



REFLEX GAUGE G33 WITH REFRIGERANT INDUSTRY ISOLATION VALVES 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 25 BAR.G AT 100°C .

GENERAL

The Reflex gauge with refrigerant industry isolation valves is designed and constructed to provide direct level observation of liquid refrigerants. The gauge consists of a Reflex Column Assembly, fixed to the outside of a tank and isolated from the tank by the refrigerant industry isolation valves, which control the flow of liquid into the Reflex Column and isolate the gauge when completely closed.

The refrigerant industry isolation valves are constructed of Brass or Nickel plated steel with seal material to suit the type of refrigerant.

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 Reflex gauge with refrigerant industry isolation 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. Make sure there is no obstruction on the tank between the gauge fixing flanges/bosses. Ensure that the tank flanges/bosses are vertically in-line with each other and that the flange/boss faces are parallel to tank wall and the boss thread is at right angles to the tank wall.
2. Undo retaining nut complete with cap and remove front 'O'ring from valves at each end of column. Slide column off valves. Screw valves onto appropriate tank fitting. Slide column back



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onto valves. Make sure rear 'O'ring is in position on each valve before fitting column. With column in position fit 'O'ring to each valve. Make sure all 4 'O'ring's fit into the grooves in each side of the collars. Refit retaining nut complete with cap.

3. Multi section gauges are fitted with support plates. These plates are fitted to relieve the 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.

OPERATING INSTRUCTIONS

To Open Gauge:

1. Remove caps from both valves.
2. Open top valve fully.
3. Open bottom valve slowly until fully open (to prevent A.S.V. snapping shut). If A.S.V. does close off flow of liquid into column. Close isolating valves fully, then open approx 1 ½ turns to allow liquid to find it's own level. Then open fully.
4. Replace caps.
5. Rectify any leaks in accordance with maintenance information instructions.

To Close Gauge:

1. Remove caps from both valves.
2. Close both isolating valves.

OPERATION FAULTS

General Faults

Fault	Possible Cause	Rectification
Leak between end plate and collar	'O'ring 3 broken or worn	Replace seal
Leak between collar and valve body	'O'ring 12 broken or worn	Replace seal
Leak from valve body along spindle	'O'ring 8 broken or worn	Replace seal
Leak from tank to gauge when valve is closed	'O'ring 9 broken or worn	Replace seal
A.S.V. not sealing	Dirt on seat or ball	Clean seat & ball

OPERATION FAULT NOTES

Note 1

It should be noted that when this gauge is fitted with refrigerant industry isolation 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 refrigerant industry isolation valve.



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Note 2

If the refrigerant industry isolation 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 refrigerant industry isolation valves and isolate gauge if required
2. Undo retaining nuts & remove front 'O'ring from valves at each end of column, slide column off valves
3. Remove gauge from tank
4. Check and renew 'O'ring's if required
5. Refit gauge to tank
6. Refit front 'O'ring to each valve refit retaining nut complete with cap
7. Open refrigerant industry isolation 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 valve fully
6. Open lower valve
7. Test for leaks, if any rectify
8. Close valves

C. To replace Rear Joint Plate Seal (see figure 1)

1. Close main valve and drain column
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 valve full
6. Open lower valve slowly
7. Test for leaks, if any rectify
8. Close valves



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MAINTENANCE INSTRUCTIONS

Refrigeration Industry Isolation Valves.

(see figure 2)

D. To replace 'O'ring's 3 or 12 (Drain Gauge)

1. Remove caps from each valve
2. Close both valves
3. Drain gauge
4. Remove retaining nuts from each valve
5. Slide gauge column (complete with end plate & collars) off valves
6. Screw collars out of end plates
7. Inspect/renew 'O'ring's 3 & 12 on each collar.
8. Replace collars in end plates
9. Slide column complete onto valves make sure rear 'O'ring's 12 are in place in groove on collars
10. Fit 'O'ring's 12 in front groove on collars
11. Refit retaining nuts
12. Open valves as described in operating instructions
13. Check for leaks, rectify if any
14. Refit caps

E. To replace 'O'ring's 8 & 9 on Valve Spindle (Drain Tank & Gauge)

1. Remove caps from each valve
2. Close both valves
3. Drain tank & gauge below level of valve to be worked on
4. Remove retaining nut/s from valve/s to be worked on (make sure liquid level is below valve before carrying out the operation)
5. Unscrew and remove valve spindle/s
6. Inspect/renew 'O'ring's 8 & 9
7. Refit valve spindle/s into valve body/s (screw right in – i.e. close valve)
8. Refit retaining nut/s check 'O'ring's 12 are in position
9. Refit tank (when level is above valve 'O'ring 5 will be checked - i.e. with valve closed no liquid should seep into gauge) rectify if leaking
10. Open valves as described in operating instructions
11. Check for leaks around collars 'O'ring's 12 along valve spindle 'O'ring 8 rectify if leaking
12. Replace caps

F. To check/replace Auto Safety Valve ball & clip (Drain Tank & Gauge)

1. Instructions 1 to 5 section D
2. Unscrew valve complete from tank adaptor
3. Remove clip from inside rear bore or valve body
4. Remove ball
5. Clean bore and seat in body
6. Inspect ball and clip clean/renew and replace in valve body
7. Screw valve onto tank adaptor with P.T.F.E. tape (take care not to get tape onto ball seat)
8. Instructions 9 to 12 section D
9. Refill tank
10. Instructions 13 to 14 section D



