



Features

- Transparent level gauge applicable upto 200 kg and upto 400 deg cent
- Cryo applications upto -196 deg cent
- Toughened glass and borosilicate glass
- For applicability in critical, acidic, cryo and high temperature zone
- IBR certified device available
- NACE, H2S service compatibility applicable
- Non frost extension and high temperature extension
- Heat tracing available
- Level 1 radiographed body available
- Helium leak test proved design @ 10(-7) mbarlt/sec
- Viscous media (max upto 380 cst and upto 100 deg cent) besides other acidic, non acidic, steam water media
- CE applicability
- Applicable for refinery, petrochemical, chemical, power, radioactive, fertilizer, food, pharma, metal industry applications

Concept and Principle of operation

Liquid Level Gauge provides direct observation of liquid level in a tank/vessel, rising and falling level of the liquid inside the tank/vessel can be observed through the glass assembled in the gauge. The liquid level is discriminated in the form of different transparency of the two media. The gauge is mainly recommended for color liquids, steam water and interface liquid level.

Transparent Liquid Level Gauges, designed and built for a wide range of high temperature and high pressure applications. Our transparent level gauge is used to make, besides other applications include observation of the level of corrosion-proof and chromatic liquids.

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 manual adjustment of isolation valve at the input of the media entering the chamber reduces the bubbling. Therefore the level gauge ease to read the level or bubbling liquids. It also provides advantages for highly dense and viscous liquids, as the body is made of forged construction only.

This level gauge 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.

Sealing Gaskets, Cushions and Glasses

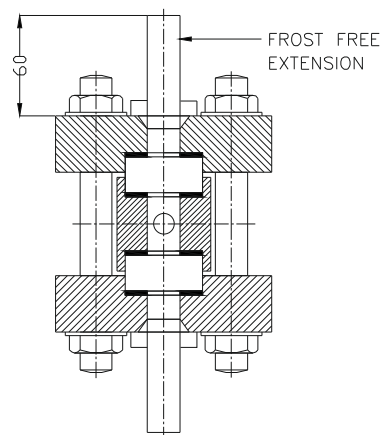
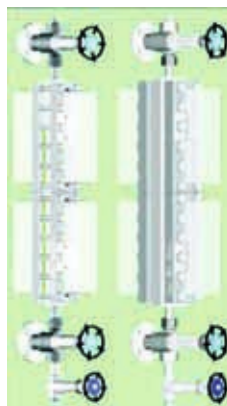


Sealing gaskets and cushions for tight sealing at rated pressure and temperature. Tight sealing PTFE with glass inserted, GFT and SS316 impregnated in graphite are the special features of the gaskets General Instruments Consortium provides.

Special Application

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. So the observation of the liquid level is much easier this way.

Our Non-Frosting Transparent Level Gauges are classified depending on the process temperature, the height of the non-frosting plate window may be selected from 80 to 250 mm.

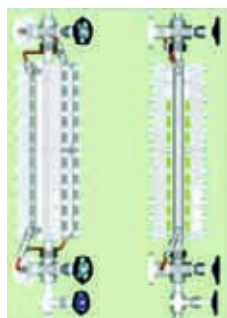


Transparent

Special Application

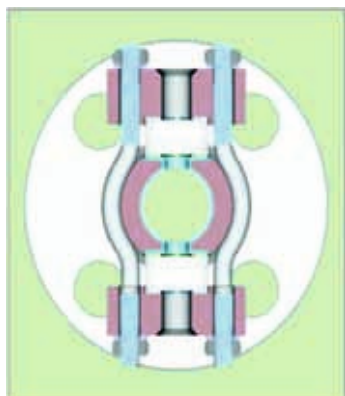
For a jacket type requirement application. This gauge is used to read the level of high congealable or ebullient liquids. The principle is to inflow a steam for congealable liquids and a cold water for ebullient liquids through the inside of the jacket to ensure accurate and reliable level observation.

