



BALL VALVE REFLEX GAUGE G34 INSTALLATION, OPERATING & MAINTENANCE INSTRUCTIONS



SEETRU LIMITED

ALBION DOCKSIDE WORKS, HANOVER PLACE, BRISTOL BS1 6UT. ENGLAND

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A RUGGED FLAT GLASS GAUGE FOR LOW PRESSURE TEMPERATURE APPLICATIONS FOR PRESSURES AND TEMPERATURES UP TO 75 BAR.G AT 150°C .

GENERAL

The Ball Valve Reflex gauge is designed and constructed to provide direct level observation of liquids, including chemicals and solvents. The gauge consists of a Reflex Column Assembly, fixed to the outside of a tank and isolated from the tank by ball valves, which control the flow of liquid into the Reflex Column and isolate the gauge when completely closed.

The Ball Valves are constructed of stainless steel 316 and P.T.F.E. seals.

THE REFLEX COLUMN ASSEMBLY

The Reflex Column Assembly consists of the following items:

Viewing Window Toughened Borosilicate Reflex Glass to BS 3643:1975

Column Liquid chamber and top plate - stainless steel 316

Columns are assembled using two compressed gaskets to seal the Reflex Glass and high tensile steel bolts and nuts. All metal parts are rust proofed.

APPLICATION

Use the CPI Reflex gauge only with fluids which guarantee reliable function, and to which the materials employed that come into contact with the fluid are adequately resistant.

In addition: No heavy soiling
 No coarse particles
 No crystallization

INSTALLATION

Installation must be undertaken by a qualified technician and to good engineering practice. In addition, users attention is drawn to our joint responsibility to ensure that the health and safety at work act is not contravened by incorrect installation, commissioning or servicing.

Fitting Gauge to Tank:

1. Ensure that the tank flanges are vertically in line with each other and that the flange faces are parallel to the tank wall. Make sure that there are no obstructions between the gauge and tank flange faces.
2. Fit suitable gaskets between gauge and tank flange and secure flanges together using suitable nuts, bolts and washers. Make sure column is in no way strained then tighten bolts.



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3. Multi section gauges are fitted with support plates. These plates are fitted to relieve the Ball Valve units of excess weight bearing. Appropriate fixing points should therefore be fitted to the tank to accommodate the support plates and be fixed to them.
4. Open valves and check gauge for leaks. Rectify any leaks in accordance with maintenance information instructions.

OPERATING INSTRUCTIONS

To Open Gauge:

1. Open top Ball Valve fully open (if fitted).
2. Open bottom Ball Valve slowly until fully open.

To Close Gauge:

1. Close Ball Valves fully.

To Drain Gauge: (if fitted with drain valve)

1. Close Ball Valves fully.
2. Open drain valve. Protect hands from flow of liquid.
3. Close drain valve immediately after draining.

OPERATION FAULTS

General Faults

| Fault | Possible Cause | Rectification |
|--------------------------------------|---|--|
| Gauge not filling | Empty Tank. Obstruction in gauge. Obstruction in valve. | Fill Clear Clear |
| Filling to incorrect level | Incorrect use of gauge. Incorrectly installed. | See Notes 1 & 2 See Note 3 |
| Broken Reflex Glass | Mis-use. Misalignment. | Renew Check alignment of tank flange face |
| Leak between flanges | Flange bolts loose. Flange gasket damaged. | Tighten Renew |
| Leak between plates on Reflex Column | Damaged gaskets. Loose bolts. | Renew Tighten – see note 4 |



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OPERATION FAULT NOTES

Note 1

It should be noted that when this gauge is fitted with Ball Valves at the top and bottom, the tank liquid level shown may be incorrect if the bottom valve is only operated. This is due entirely to the upper valve being closed, trapping the air in the upper part of the level glass, so that the column of liquid is unable to find its natural level. This is corrected by opening the upper Ball Valve.

Note 2

If the Ball Valve reflex Gauge is installed on piping runs, the pipes should be rigid and supported so that the longitudinal expansion of the gauge is resisted.

In addition, the piping runs should be installed so that they run down from tank to gauge and hence be self venting, as any trapped air pockets will cause the gauge to read incorrectly.

Note 3

After the gauge is first put into service, or after change of glass, once the gauge has reached its normal operating temperature and pressure, carefully compress the glass joints by following up the tightening nuts working at opposite sides alternatively starting from the middle. THIS MUST BE REPEATED SEVERAL TIMES WITHIN THE FIRST HOURS, and in case any sign of leaks should appear.

If perfect sealing cannot be obtained this way, it will be necessary to replace the gaskets and eventually the glass too.

