

Troubleshooting Port End Connections

60° Cone (Metric, BSPP and NPSM)

CONDITION	PROBABLE CAUSE(S)	RECOMMENDATION
End of swivel nut contacts hex shoulder of adapter before cone and ball nose tightens	<ul style="list-style-type: none"> • Wrong combination of swivel nut and adapter 	<ul style="list-style-type: none"> • Ensure that components are to the same specification (even with the same type, there are different designs for 60° cone fittings)
Thread engagement seems adequate and swivel nut is tight but leakage still occurs	<ul style="list-style-type: none"> • Scratches or nicks on sealing surface • Chatter marks on sealing surface 	<ul style="list-style-type: none"> • Replace components. These fittings depend on metal-to-metal seal and require smooth mating surfaces to seal
There is leakage from the joint and the swivel nut is loose	<ul style="list-style-type: none"> • Inadequate make-up torque 	<ul style="list-style-type: none"> • Use proper torque to create a seal as well as prevent vibration loosening
Swivel nut tightens, cone is tight but connection still leaks	<ul style="list-style-type: none"> • Inadequate or no chamfer in adapter 	<ul style="list-style-type: none"> • Use components with proper chamfer (very common occurrence with NPTF/NPSM 60° cone fittings). Male pipe end must have chamfer for proper sealing. Not all male pipe ends have chamfer as standard

Tapered Thread (including BSPT, NPT and metric taper)

CONDITION	PROBABLE CAUSE(S)	RECOMMENDATION
Thread galling	<ul style="list-style-type: none"> • Most common in stainless steel, caused by friction and lack of lubricant 	<ul style="list-style-type: none"> • Replace fitting and apply proper thread sealant/lubricant to replacement fitting and tighten to appropriate TFFT
Fitting leaks, even after proper tightening	<ul style="list-style-type: none"> • Sealant omitted or inadequately applied • Damaged or cracked threads • Cracked port • Thread mixing of BSPT and NPT threads 	<ul style="list-style-type: none"> • Re-apply sealant to appropriate TFFT and re-tighten • Replace fitting • Replace component • Determine port thread type and replace fitting with matching thread type
Insufficient thread engagement (3 to 6 threads of engagement required)	<ul style="list-style-type: none"> • Quality problem with port or adapter • Too much thread sealant (tape) 	<ul style="list-style-type: none"> • Have port and adapter thread inspected; replace faulty parts • Remove all thread sealant and re-apply 1 to 2 layers of tape
Too much thread engagement (more than recommended 3 to 6 threads)	<ul style="list-style-type: none"> • Typically port or adapter machining or wear problem, or port could be cracked due to excessive torque 	<ul style="list-style-type: none"> • Inspect port and adapter for proper tolerance or wear, replace faulty parts, retighten to appropriate TFFT
Poor-quality threads or damaged/nicked threads	<ul style="list-style-type: none"> • Larger sizes are more prone to having nicked threads due to handling damage 	<ul style="list-style-type: none"> • Replace fitting with threads that are free of scratches and nicks

Dimensions and pressures for reference only, subject to change.