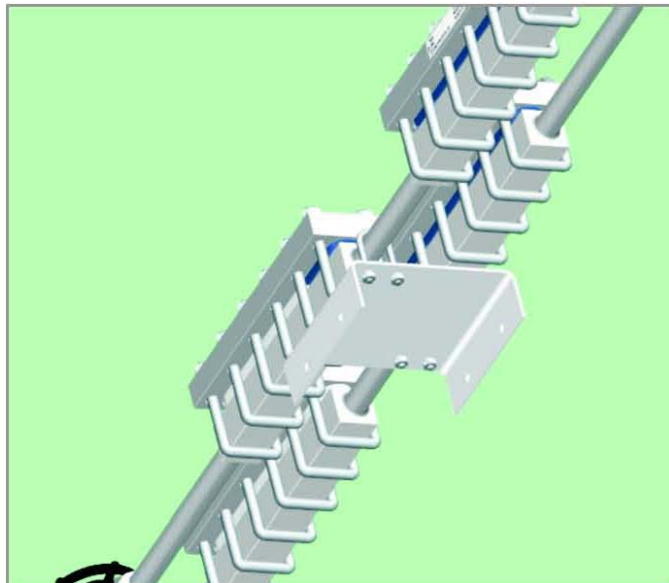
- material : CS, LTCS, stainless steel, A182F11, 22, 5, 9, 91 & Monel, Titanium, Hastelloy, Alloy-20 etc.
- visible length : Max. 6050 mm
- max. no. of sections : 20 sections
- vessel connection : $\frac{3}{4}$ " or 1" flanged ANSI 150...2500#
- gauge boy & gauge valve connection : not rotatable & 360° rotatable
- shell test pressure : 1,5 times max. working pressure.

For other specifications, please let us have your request.

Section for types: STZG-1 & 2

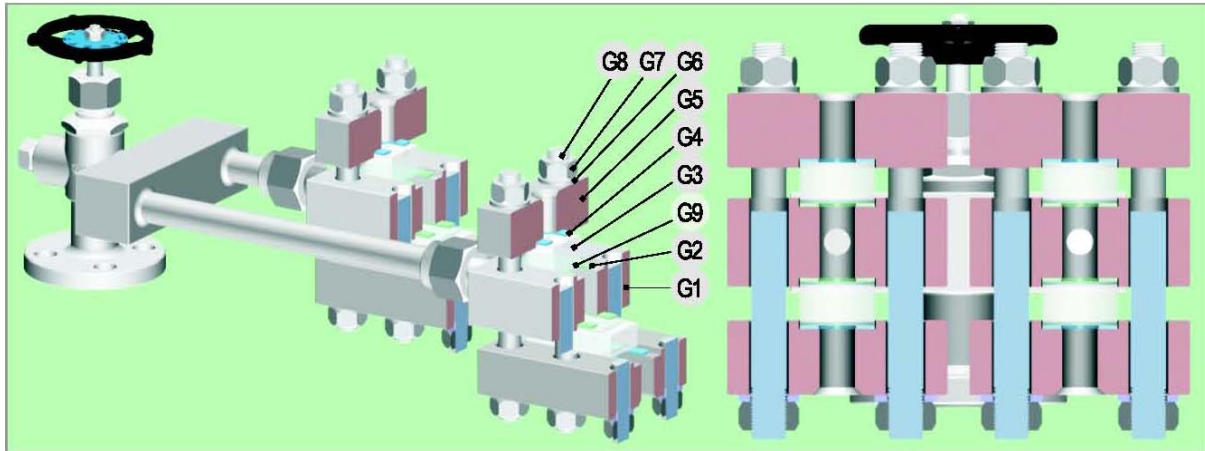


No.	Part	Material	No.	Part	Material
G1	Gauge Body	CS, SS	G5	Gauge Cover	CS
G2	Sealing Gasket	Graphite	G6	Washer	SWRH-62B
G3	Reflex Glass	Borosilicate	G7	Nuts	A194 Gr.2H
G4	Cushion Gasket	Non-Asbestos	G8	U-Bolts	A193 Gr.B7



