

# VSG Graphite Pressure Seal Installation Instructions



## PLEASE REVIEW THE FOLLOWING BEFORE INSTALLATION

- **DO NOT REMOVE TAPE FROM SEAL AT ANY POINT DURING INSTALLATION!**
  - If an angle is present, VSGs are designed and manufactured with the corresponding angle.
- Please note the seal will form to the existing bonnet angle during installation.
- VSGs have tape holding the caps in place for shipping and installation – **DO NOT REMOVE.**
- Like all graphite pressure seals, VSGs are compressible. Before installation, VSG Pressure Seals are always taller than the used metal or graphite pressure seals they replace.
  - During installation and system pressurization, VSG seals will compress to about the same height as the previously installed metal or graphite pressure seal, in most cases.
- In rare cases, the as-shipped height of the VSG pressure seal may prevent installation of the keeper, or segmented rings with the backing ring also in place. Should this occur, a simple pre-compression step should be used. See procedure below.
- Should you have any questions with seal assembly or fit, contact EGC at 440.285.5835. If after hours contact Thom Jessup at 919.413.3157, or Brian Biller at 440.231.2201.
- **PLEASE DO NOT MODIFY OR ALTER THE SEAL IN ANY WAY**
  - **If the seal provided by EGC is modified before installation without EGC's knowledge or approval, EGC assumes no responsibility for fit, form, or function of the seal. EGC will not be held responsible for any downtime, mechanical damage, or physical harm that may occur due to the failure of a seal that was modified and installed without the knowledge of EGC.**

## (Follow all safety related protocols for valve repair before performing the steps below)

1. Before bonnet disassembly, measure and record the bonnet stud length from the bottom of the nut to the top of the stud.
2. Disassemble per the valve manufacturer's instructions or facility guidelines.
3. Measure the metal seal height. Subtract the metal seal height from the EGC Seal height to ensure that there is sufficient stud length for assembly.
  - a. Inspect the seal area per facility guidelines.
4. Assemble the valve components per the valve manufacturer's instructions. If a backing ring was present with your original seal, be sure to install it on top of the new VSG pressure seal ring prior to bonnet draw up. If a new backing ring is supplied with your pressure seal, it shall be used in place of the original one. Should damage occur to the graphite seal during assembly, please contact EGC Engineering for approval.
5. Bonnet alignment during pull-up is very critical. Please locate an area on the valve where measurements can be taken to check for any tilting or misalignment.
6. Locate the valve manufacturer's torque requirements for bonnet fasteners. Calculate 30% of the assembled torque and start tightening the fasteners using a star pattern technique.
7. Check for alignment, then torque fasteners to 60% using star pattern.
8. Check for alignment, then torque fasteners to 100% using star pattern.
9. Check for alignment, then complete final torque of fasteners to 100% using clockwise pattern.

### Pre-Compression Procedure for VSG ONLY (DO NOT USE FOR VSG-PRO SEALS)

1. Place the VSG graphite pressure seal into the pressure seal cavity.
2. Place the backing ring into the pressure seal cavity.
3. Measure and record the compression needed to install keeper/segmented rings.
4. Remove the backing ring, and place keeper/segmented rings in groove.
5. Using bonnet studs & nuts, draw bonnet up to compress the seal by the measurement recorded in step 3.
6. Loosen nuts, drop bonnet and remove the keeper/segmented rings.
7. Seal will now be compressed to allow for normal assembly with both backing & keeper rings installed per steps 1 – 10 above.