

# Installers Pocket Guide









# Unilok®

# SSP



At SSP, we are proud to be an American manufacturing success story.

100% of our products are made in America. All of our manufacturing is performed in our 165,000 sq. ft. facility located near Cleveland, Ohio. Our facility is the largest vertically integrated, single-site operation in the industry. In addition to manufacturing and assembly, we have closed die forging, tool & die design, product engineering and testing operations under the same roof with customer service and management.

Made in America is good business. Not only do we make everything in America, we use American suppliers too. Buying American allows us to have better quality control and a more reliable supply chain. We can work more closely within our walls and with our suppliers to improve quality, reduce costs, and shorten lead times, which means faster service and better products for you.

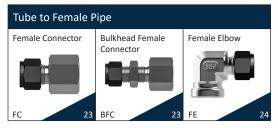
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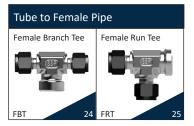
# Table of Contents

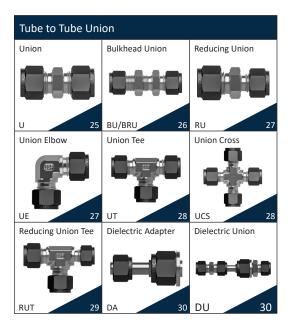
Table of Contents
Visual Index 2
Installation Instructions
Initial Installation7
Reassembly Instructions9
Pre-Setting Instructions 10
SSP Gap Gage Instructions 12
Technical Data13
SSP Unilok <sup>®</sup> Fittings
Tube to Male Pipe16
Tube to Female Pipe 23
Tube to Tube Union 25
Tube to Welded Systems
Tube Stub Connectors / Adapters 33
Unilok <sup>®</sup> 37° Flare (AN) 38
Tube to O-Ring Seal
Tube to SAE / MS 40
Cap and Plug 43
Components 44
SSP Tubing
Safety Information 48
Limited Lifetime Warranty 48

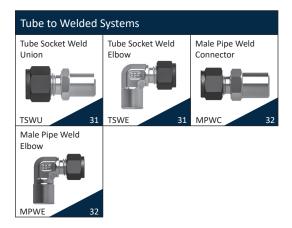
Tube to Male Pip	e	
Male Connector	Male Connector ISO Parallel	Male Connector ISO Tapered
MC 16	MCRS 17	MCRT 18
Bulkhead Male Connector	Male Connector Bored Through	45° Male Elbow
BMC 18	MCBT 19	M45E 19
Male Elbow	Male Elbow –	Male Branch Tee
	ISO Tapered	
ME 20	MERT 21	MBT 21
Male Run Tee		
MRT 22		

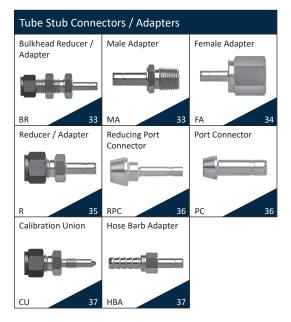


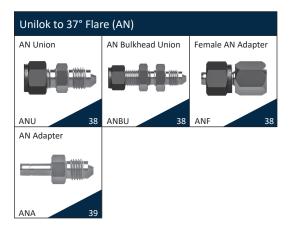
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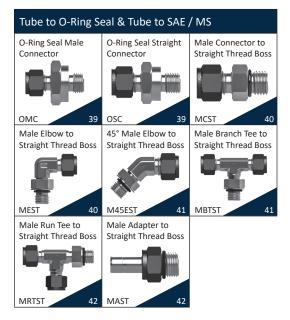


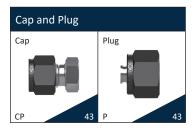














#### Initial Installation

SSP tube fittings come individually bagged and completely assembled for immediate use. There is no need for disassembly prior to use. Simply remove the tube fitting from its bag, insert the tube\* until it bottoms in the SSP tube fitting body and then hand tighten the SSP nut. (See Figure 02.)

\*Tubing ends should be cut as straight as possible with all O.D. and I.D. burrs removed. Use of a tubing cutter or guide blocks with a hack- saw is recommended.

Figure 02.

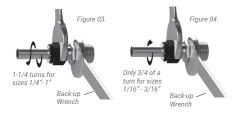
(1)



NOTE: For extreme system applications using high pressures or requiring an extra factor of safety, it may be desirable to use a "common make up starting point" to alleviate the inherent variations in tubing diameters. Installation should begin from a snug position, which is achieved by wrench tightening the Unilok nut until the inserted tubing will not move by hand (approximately 1/8 turn). From this new "snug" starting point, continue with the recommended installation instructions.

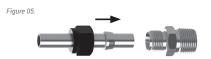
While holding the fitting body stable with a back-up wrench, scribe the nut for a reference point and wrench tighten the nut 1-1/4 turns for sizes 1/4" - 1" and 3/4 turn for sizes 1/16" - 3/16". (See Figures 03 and 04).

