

Mechanical joints on plastic piping

Unions

Union connections are widely used in thermoplastic piping systems to produce a simple method of assembling valves, piping or other equipment.

The union depends upon an internal "O" ring as the sealing mechanism. During installation, the "O" ring must be compressed sufficiently to provide a seal between the mating surfaces of the union parts. This is achieved by the tightening of the union nut. As the pressure inside the pipeline increases, the "O" ring creates a tight seal, thereby preventing the pipeline fluid from escaping. An effective seal is usually achieved without excessive tightening of the union nut - generally hand-tight plus a quarter of a turn with a strap wrench is adequate. Additional tightening of the union nut is not recommended as this can cause damage to the components.



Avoiding installation problems

One of the common problems is misalignment of the components, which can prevent an effective seal of the "O" ring being made. Dirt, or debris on the sealing surfaces can also prevent sealing, and damage the "O" ring itself, whilst the use of lubricants or sealing compounds can lead to problems with stress cracking if incorrectly applied.

To prevent installation problems:

- Always disassemble unions (including unions on valve connections) before making solvent welded joints to ensure that no cement is accidentally pushed on to the sealing faces or the "O" rings.
- In heat fusion welding, make sure that the joining process has been correctly performed and that no distortion of the joining surfaces has occurred through excessive heating.
- When preparing to install unions into the system, make sure that the joining faces are aligned squarely to each other.
- Tighten the union nut fully by hand - do not use metal pipe work tools that can scratch or gouge plastic materials then tighten a further /turn using a strap wrench.
- Union connections must never be used to draw pipes together, to close up gaps, or to correct misalignment in the system.