Flat Glass and Prismatic Gage Glass Gasket Surface Re-Machining Details

A PRODUCT OF CLARK-RELIANCE
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Caution: Before proceeding, follow any and all plant lock out - tag out procedures required. Verify that all power is turned off to the probes. If under pressure, the equipment should be isolated, or the boiler should be shut down *before* proceeding with the installation. Open drain valve to eliminate any trapped pressure. All inspection and installation steps should be performed by a qualified technician and should be executed in accordance with all applicable national and local codes.

Water Gage Removal Procedure
This procedure applies to all Clark-Reliance water level gages with nipple end connections. Nipple end connected water gages are designed in various models to service pressure up to 1500 PSIG (103.4 BarG) saturated steam applications.

Water gages designed for use with bronze water gage valves have an overall length of 2 ¾" (70mm) less than the design of the water gage valve centers. Water gages designed for use with steel water gage valves have an overall length of 3 ¼" (82.5mm) less than the design of the water gage valve centers.

1) Isolate the water gage valves and open the drain valve.
2) Remove the packing yoke bolts on steel valves. On bronze valves loosen the nipple packing nut.
3) Grasp the water gage firmly and push up into the upper (steam) valve. This action will disengage the water gage from the lower (water) valve.
4) Carefully swing the water gage off to one side and drop it out from the steam valve.

Disassembly:
- After pressure is relieved from the gage glass, remove from the boiler drum and lay flat on a workbench
- Loosen end bolting first, working from the opposite ends toward the center of the gage.
- Remove all components including washers, finger clamps, cover plates, gaskets, glass, and Mica shields. Retain the bolting and cover plates. Discard all gaskets, glass, and Mica.
- Note: ***Never*** re-use these components, even when they appear to be in perfect condition!

Re-machining

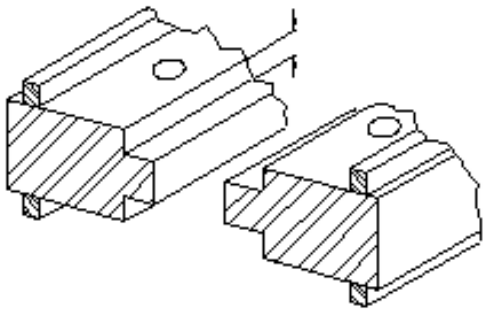
Maximum Allowable Wall Dimensions

Body- FG400 Series .156 (4.1 mm) Depth Maximum

Body- FG900 Series and C or S Prismatic
.281 (7.1 mm) Depth Maximum

Body- FG1500 and FG2000 Series
.406 (10.3 mm) Depth Maximum

Flat Within .004" (.1 mm)



Flatness of Gasket Surface
All Flat Glass Gages regardless of rating - .004" (.1 mm) T.I.R.

Finish of Gasket Surface
Sealing Gasket - 32/63 RMS

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Reassembly (Also refer to Clark-Reliance IOM #R500.E153C):
-Inspect all glass kit components. Verify that the repair kit is the correct one for the model gage that is being repaired. Carefully inspect the glass for any chips, cracks or scratches. Inspect the Mica shields and gaskets for any visible signs of damage. Do not use these components if damaged!

-Use a bronze or brass scraper to remove any bits of gasket material that may remain, without causing damage to the gage body or cover plate(s).

-Locate the gaskets, Mica (if on Flat Glass Gages), and glass centrally in the seat and cover to avoid any glass-metal contact at the ends or sides.

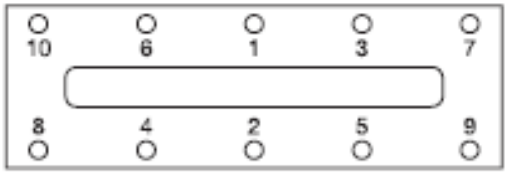
-Clean and lubricate all fasteners with Molycote or similar high temperature nickel based anti-seize lubricant.

-Tighten nuts 'finger tight' in the sequence shown in the sketch. Using a calibrated torque wrench tighten all nuts in the proper sequence in 1/3rd increments.

Torque values:

'C' and 'S' Prismatic	40 Ft. Lbs. (54 Newton Meters)
FG400 or FG900 Series	45 Ft. Lbs. (61 Newton Meters)
FG1500 or FG2000 Series	70 Ft. Lbs. (95 Newton Meters)

Torque Sequence:



-Hot torque gage per instructions per Clark-Reliance IOM #R500.E239A

Note: Conduct regular inspection of the gage glass and illumination. The gage must be repaired if there are any signs of scratches, etching, erosion of the glass, clouding, or deterioration of the glass or Mica shields. Examine the illuminators to verify that all LEDs are operating properly.

NOTES:

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