NOTE: For all sizes, tighten plugs (P), machined ferrule end of port connector (PC) and the SSP tube fitting end of the Female AN adapter (ANF) only 1/4 of a turn. Tube fittings in sizes over 1" require the use of the SSP Hydraulic Swaging Tool for installation. Contact your local SSP Distributor for more information.



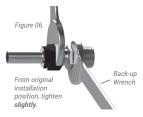
#### **Reassembly Instructions**

To reassemble a SSP tube fitting connection, simply insert the tubing with the previously coined ferrules and SSP nut into the fitting body until the front ferrule seats within the fitting body, and then tighten the nut by hand. (See Figure 05.)



NOTE: By following proper reassembly procedures, SSP tube fitting connections may be disconnected and reconnected repeatedly.

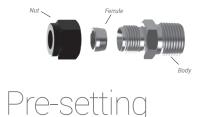
While holding the fitting body stable with a back up wrench, use a wrench to rotate the SSP nut to the fitting's original installation position (approximately 1/4 turn from the hand-tight, snug position) then continue to tighten the SSP nut slightly. (See Figure 06.)



#### Component Assembly

Should individual component assembly of a SSP tube fitting ever be required, careful attention must be given to the proper sequence and direction of the SSP tube fitting components. (See Figure 07.)

Figure 07.



The SSP tube fitting pre-setting tool is used to preset the ferrules on the tubing for subsequent installation in a fitting body. The pre-setting tool can be especially helpful when an installation must be made in a tight space or hard-to-work area. The pre-setting tool allows the major portion of the installation work to occur in a more favorable work setting with only the completion of the installation in the hard-to-work area.

#### Pre-setting Instructions

Secure the pre-setting tool in a vise.

Remove the protective nut and assemble the SSP nut and ferrules loosely to the pre-setting tool. Insert the tubing through the nut and ferrules until it bottoms in the pre-setting tool, and then follow the standard SSP tube fitting installation instructions. (See Figures 08a and 08b.)





(3) Loosen the nut and remove the tubing with the pre-set SSP tube fitting ferrules and nut from the pre-setting tool. (See Figure 09.)



(4) Installation of the tubing, with the pre-set SSP tube fitting ferrule and nut in the appropriate fitting body can now be made by following the standard reassembly instructions. (See Figures 10a and 10b.)



(5)

Return the protective nut to the presetting tool.

NOTE: To extend the life of a pre-setting tool, lubricate the tool with a lubricant compatible with the system's tubing material, environment and media. Also, at times an over- sized or very soft tubing may tend to stick in the presetting tool after make up. To remove the tubing, gently rock the tubing back and forth. Never turn the tube with pliers or another tool as such action may damage the sealing surfaces.

# Gageability

Each SSP tube fitting component is manufactured with utmost precision to provide the optimum performance interaction of the components during assembly. By maintaining such stringent manufacturing tolerances, SSP tube fittings are considered gageable for sufficient pull-up during initial installation. The SSP tube fitting "Gap Gages" are designed to identify for the installer or inspector, prior to pressurizing a system, that sufficient tightening of the tube fitting has occurred. Gageability provides additional reliability for proper installation and ultimate tube fitting safety and performance.

#### Gap Gage Instructions

- Follow proper installation instructions

   (as supplied with the fittings, or published in the SSP tube fittings catalog).
- 2 After completion of the installation instructions and prior to pressuring the system, choose the proper size Gap Gage and try to insert it between the fitting's nut and body hex. (See Figure 11a and 11b.)





No additional tightening required.

Additional tightening required.

(3) If the Gap Gage will not enter between the fitting's nut and body hex, no additional tightening is required.

(4) If the Gap Gage will enter between the fitting's nut and body hex, additional tightening is required.

	STAINLESS STEEL TUBING – Wall Thickness .010" to .049" Maximum Allowable Working Pressure (PSIG)							
Tube O.D.		Wall Thickness of Tube (In.)						
Size (In.)	.010	.012	.014	.016	.020	.028	.035	.049
1/16	5600	6850	8150	9500	12100			
1/8						8550	11000	
3/16						5450	7000	10300
1/4						4000	5100	7500
5/16							4050	5850
3/8							3300	4800
1/2							2450	3500
5/8								2950
3/4								2400
7/8								2050
1		Note:	For light	gas servi				
1-1/4			Note: For light gas service, use tubing with wall thickness outside of shaded area.					
1-1/2								
2								

(Wall Thicknesses .065" through .188" are on the following page.)

Calculation Basis: Annealed, seamless 304 or 316 stainless steel tubing ASTM A-269 or equivalent. System temperatures between -20°F and 100°F with allowable stress of 137 MPA. Ultimate tensile strength of 517MPA. Safety factor of 4.

Reference: ANSI B31.3 Code. (For more specific working pressure information regarding a particular tubing, consult with the actual manufacturer of the tubing.)