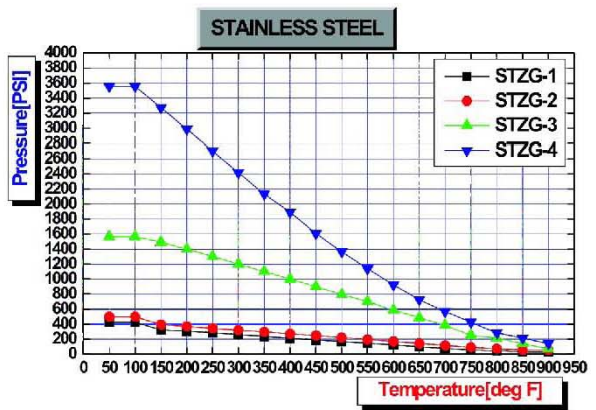
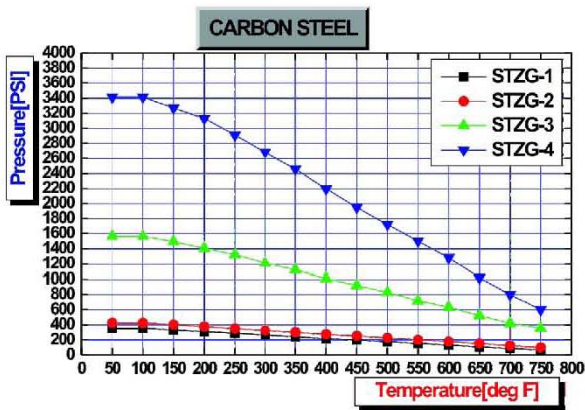
- Details of the Bracket dimension will be indicated on the drawing for submittal and may be changed on request by customers.
- As shown on the left, this is our standard and you can connect the supporting form our supporting bracket to vessel.
- Bracket for supporting is built on this mode for 7 gauges (=7 sections) and over as standard.
- Assembly – Dismantling of the body is easy.

Section for types: STZG-3 & 4

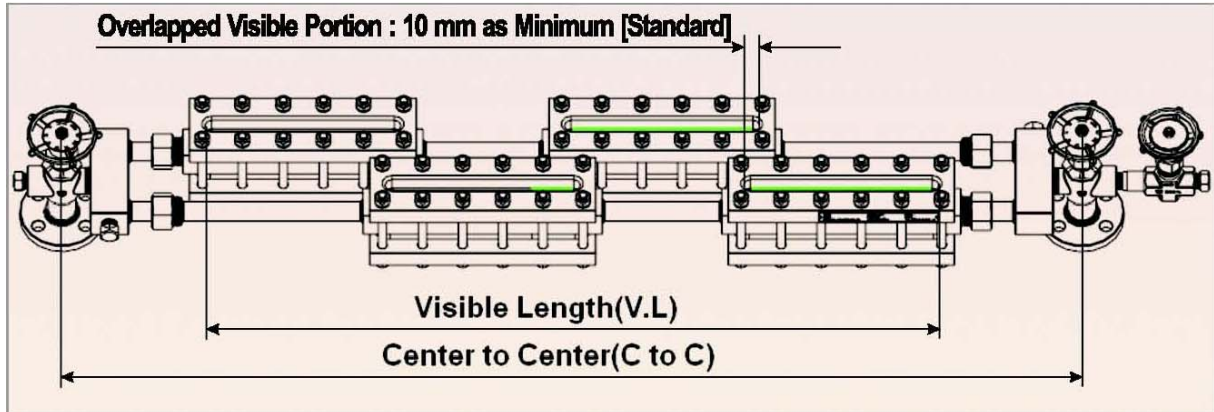


No.	Part	Material	No.	Part	Material
G1	Gauge Body	CS, SS	G6	Washer	SWRH-62B
G2	Sealing Gasket	Graphite	G7	Nuts	A194 Gr.2H
G3	Reflex Glass	Borosilicate	G8	Stud-Bolts	A193 Gr.B7
G4	Cushion Gasket	Non-Asbestos	G9	Shield	Mica
G5	Gauge Cover	CS			

Pressure-Temperature rating for the different types:



Solid drawing & dimensions



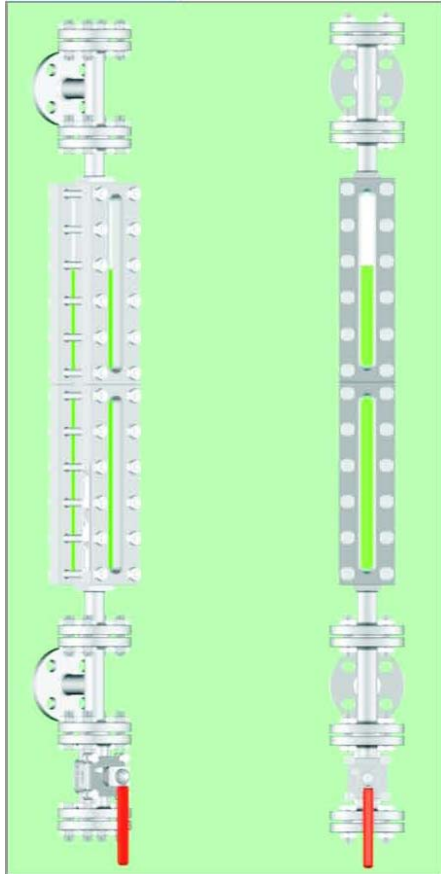
No. of gauge sections	Glass no. 7		Glass no. 8		Glass no. 9	
	c to c [mm]	VL [mm]	c to c [mm]	VL [mm]	c to c [mm]	VL [mm]
2 gauges	800	500	880	580	920	620
3 gauges	1040	740	1160	860	1220	920
4 gauges	1290	990	1450	1150	1520	1220
5 gauges	1530	1230	1720	1420	1820	1520
6 gauges	1770	1470	2000	1700	2120	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
20 gauges	5100	4800	5900	5600	6300	6000

Visible + 300 mm = c to c

General description (STG-LD / STLG-LD series)

More severe demands may often be required on liquid level gauges in terms of resistance to corrosion, and this is accomplished by lining or coating all wetted parts. The most important aspect of this process is the preparation of the metal substrate. Our lined transparent level gauges are classified in two types (STG-1LD & STLG-1LD) according to the fluid's properties.

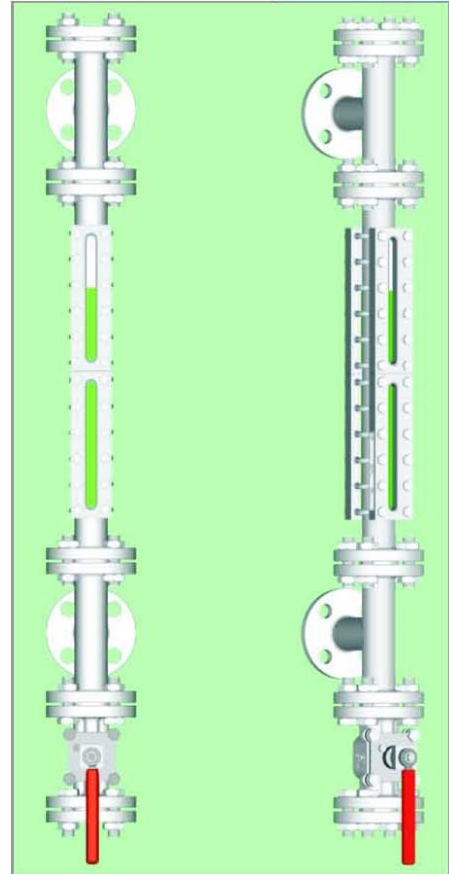
STG-1LD



Options:

- scale plate (units: cm, liter)
- bracket (c to c > 3000 mm)

STLG-1LD



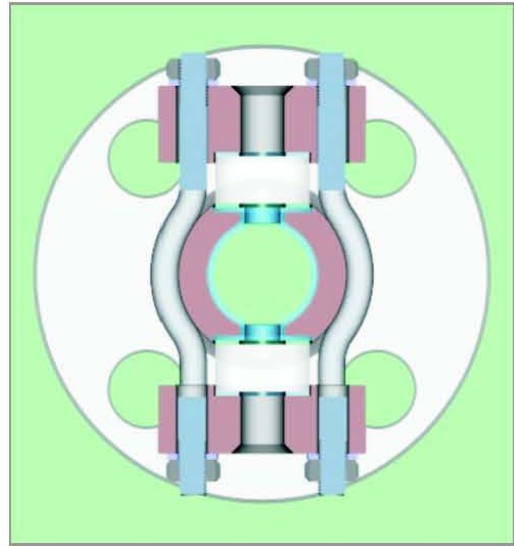
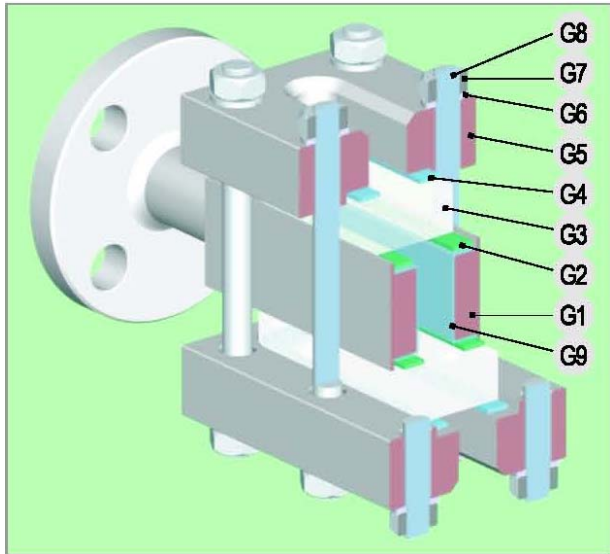
Specifications:

- material : CS, stainless steel
- visible length : 90...3510 mm
- max. no. of sections : 10 sections
- vessel connection : $\frac{3}{4}$ " or 2" flanged ANSI 150...300#
- shell test pressure : 1,5 times max. working pressure.

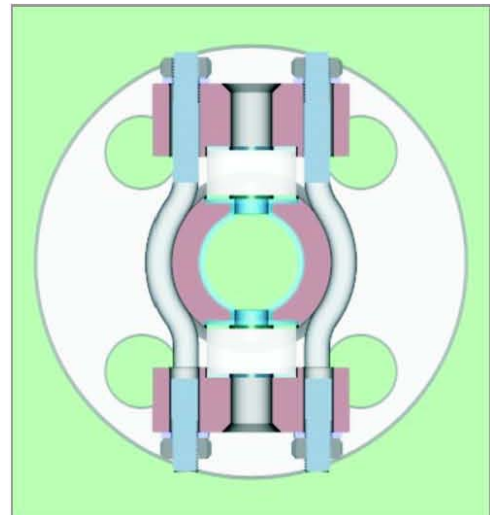
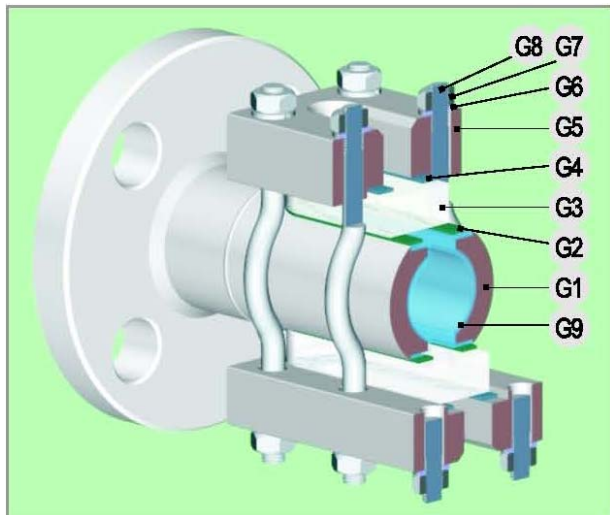
For other specifications, please let us have your request.

Section for types: STG-1LD & STLG-1LD

STG-1LD



STLG-1LD

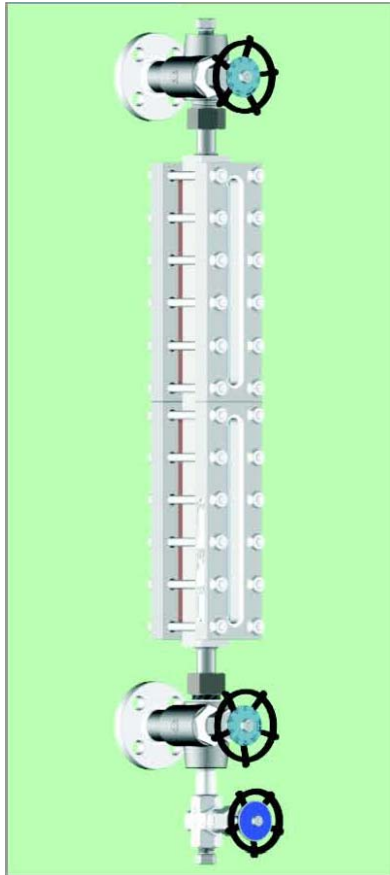


No.	Part	Material	No.	Part	Material
G1	Gauge Body	CS, SS	G6	Washer	SWRH-62B
G2	Sealing Gasket	Rubber, PTFE	G7	Nuts	A194 Gr.2H
G3	Transp. Glass	Borosilicate	G8	Bolts	A193 Gr.B7
G4	Cushion Gasket	Non-Asbestos	G9	Lining	Hard rubber, PTFE
G5	Gauge Cover	CS			