MAINTENANCE INSTRUCTIONS

A. To Remove Gauge from Tank

1. Close Ball Valves and isolate gauge if required
2. Remove flange gauge fixing bolts
3. Remove gauge from tank complete with gasket if required
4. Check and renew gasket if required
5. Refit gauge to tank complete with gasket
6. Refit flange gauge fixing bolts
7. Open Ball Valves and check for leaks

B. To Replace Reflex Glass and/or Gaskets (see figure 3)

1. Close main valve and drain column
2. Remove bolts at the front of the column around the window apertures
3. Remove front cover plate, reflex glass and gaskets
4. Replace damaged or worn parts and re-assemble column, refit bolts and tighten
5. Open top Ball Valve fully
6. Open lower Ball Valve
7. Test for leaks, if any rectify
8. Close valves

C. To replace Rear Joint Plate Seal

1. Close main valve and drain column



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2. Remove bolts around the joint plate at the rear end of the column
3. Remove joint plate and seal
4. Refit joint plate, complete with new seal. Refit bolts and tighten
5. Open top Ball Valve full
6. Open lower Ball Valve slowly
7. Test for leaks, if any rectify
8. Close valves

D. To remove Flange Gasket

WARNING: The tank must be drained to a level below the valve before carrying out work to replace the flange gasket.

1. Remove flange bolts
2. Replace flange gasket
3. Replace flange bolts and tighten bolts

ILLUSTRATED PARTS

Reflex Column Assembly – Figure 1

| Item Number | Number Off Per Column | Description |
|-------------|-----------------------|---|
| 1 | 1 | Back Plate |
| 2 | 2 | Cushion Gasket (see note 1) |
| 3 | 1 | Mica Shield (if required) |
| 4 | 1 | Reflex Glass (see note 1) |
| 5 | 1 | Front Plate |
| 6 | See Note 1 | Bolt |
| 7 | See Note 1 | Washer |
| 8 | See Note 1 | Nut |
| 9 | As required | Connection Back Plate (fitted to two or more columns) |
| 10 | As required | Back Plate 'O' Ring (fitted to two or more columns) |

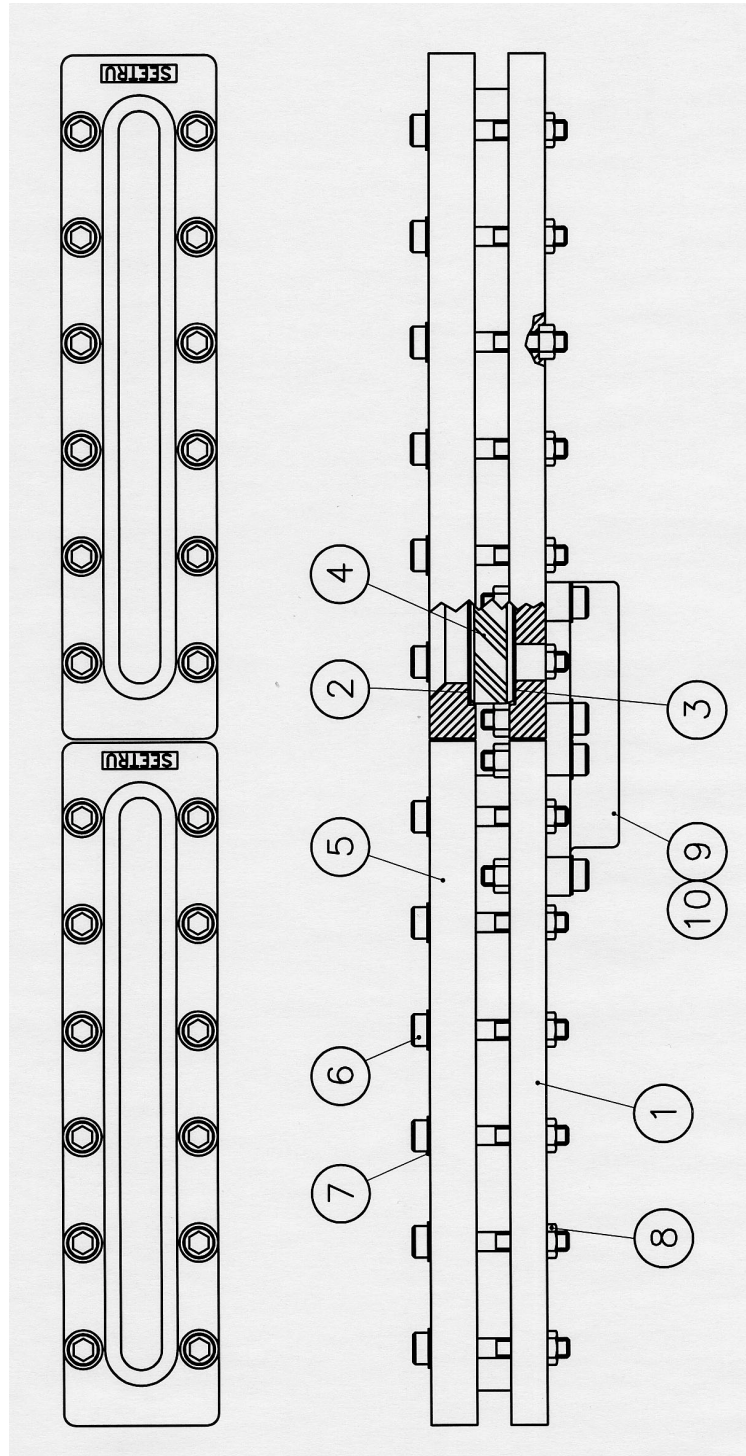
Note 1: For a Number 6 column assembly 12 bolts, washers and nuts are required.
For a Number 9 column assembly 16 bolts, washers and nuts are required.

