

P6425

Use and Installation of PTFE (Teflon) Gaskets and Seals

PTFE (Teflon) is one of the most chemically resistant materials available and is suitable for even some of the harshest chemical compounds. PTFE is commonly used with aggressive, corrosive and reactive chemicals.

Teflon gaskets are typically expanded PTFE, also known by trade names including Goretex, Tetron X.

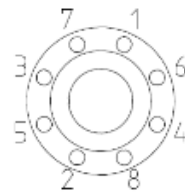
However, the use and installation of PTFE gaskets presents its own unique challenges not seen with other gaskets.

It is much more critical to use correct installation techniques when installing these gaskets.

After consultation with gasket manufacturers and experts, the below recommendations are seen as a minimum standard to obtain consistent sealing when using PTFE gaskets.

Installation notes

1. **Gaskets must be in good condition.**
 - Any scratches, bends or deformities are unsuitable for use in tankers.
 - Never re-use gaskets.
2. **Sealing surface of flanges must be in good condition.**
 - No scratches, deformities etc., are acceptable.
3. **Flange flatness of both flanges must be within 0.5mm each.**
 - PTFE does not have the 'memory' of other gaskets.
4. **Tighten in a star pattern (as pictured).**
 - This ensures that even compression is obtained over the flange area.
5. **Tighten gradually over 4 cycles.**
 - Tighten in a star pattern to 30%, 60%, final torque and then final torque again.
6. **Obtain the correct torque for the studs used.**
 - Use a torque wrench to ensure correct and consistent torque.
 - Lubricating the studs will ensure correct tension in the studs.
 - If over-tightened, the studs will stretch beyond their elastic limit.
 - Liquip supply high tensile studs with all SLV and SLC valves. These are identified with a small "m" on the stud end. Liquip recommend a torque of 25Nm for this.
7. **Re-tighten after 1 day of use.**
 - Temperature fluctuations, barrel flexing, barrel deforming when fully loaded, vibration etc., are all causes of the change in the load on the studs and thus the stud tension. Therefore re-tightening is required after a short period of service.
8. **Do not re-use single use nuts such as Nyloc or conelock nuts.**
9. **Do not use any "gasket goo" or similar material** – it won't stick to Teflon.



Notes:

- Liquip strongly recommend that gasket suitability and compatibility is checked with the chemical supplier.
- The nature of Teflon is that it is unyielding but easily scratched, therefore the slightest damage can lead to weeps, particularly where clamping force is provided by a spring that is necessarily limited in force.
- However, the use of PTFE cannot be avoided because of its outstanding chemical resistance.
- Liquip guarantee the sealing of all new products and test all production parts prior to despatch.
- Following installation of the equipment by the purchaser, it is essential that the valve is kept perfectly clean, any test liquids be perfectly clean and no tools are to touch the PTFE seals.
- It is not uncommon for valves to exhibit small weeps once in service with commercial-quality liquids.

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