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 $\frac{1}{2}$ " NPT(M) and or 15 NB flange. Others are available on request.



Special Application

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.



Special Application

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.





High tensile nuts and bolts to handle high pressure upto 200kg working pressure and high temperature upto 320 deg cent application



transparent level gauge at 150# rating at 125 deg cent and FF end connection with auto ball check valve and vent and drain valves in Polypropylene material



Needle, ball and globe valves upto 1500# at various applicable material suitable to pressure and temperature and media all in forged construction and IBR approved

Technical Specifications: Table-1 Material of Construction

Type	Transparent
Liquid Chamber	In forged construction: Carbon steel, SS 304, SS304L, SS316, SS316L, Monel, Titanium, Inconel 600, Hastelloy C, PolyPropylene, others on request, subject to Pressure and temperature condition
Cover plate	In forged construction: Carbon steel, SS 304, SS304L, SS316, SS316L, Monel, Titanium, Inconel 600, Hastelloy C, PolyPropylene
Cushion	CAF, PTFE, Grafoil, Graphite
Gasket	CAF, PTFE, Grafoil, Graphite
Fastners	SS, ASTM A 193 Gr B7/A194Gr 2 H
Scale	Alluminium anticorrosion powder coated and SS engraved in mm
Glass	Klinger/Ilmadur applicable till 320 deg cent as per DIN 7080/7081, BS 3463, JIS B 8211, Toughened Borosilicate glass
Protection shield for temperature upto 550 deg cent	Mica shield of 0.2/0.35/0.5mm

Technical Specifications: Table-2 Technical data

Borosilicate glass	Upto 400 deg cent and higher applicability on special protection
Toughened glass	Upto 150 deg cent
Glass thickness	17 mm
Glass width	30 mm
Glass dimensions type	250 mm and 340 mm
Operating pressure applicable as input	100 kg, higher depending on temp
Shell test applicable, pressure	200 kg at 20 deg cent
Shell test applicable, temperature	Max 400 deg cent depending on selected MOC
Cryo applicability applicable (non frost at the glass)	Max upto 200 kg and upto -196 deg cent
Cushion and gasket thickness	1.5 mm applicable for -194 deg cent to upto 400 deg cent against suitable MOC
Centre to centre distance	Max upto 3000 mm applicable with desired accuracy and visibility
Vent/drain	½" plugged / ½" needle valve / ½" ball valve / ½" globe valve
Process connection	15 to 50 mm flanged / upto 25mm screwed / socket weld and others on request

Technical Specifications: Table-3 Temp rating and dimensions of non-frosting plates

Temperature °C	0...-20	-21...-45	-46...-100	-101...-160	-161...-200
Recommended Materials	LTCS	LTCS	304SS	316SS	316LSS
Acrylic Height mm	80	100	150	200	250

Technical Specifications: Table-4 Visible Length According to Sections

Sr. No.	Visible Length (of level gauge) in mm	No. of Sections VI (glass length = 250 mm)	No. of Sections IX (glass length = 340 mm)	No of Illuminator (on special request) if applicable
1	230	1	0	1
2	320	0	1	1
3	495	2	0	1
4	585	1	1	1
5	675	0	2	1
6	760	3	0	2
7	850	2	1	2
8	940	1	2	2
9	1030	0	3	2
10	1115	3	1	2
11	1205	2	2	2
12	1295	1	3	2
13	1385	0	4	2
14	1470	3	2	3
15	1560	2	3	3
16	1650	1	4	3
17	1740	0	5	3
18	1825	3	3	3
19	1915	2	4	3
20	2005	1	5	3
21	2095	0	6	3
22	2180	3	4	4
23	2270	2	5	4
24	2355	5	3	4
25	2445	4	4	4
26	2535	3	5	4
27	2625	2	6	4
28	2715	1	7	4
29	2805	0	8	4
30	2890	3	6	5
31	2980	2	7	5