| Seetru Part No. | GSA479200 | GSA480200 | GSA481200 |
|-----------------|---|---|------------------|
| Spares kit type | No. 9 Glass (Dim. 34x340x17.5) | No. 6 Glass (Dim. 34x250x17.5) | Connection Plate |
| Kit components | 1x No.9 Reflex Glass 2x No.9 Sealing Gaskets | 1x No. 6 Reflex Glass 2x No. 6 Sealing Gaskets | 2x O' Rings |

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Figure 1



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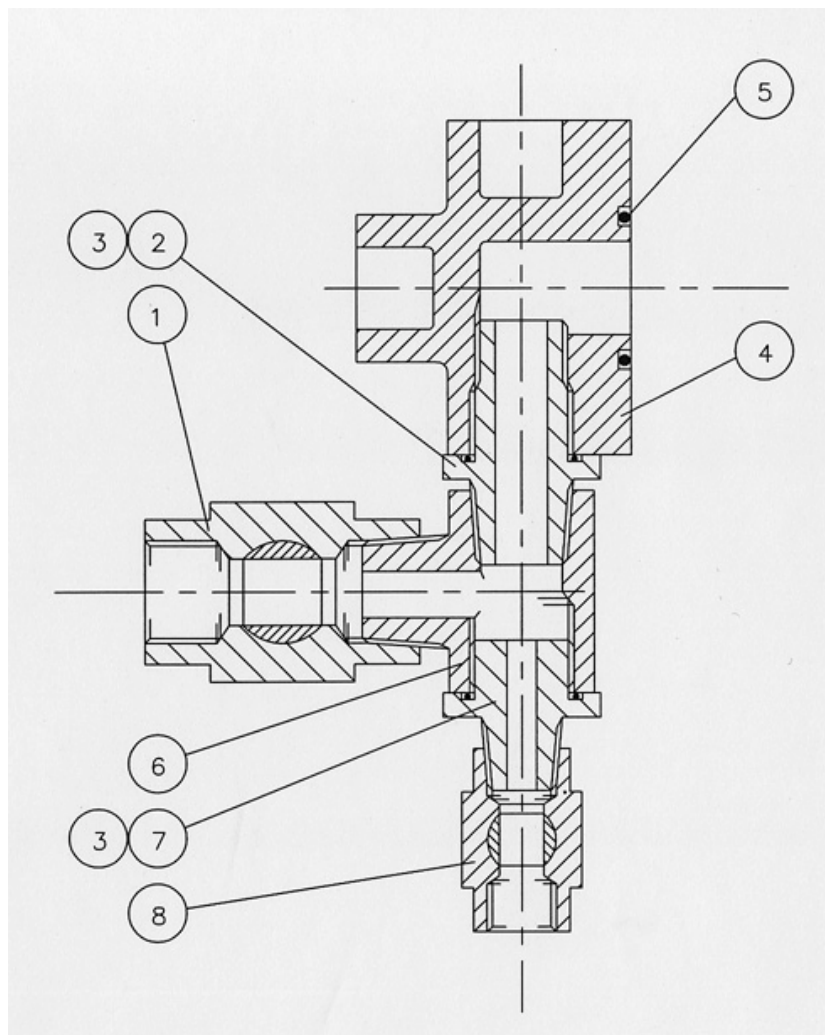
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Ball Valves – Figure 2

| Item Number | Number Off per Unit | Description |
|-------------|---------------------|-------------|
| 1 | 1 | Ball Valve |
| 2 | 1 | Adaptor |
| 3 | 2 | 'O' Ring |
| 4 | 1 | End Plate |
| 5 | 1 | 'O' Ring |
| 6 | 1 | Elbow |
| 7 | 1 | Adaptor |
| 8 | 1 | Ball Valve |

Figure 2





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Figure 3

