

5.1.3 Unions joining plastic piping components

Wherever available, unions are the preferred choice over flange adapters for the mechanical connection of plastic pipe. With no metal parts, there is no corrosion and the weight of the connection is also reduced. In addition, the smaller outside diameter compared to a flange connection means that the distance from pipe axis to pipe axis is shorter. Furthermore, assembly is easier and faster. Unions are available in a wide variety of materials and material combinations.

General notes on assembly

Plastic unions are always sealed with an O-ring. The coupling nut may only be tightened manually. Pipe wrenches customarily used in steel pipe construction are not permissible. For bigger sizes, a pipe wrench with belt can be used. When using unions, care should be taken to obtain a low-stress assembly.



In the area of flexible sections and expansion loops, unions cannot be used because the bending load can lead to leakages.



To make assembly of large unions easier, "lubricate" the thread with some water.

Assembly of unions made of PP, PE, PVDF with d75, d90 and d110

The newest generation of plastic unions in the above mentioned materials and dimensions has been equipped with a modern, plastics-oriented buttress thread, resulting in a product with considerably increased nominal pressure and safety reserves. Several notable/important points in this respect are listed below.

Threads on coupling nut and union bush for PP, PVDF and PE

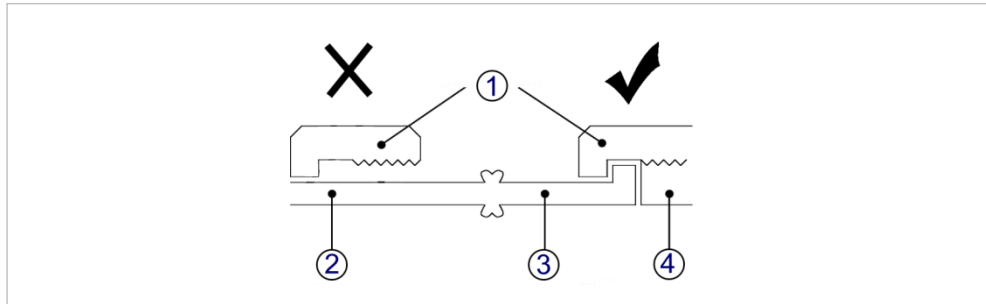
When using individual parts, check prior to the assembly whether the threads of the union bush and coupling nut are identical and can be bolted together:

- Coupling nut with trapezoidal thread on union bush with trapezoidal thread
- Coupling nut with buttress thread on union bush with buttress thread

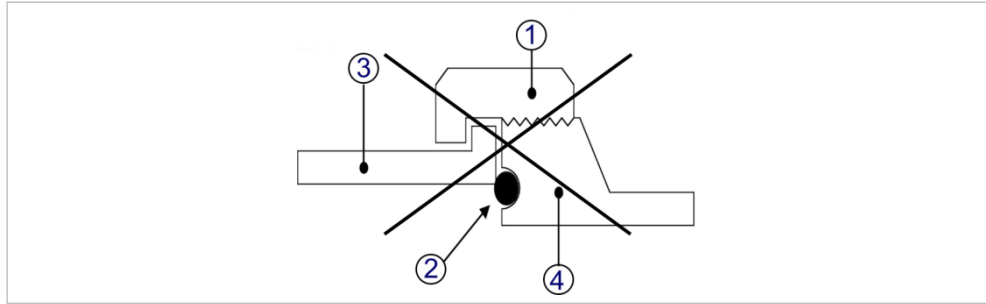
Fusion bead at unions for butt fusion

For the dimensions d90 and d110, we advise fusing the complete union to the pipe, if possible (or slide the coupling nut to the collar of the union end) because it may not be possible to slide the coupling nut over the fusion bead after the fusion.

i Only use union bushes and union ends with the same nominal diameter. A butt fusion union bush d75 may not be combined with a butt fusion union end d90 to form a reducer, because this can cause leakage, as illustrated below.



- ① Coupling nut
- ② Pipe
- ③ Union end
- ④ Union bush



- ① Coupling nut d75
- ② Insufficient seal
- ③ Butt fusion union end d90
- ④ Butt fusion union bush d75

Unions as adaptor connections for different plastics

The component parts of the unions d20 to d63 of different plastics can be combined. Each of the two components with thread, union bush and coupling nut must be made of the same material. The union end can be selected from another material. For larger dimensions (d75 to d110), the material transition is not generally possible, and should be looked at on a case by case basis.

5.1.4 Adaptor unions for connections between plastic and metal pipe

The GF Piping Systems line of fittings contains various adaptor and threaded fittings. For the connection of plastic piping components to metal pipe, fittings or valves made of metal (or vice versa) with threaded connections, adaptor unions with metal inlays are preferred.

The seal in the metal thread can either be made with hemp or a PTFE tape as long as the counterpart is not made of plastic.

⚠ To prevent electrochemical corrosion, malleable iron connecting elements should preferably be used for steel transitions and brass connecting elements for transitions to non-ferrous metals.