Technical Specifications: Table-5 Illuminator Specifications

Rating	Upto 15 W / 25W GLS Lamp or 15W LED Lamp with or without Flashing 240 VAC
Construction	In cast alloy LM6
Gas Group	IIA, IIB, IIC as per IS 2148 / 2004
Deg of protection	IP66 as per IS : 12063/1987
CCE Certificate	A/P/HQ/MH/104/1817
Earthing	2Nos. External & 1 No. Internal
Enclosure	Anticorrosion Powder Coated Light Grey / Blue shade 631 of IS:5
Cable Entry	2 Nos. 3/4" ET With cable glands
Mounting	Transparent acrylic sheet with mounting bracket

Technical Specifications: Table-6 Indicative weights in kgs

Transparent level gauge visible length in mm	With isolation valve (upto 1" RF flange) and with handle with drain and vent plug (upto 300# body)	With isolation valve (upto 1" RF flange) and with handle with drain and vent plug (600# body)	With isolation valve (upto 1" input) and with handle with drain and vent plug (900# & 1500# body)	Add on for heating jacket	Add on for frost extension	Add on for illuminator applicable for the visible length	Add on for ball valve replacing the drain & vent plug
320	17	25	45	1	0.5	5	2
585	30	45	80	2	1	5	2
1030	60	90	162	3	1.5	10	2
1915	110	165	On request	5	2.5	15	2
2980	160	On request	On request	9	4.5	25	2

Construction and dimensional cross sectional overview

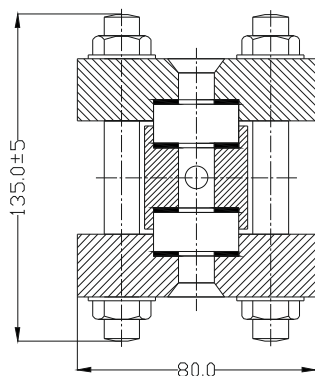
The gauge consists of a body having machined to have a liquid Where high temperature and corrossions are liable to occur, it can be furnished with a mica shield to prevent it from being corroded. There types are preferably used for reservoir tanks that require a relatively long visible length by constructing the supporter.

The transparent level gauge is assembled firmly with gasket, transparent glass, cushion gasket and gauge cover on the body by stud-bolts. 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 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.

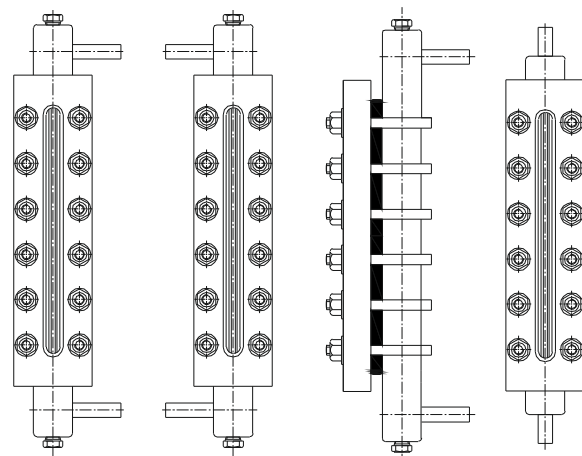
The gauge is used with a special reflex type gauge glass which has wider V-shaped refractive grove and red coating on the outside of the glass. It provides a clear observation of liquid level because of made refracting red colour on th V-groove for steam or beyond portion of the level and it's colour of fluid itself for liquid portions.

Process Orientation



Transparent

Construction (sectional View)



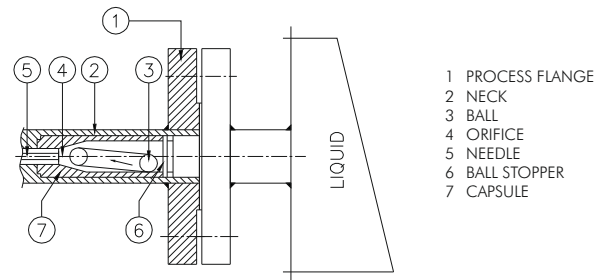
Side/Side (Left) Side/Side (Right) Side/Side (Back) Top/Bottom

Orientation of Process Connection

Process Orientation

Transparent Gauges manufactured by GIC will provide at ease the orientation as per your convenience to have the maximum visibility with respect to process changes i.e. level, isolation valve settings, whether any kind of leakages, leakages through plugs for vent and drain, settings for needle/ball valves.