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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

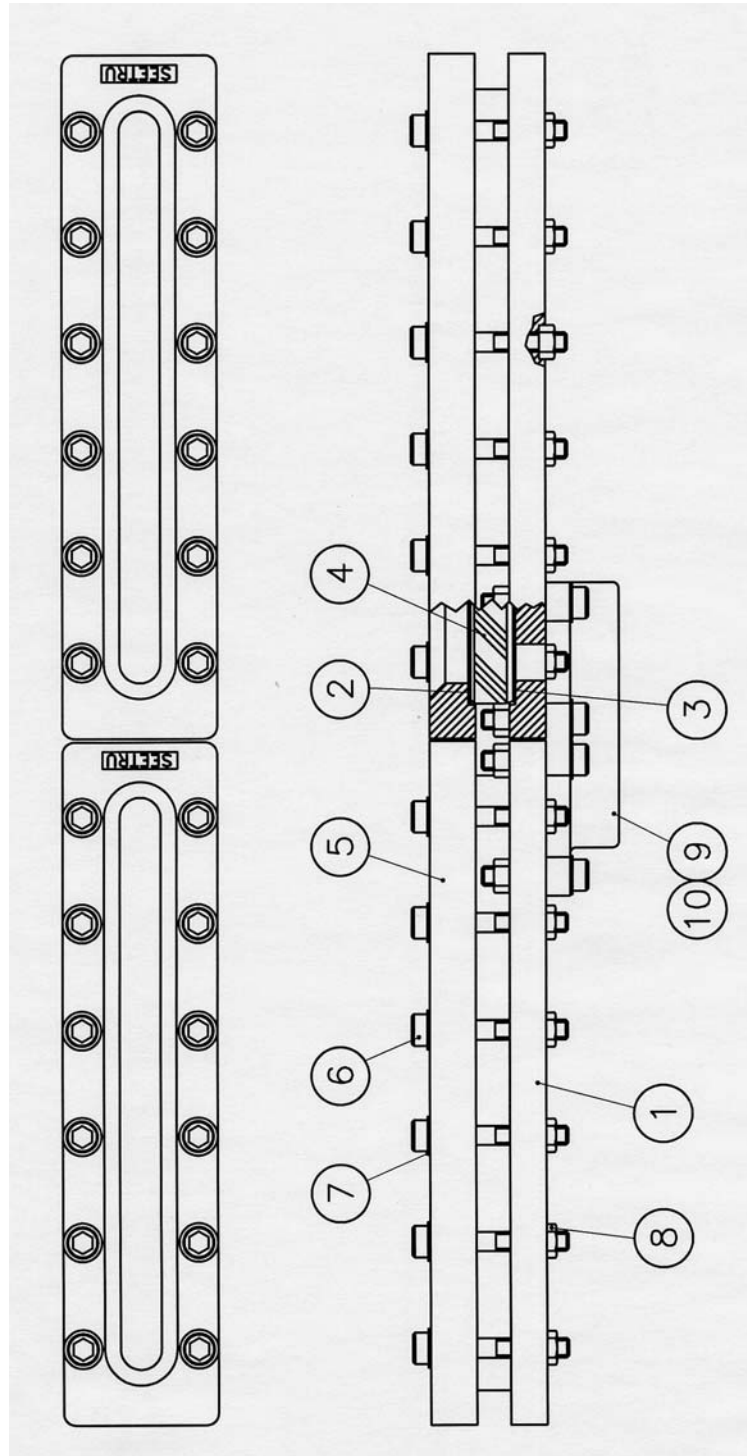


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Figure 1

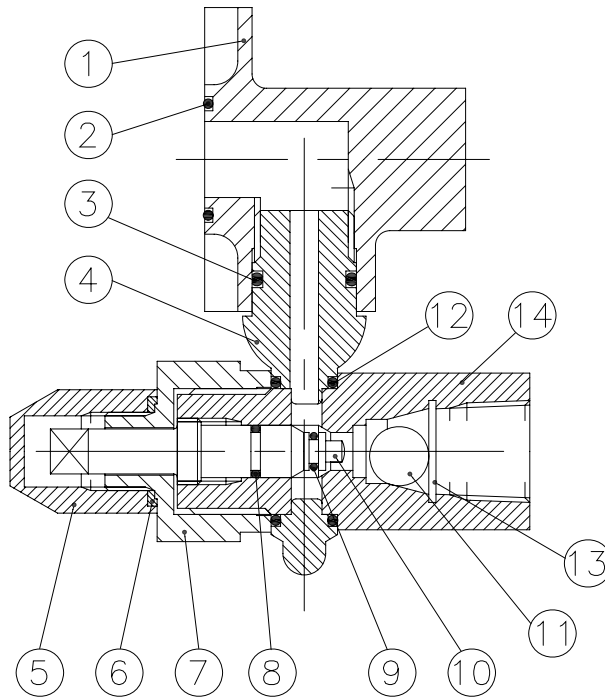


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Ball Valves – Figure 2

Item Number	Number Off per Unit	Description
1	1	End Plate
2	1	'O' Ring
3	1	'O' Ring
4	1	Collar
5	1	Cap
6	1	Seal
7	1	Retaining Nut
8	1	'O' Ring
9	1	'O' Ring
10	1	Valve Spindle
11	1	Ball
12	2	'O' Ring
13	1	Clip
14	1	Valve

Figure 2





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Figure 3

