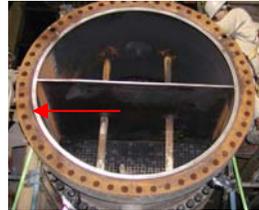
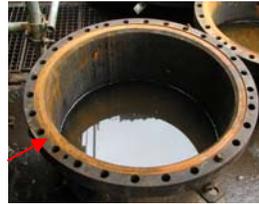


JOINT PREPARATION PROCEDURES BEST PRACTICES

Inspection of working surfaces:

1. Thoroughly clean all flange faces of dirt, grease and debris.
2. Inspect all gasket contact surfaces for damage. If any nicks or gouges are found, surface machining will need to be done prior to joint assembly.
3. Inspect all bolts & nuts for damage. Clean with wire brush and spray with contact cleaner. (Electro-Clean) Check for proper size, material & length. (Refer to HYTORC slider chart)
4. Inspect front and back nut bearing surfaces for raised surface gouging, remove high spots with hand grinder.
5. Check all spot-faces to assure they are level and parallel. If significant warping is found tensioning should be done from the backside of the flange.



6. Inspect gasket for proper size, material and fit. Adhesive can be used on the gasket only, in order to hold in place during installation.



7. Install 4 to 8 bolts depending on flange size to align flange. Use a $\frac{3}{4}$ drive impact to tighten, not exceeding 30% of final torque. Check flange gap for parallelism.



8. Apply dry film lubrication to 50% of the nuts only and allow to dry for 1 hour. Mark front of nuts with white paint stick. (See Appendix A)



9. Label and box all bolts/nuts/washers for each flange.

(48) 1-5/8-8 Bolts
(96) 1-5/8 Nuts
(48) 1-5/8 Washers

E-8112 Exchanger

10. Install all other bolts/nuts/washers, making sure that the bolts and back nuts are clean and non-lubricated. Place the lubricated marked nuts on the front only. Adjust the washers/nuts so that no more than 2 threads protrude from the front nuts. (See Appendix B)



11. Number each bolt, according to number of tools and procedure.



12. Step-1 Apply 50% of the maximum torque to 30% of the total bolts in a pattern

Step-2 Remove the 4/8 nuts used to align the flange and install washers and lubricated nuts on front.

Step-3 Apply 100% of the maximum torque to all bolts in a pattern

Step-4 Apply 100% of the torque clockwise until no nut movement is observed.



13. Mark each bolt top with a line for each pass completed.

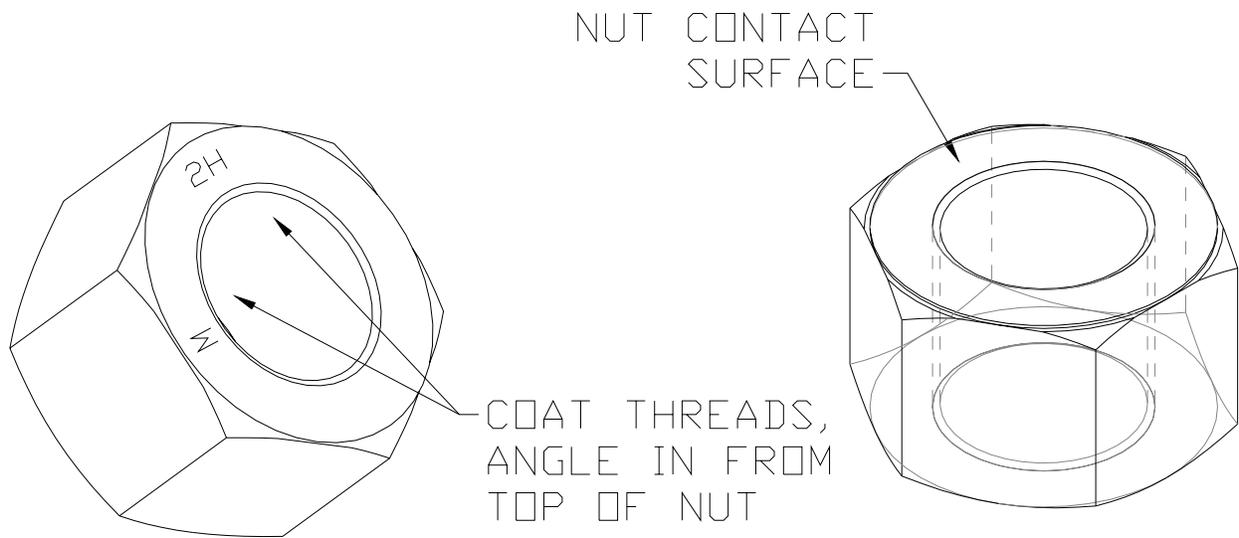


1st pass 2nd pass 3rd pass



14. Record name, date, contractor and time completed onto the procedure form, as this will serve as the flange quality cert.

FLANGE QUALITY CERTIFICATE (G-1)	
FLANGE DETAILS VESSEL NO. _____ DATE _____ VESSEL NAME _____ VESSEL LOCATION _____ VESSEL OPERATOR _____ VESSEL STATUS _____	
FLANGE NUMBER 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ 11. _____ 12. _____ 13. _____ 14. _____ 15. _____ 16. _____ 17. _____ 18. _____ 19. _____ 20. _____ 21. _____ 22. _____ 23. _____ 24. _____	
ALL 1. Torque applied 2. No nut movement observed 3. No nut rotation observed 4. No nut loosening observed 5. No nut damage observed	
BY: _____ DATE: _____ FOR: _____ SIGNATURE: _____	



Drying time prior to use.
Allow 1 hour for Dow Corning 321

FLANGE STUFFING