All orientations at your process suitability with optimum results



Auto Ball check arrangement for suitability on level optimization/leakage

Isolation Valve

Bolted and screwed bonnet offset construction to attain device durability, high stability, low hysteresis, high leakage class, bolted bonnet construction for high temperature and pressure, all construction in forged only with the best level 1 radiographed and attain high leakage class of 10(-5) mbar lt/sec.

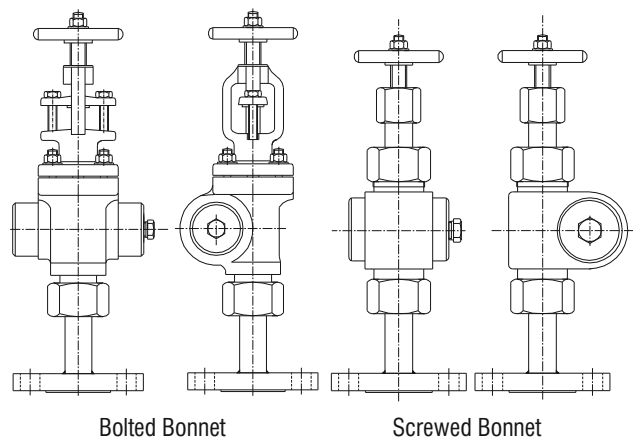
Screwed connection for low temperature and pressure with full forged construction and with best of level 1 radiography and attain high leakage sealing class of 10(-4) mbar lt/sec.

Ordering information

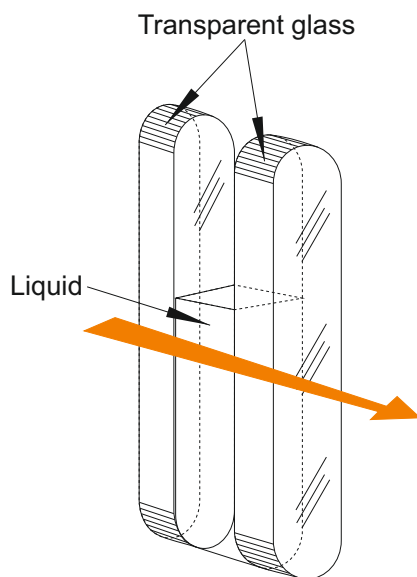
We require for a complete level solution the following data:

- The pressure
- The temperature
- The density
- The viscosity
- The level that you need to measure
- The media name
- The media colour in normal eye

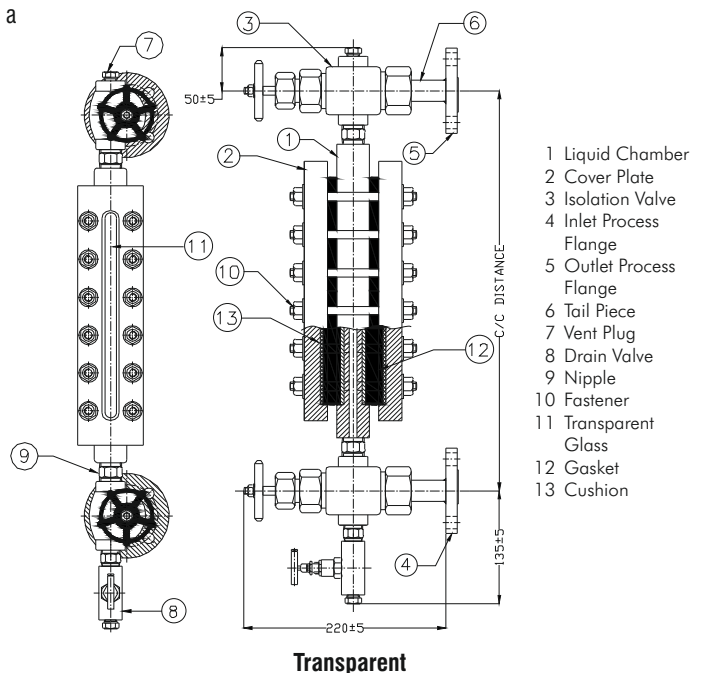
Rest leave it us for an engineering sizing and selection to provide a optimum level gauge.



