Visual Index

Materials and Manufacture

Triple-Lok fitting components are manufactured using state-of-the-art equipment and manufacturing technologies to assure construction integrity, optimum strength and toughness, long service life and the highest quality. At the heart of the Triple-Lok product line are the finest raw materials and manufacturing technologies as outlined in Table C1 and discussed below.

The Triple-Lok Body: Triple-Lok fittings are manufactured in over 65 configurations. Straight bodies are either cold formed or machined from cold drawn bar stock. The cold forming process ensures consistent dimensional tolerances, improved mechanical properties and better surface finishes. Shaped Triple-Lok fittings are manufactured from a one-piece forged construction. This forged construction eliminates the potential leak path associated with multi-component brazed fittings. Triple-Lok steel forged shapes also feature an optimum combination of hardness and toughness for high-pressure capability, minimal nose collapse (typical of sizes -10 and under) during repeated assembly and long service life, even under severe operating conditions.

The Triple-Lok Sleeves: Most steel Triple-Lok flare support sleeves are cold formed and heat treated for an optimum combination of strength and ductility. The largest size sleeves, -20, -24, and -32, are machined from high strength steel. Stainless steel and brass sleeves are machined from cold drawn barstock.

The Triple-Lok Tube Nuts: Triple-Lok steel tube nuts are cold formed, except in sizes –20, -24, and -32, which are machined from cold drawn barstock. Cold forming increases the material strength and its fatigue properties, imparting high strength and longer service life to the nuts. Smaller stainless steel nuts are also cold formed while all brass tube nuts are manufactured from cold drawn brass barstock. Most crimp swivel nuts are also cold formed.

Robust Port Stud: The adjustable port stud is manufactured with a longer locknut designed to cover the uppermost threads completely. Since the backup washer is never exposed to the upper threads, it cannot be damaged during assembly. During assembly, exposed upper threads, as common with fittings from other fitting manufacturers, can lead to a deformed backup washer that can pinch the o-ring and create an o-ring extrusion gap that has the potential to leak. The longer locknut also provides a greater grip area for the wrench.

Dual Angle Female Seat: The seat of the female swivel is manufactured with a dual angle that accepts both the 37° flare and 45° flare fitting (only sizes 4, 5, 8 and 10 45° flare fittings). The dual angle seat also repositions the seal location away from the tip of the male flare nose, preventing the nose from biting into the seat and making it more tolerant to minor nose tip damage.

How Triple-Lok Fittings Work

Tightening of the nut clamps the tube flare between the body nose (seat) producing a leak tight connection. This clamping on the 37° taper provides a measure of elasticity to the joint helping it to resist loosening under vibration. The clamping force results in a small radial load that tends to deform the fitting nose radially. The resistance of the nose to elastic deformation provides a constant preload (similar to a lockwasher) keeping it tight.

The clamping force provided by the nut resists the opposing force of the fluid under pressure. The joint remains leak tight as long as the clamping force is higher than the opposing pressure load. Properly assembled Triple-Lok fittings with appropriate tube will seal consistently under pressure until tube bursts.

Sealing in Triple-Lok fittings takes place between two smooth metal surfaces, the fitting nose and inside of the tube flare. Therefore, the sealing surfaces have to be smooth, free of any nicks, scratches, spiral tool marks, splits or weld beads. Seamless or welded and drawn fully annealed tube is recommended for Triple-Lok fittings for ease in flaring and bending. Certain types of harder tubes that are not fully annealed may not be suitable for flaring due to the potential for immediate or long-term cracking of the tube flare. For specific tube type and wall thickness recommendations, please see Table C3.

Triple-Lok Fittings	Steel		Stainless Steel		Brass	
	ASTM	Type	ASTM	Type	ASTM	Type
Cold Formed Bodies	A576	C1010/ C1008	—	—	—	—
Forged Bodies	A576	1214/ 1215	A182	316	B124	CA377
Bar Stock Bodies	A108	12L14	A479	316	B16 B453	CA360 CA345
Cold Formed Nuts	A576	C1010/ C1008	A276	316	B121	CA335
Bar Stock Tube Nuts	A108	12L14	A479	316	B16 B453	CA360 CA345
Cold Formed Sleeves	SAE 1020	SAE 1020	—	—	B111	CA443 CA444
Bar Stock Sleeves	A108	C1137	A479	316	B371	CA694

Table C1 – Standard Material Specifications for Triple-Lok Fittings

Note: On request, Triple-Lok fittings can be furnished in materials other than those shown above.

Finish: Zinc with yellow chromate (being changed to zinc chromium 6 free) is used on all standard steel products.

Assembly and Installation

Please refer to Section T for the assembly and installation instructions for Triple-Lok fittings.

Dimensions and pressures for reference only, subject to change.