

Recommendations and Instructions for Hot Torqueing Gage Glasses and Probe Type Devices



Caution: Before proceeding, follow all plant lock out - tag out procedures required. Notify proper personnel that work is being done and make sure to by-pass any alarms and cutout trips if required. Verify that all power is turned off to the equipment. If under pressure, the equipment must 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.

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When a new piece of equipment, whether a Gage Glass or a Probe type device is installed, the hot torque procedure must be performed. This ensures that all bolting and components are properly seated for optimum performance. This procedure must also be performed after any maintenance is done to the equipment. Note that only the affected components, such as the installation of a new probe or glass kit, need to be hot torqued.

All work must be done by a qualified technician. All plant rules and procedures must be followed, including any lock out / tag out requirements. Verify that all alarms and trips have been by-passed on probe columns before any maintenance is performed, to prevent any false alarms or wiring hazards.

The hot torque procedure should be performed as follows:

- 1) Isolate the gage glass or probe device from any pressure.
- 2) Fully open the drain valve to evacuate any built-up pressures and to allow the contained steam and water to escape during equipment warm up.
- 3) Slowly open the *steam valve* to allow a gentle rush of steam to flow through the equipment. Inspect the equipment to make sure there are no obvious leaks. This should take approximately 5 – 10 minutes. The observer should see the High Temperature lubricant “sizzling” and smoke emanating from the gage of column. This is an indication that the equipment has reached operating temperatures.
- 4) When the equipment has been properly heated, close the steam valve. The drain valve should remain open to allow any residual steam or pressure to escape.
- 5) Immediately re-torque the equipment to the correct values stated in the applicable instruction manual. There should be movement of approximately 1/8 of a turn or more.
- 6) If there is no movement of the bolting or probes, the equipment was not heated properly. Repeat the procedure.
- 7) Once the hot torque procedure is completed, close the drain valve, and the equipment can be put back into service. Carefully check for any leaks in the equipment and verify proper operation of all illumination, relay controls and wiring, or other accessories.

Note that Model FSB Compression Type Probes and Model P4000/P4100 Series Simpliport Gages do not require hot torquing.

See the Hot Torque video online at <https://www.youtube.com/watch?v=THwWN5w64II>
Or visit our website RelianceBoilerTrim.com

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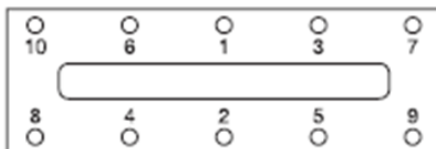
Torque Recommendation Specifications

PRISMATIC AND FLAT GLASS GAGE GLASSES

Torque the bolting as follows:

Model	Torque	Socket Size
“C” Prismatic	40 Ft-Lb. (54 Newton-Meters)	¾” socket
“S” Prismatic	40 Ft-Lb. (54 Newton-Meters)	¾” socket
FG400 series	45 Ft-Lb. (61 Newton-Meters)	¾” socket
FG900 series	45 Ft-Lb. (61 Newton-Meters)	¾” socket
FG1500 series	70 Ft-Lb. (95 Newton-Meters)	7/8” socket
FG2000 series	70 Ft-Lb. (95 Newton-Meters)	7/8” socket

Tighten nuts ‘finger tight’ in the sequence shown in the sketch below. Using a calibrated torque wrench, tighten all nuts in the proper sequence in 1/3rd increments.



Refer to IOM R500.E153C for complete instructions.

CONDUCTIVITY PROBES

If probes are removed at any time for replacement or inspection, the sealing gasket must be replaced. Probe replacement kits are furnished with two spare gaskets.

Torque the probes as follows:

Model	Torque	Socket Size
T Probe	40 Ft-Lb. (54 Newton-Meters)	7/8” deep well socket
V Probe	40 Ft-Lb. (54 Newton-Meters)	7/8” deep well socket
ZG Probe	40 Ft-Lb. (54 Newton-Meters)	7/8” deep well socket
ZB Probe	40 Ft-Lb. (54 Newton-Meters)	7/8” deep well socket
FG Probe	90 Ft-Lb. (122 Newton-Meters)	1-1/4” deep well socket
FB Probe	90 Ft-Lb. (122 Newton-Meters)	1-1/4” deep well socket

Refer to IOM R500.E189-A-3 for complete instructions.

See Reliance IOM R500.E259A for complete torque specifications

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