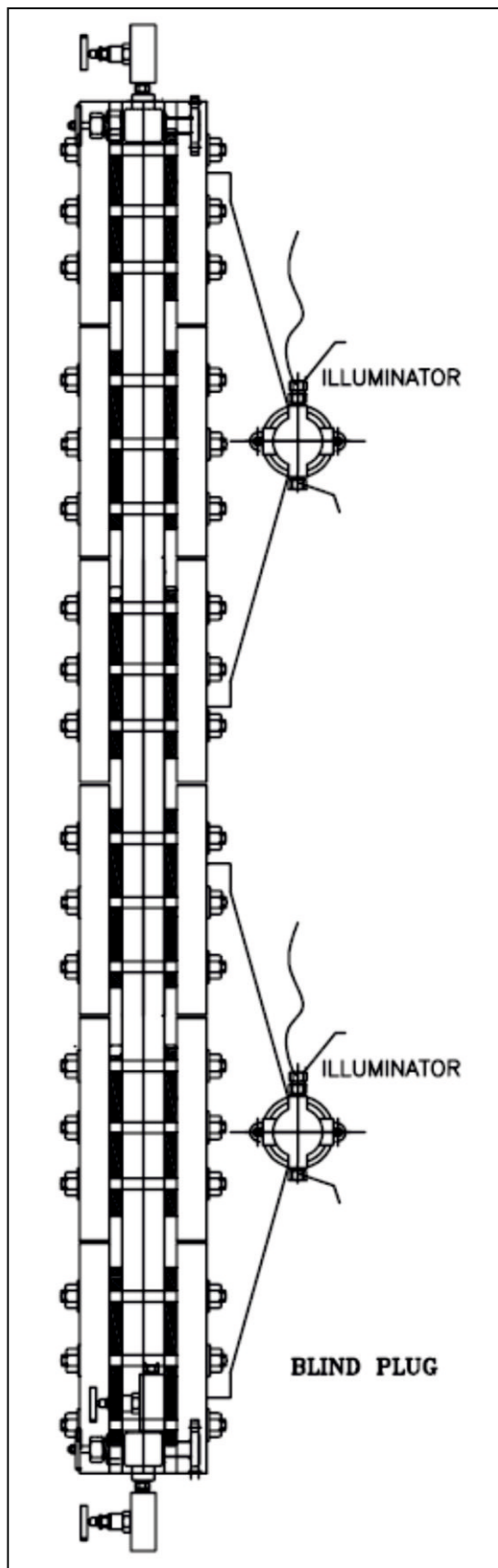
Isolation Valve



Principle of transparent level glass



Basic GA drawing indicating the top bottom design with CCD interface with visible length. The distance between cover plate and bolted bonnet offset construction is 70mm and that of screwed bonnet is 80 mm. The glass edge is approx 8mm more in each case against the isolation valve in top bottom design.



A 1800 mm CCD covered with 2 illuminator Exproof IIC, IP67 sealed or a petrochemical application



Hydro test bench and calibration test bench applicable with helium leak test for gauges for perfect tight sealing feature

Ordering Information

TLG-TBV-1000-25F150-CCC-LCC-SPP-AL-NA-Z