General description (STG-BC series)

This gauge is used with a special reflex type gauge glass which has wider V-shaped refractive groove and red coating on the outside of the glass. It provides a clear observation of liquid level because of made refracting red colour on the V-groove for steam or beyond portion of the level and it's colour of fluid itself for liquid portions. Our Bi-colour transparent level gauges are classified into 2 types (SRG-1BC & SRG-2BC) according to process conditions which are max. working pressure and temperature.

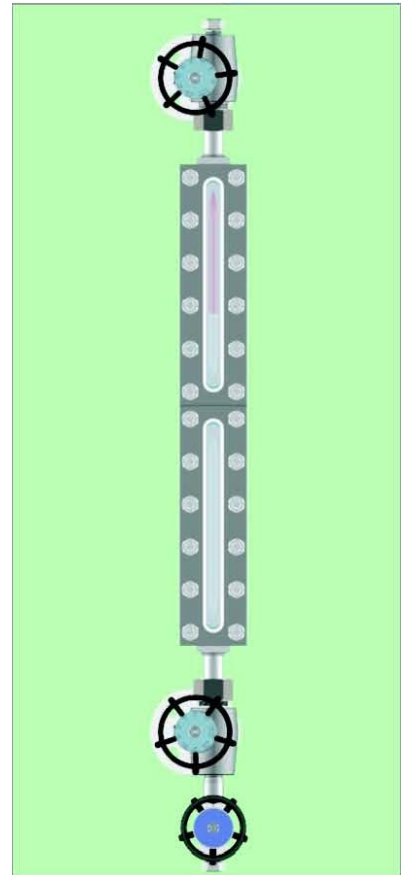
STG-1BC



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 (c to c > 3000 mm)
- Gauge valve (Hand wheel with chain / Arm lever)

STG-2BC

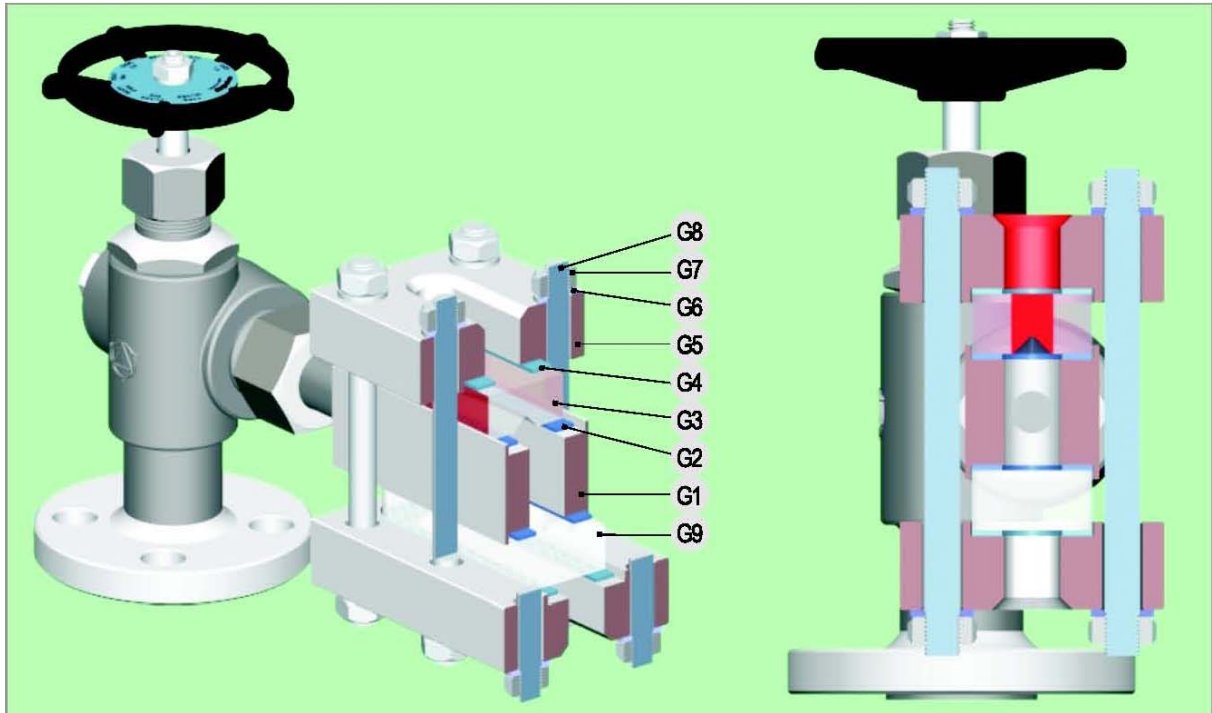


Specifications:

- material : CS, LTCS, stainless steel, A182F11, 22, 5, 9, 91 & Monel, Titanium, Hastelloy, Alloy-20 etc.
- visible length : 90..3510 mm
- max. no. of sections : 10 sections
- vessel connection : ¾" or 1" flanged ANSI 150...600#
- gauge boy & gauge valve connection : not rotatable & 360° rotatable
- shell test pressure : 1,5 times max. working pressure.

For other specifications, please let us have your request.

Section for types: STG-1BC & STG-2BC

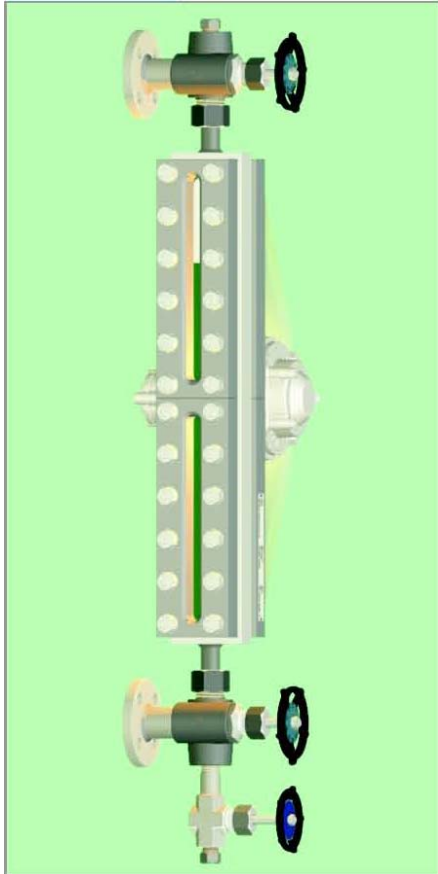


No.	Part	Material	No.	Part	Material
G1	Gauge Body	CS, SS	G5	Gauge Cover	CS
G2	Sealing Gasket	Graphite	G6	Washer	SWRH-62B
G3	BC - Reflex Glass	Borosilicate	G7	Nuts	A194 Gr.2H
G4	Cushion Gasket	Non-Asbestos	G8	U-Bolts	A193 Gr.B7

General description (STG-IL series)

The features and principles are the same as for the basic reflex level gauges except for the fact that the illuminator is mounted to the transparent level gauge. Transparent level gauges with illuminator are useful for observing the fluid level in a dim place or at night by using an explosion-proof and weather-proof. The illuminator can be mounted on all types of transparent level gauges.

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 (c to c > 3000 mm)
- Gauge valve (Hand wheel with chain / Arm lever)

SRLG-IL

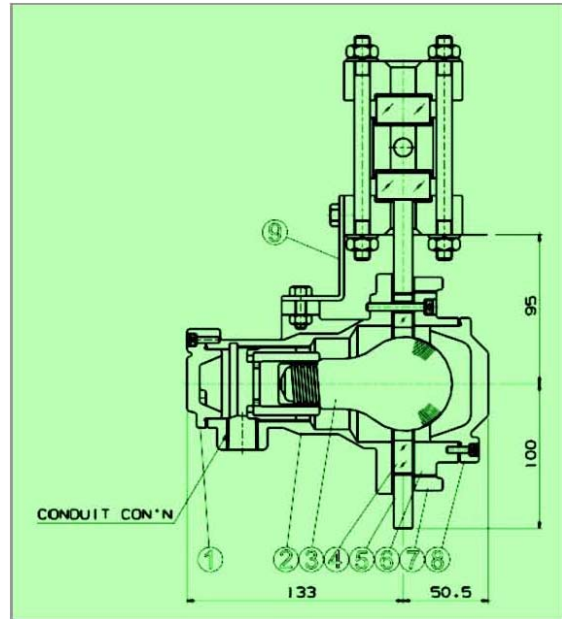
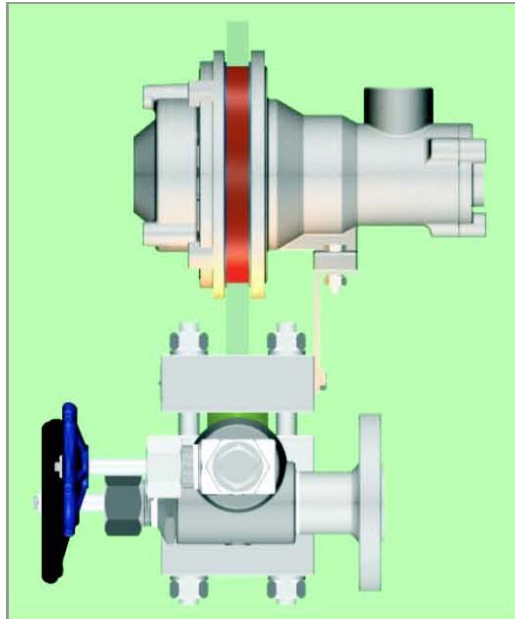


Specifications:

- material : CS, LTCS, stainless steel, A182F11, 22, 5, 9, 91 & Monel, Titanium, Hastelloy, Alloy-20 etc.
- visible length : 90..3510 mm
- max. no. of sections : 10 sections
- vessel connection : ¾" or 1" flanged ANSI 150...600#
- gauge boy & gauge valve connection : not rotatable & 360° rotatable
- shell test pressure : 1,5 times max. working pressure.

For other specifications, please let us have your request.

Section for type: SRG-IL



No.	Part	No.	Part
1	Cover	6	Glass cover
2	Bulb housing	7	Front cover
3	Bulb	8	Bulb cover
4	Glass plate	9	Bracket
5	Reflector		

Conduit Connection Dimension		
Size [PT/NPT]	Outside diam. [mm]	Thread per inch
1/2"	21,34	14
3/4"	26,67	14
1"	33,40	11 1/2

Electricity:

Standard:

- Voltage : AC 110...220V, 50 Hz, 60Hz
- Bulb light : 30...100 W
- Explosion proof : Ex d IIB + H₂ T5
- others : Division 1+2; Cl. I: Gr. B, C, D
 Division 1+2, Cl II, Gr. E, F, G
 Division 1+2, Cl III, type 4 at FM approved
 Division 1+2; Cl. I: Gr. B, C, D
 Division 1+2, Cl II, Gr. E, F, G
 Division 1+2, Cl III, type 4 at CSA certified Ex d

The Certificate of CENELEC is available on EExd IIB+H₂ T4, IP66

The Certificate of U.L: is available on Cl. I, Gr. C and D, Temp Code T4A; Division 1

The Certificate of U.L: is available on Cl. I, Gr. B, Temp Code T2A; Division 2

Besides the products covered by this brochure, Intra-Automation GmbH also manufactures other high-quality and high precision instruments for industrial measurement tasks. For more information, please contact us (contact details on the backside of this brochure).

Flow Measurement



Itabar®-Flow-Sensors



IntraSonic IS200 Ultrasonic Flow Meters



Level Measurement



ITA-mag. level gauges



MAGLINK level indicators

Other measurement tasks:



DigiFlow Flow and Level Computers



IntraCont digital Controllers



IntraDigit digital indicators



International Business:



Intra-Automation GmbH
 Otto-Hahn-Str. 20
 41515 Grevenbroich
 GERMANY

☎ +49 – (0) 21 81 – 75 66 5 - 0
 📠 +49 – (0) 21 81 – 6 44 92
 ✉ info@intra-automation.de

Benelux Business:



BV Intra-Automation HTP
 Bosschendijk 193
 4731 DD Oudenbosch
 THE NETHERLANDS

☎ +31 – (0)165 – 32 22 01
 📠 +31 – (0)165 – 32 29 70
 ✉ info@intra-automation.nl

For further information please contact us or visit our homepage: www.intra-automation.com.