Note: For welded and drawn tubing, a derating factor must be utilized. For double welded tube, multiply the above pressure rating by .85; and for single welded tube by .80 (ANSI B 31, Table A-1B). Suggested Tube Ordering Information: Specify the outside diameter and wall thickness of annealed, seamless or welded and drawn 316 or 304 stainless steel tubing of ASTM A-269, A-249, A-213 or equivalent. Also specify high quality tubing to be free of scratches and suited for bending with material hardness not to exceed Rb 90.

## Technical Data

	STAINLESS STEEL TUBING – Wall Thickness .065" to .188" Maximum Allowable Working Pressure (PSIG)							
Tube O.D.		Wall Thickness of Tube (in.)						
Size (In.)	.065	.083	.095	.109	.120	.134	.156	.188
1/16								
1/8					Not	e: For ligh	t ass sor	vice
3/16					use tu	ibing with	n wall thio	kness
1/4	10300				outside of shaded area.			ea.
5/16	8050							
3/8	6550							
1/2	4750	6250						
5/8	4000	5200	6050					
3/4	3300	4250	4950	5800				
7/8	2800	3600	4200	4850				
1	2400	3150	3650	4200	4700			
1-1/4		2450	2850	3300	3650	4150	4900	
1-1/2			2350	2700	3000	3400	4000	4900
2				2000	2200	2500	2900	3600

(Wall Thicknesses .010" through .049" are on the previous page.)

Calculation Basis: Annealed, seamless 304 or 316 stainless steel tubing ASTM A-269 or equivalent. System temperatures between -20°F and 100°F with allowable stress of 20,000 psi. Ultimate tensile strength of 75,000 psi. Safety factor of 4.

**Reference:** ANSI B31.3 Code. (For more specific working pressure information regarding a particular tubing, consult with the actual manufacturer of the tubing.) Multiply stainless steel rating by 0.94 for working pressure in accordance with ASME B31.1.

Note: For welded and drawn tubing, a derating factor must be utilized. For double welded tube, multiply the above pressure rating by .85; and for single welded tube by .80 (ANSI B 31, Table A-1B). Suggested Tube Ordering Information: Specify the outside diameter and wall thickness of annealed, seamless or welded and drawn 316 or 304 stainless steel tubing of ASTM A-269, A-249, A-213 or equivalent. Also specify high quality tubing to be free of scratches, and suited for bending with material hardness not to exceed Rb 90.

#### **Technical Data**

	STAINLESS STEEL TUBING Maximum Allowable Working Pressure (bar)										
Tube O.D.				Wall	Thickr	ness of	Tube	(mm)			
Size (mm)	0.8	1.0	1.2	1.5	1.8	2.0	2.2	2.5	2.8	3.0	3.5
3	670										
6	310	420	540	710							
8		310	390	520						light g tubing	
10		240	300	400	510	580				ess out ed area	
12		200	250	330	410	470					
14		160	200	270	340	380	430				
15		150	190	250	310	360	400				
16			170	230	290	330	370	400			
18			150	200	260	290	320	370			
20			140	180	230	260	290	330	380		
22			140	160	200	230	260	300	340		
25					180	200	230	260	290	320	

Calculation Basis: Annealed, seamless 304 or 316 stainless steel tubing EN ISO 1127 or equivalent (from ASME B31.3). System temperatures between -20°F and 100°F with allowable stress of 1370 bar (20,000 psi). Ultimate tensile strength of 5170 bar (75,000 psi). Safety factor of 4.

**Reference:** ANSI B31.3 Code. (For more specific working pressure information regarding a particular tubing, consult with the actual manufacturer of the tubing.) Multiply stainless steel rating by 0.94 for working pressure in accordance with ASME B31.1.

Note: For welded and drawn tubing, a derating factor must be utilized. For double welded tube, multiply the above pressure rating by .85; and for single welded tube. 80 (ANSI B 31, Table A-1B). Suggested Tube Ordering Information: Specify the outside diameter and wall thickness of annealed, seamless or welded and drawn 316 or 304 stainless steel tubing of EN ISO 1127 or equivalent. Also specify high quality tubing to be free of scratches, and suited for bending with material hardness not to exceed Rb 90 (200 HV).

MC Male Connector - NPT For Fractional Tube



Unilok	Tube	NPT
Part #	O.D.	Male Pipe
	(in.)	(in.)
U3MC2	3/16	1/8
U3MC4	3/16	1/4
U4MC2	1/4	1/8
U4MC4	1/4	1/4
U6MC2	3/8	1/8
U6MC4	3/8	1/4
U6MC6	3/8	3/8
U6MC8	3/8	1/2
U8MC2	1/2	1/8
U8MC4	1/2	1/4
U8MC6	1/2	3/8
U8MC8	1/2	1/2
U10MC2	5/8	1/8
U10MC4	5/8	1/4
U10MC6	5/8	3/8
U10MC8	5/8	1/2
U10MC12	5/8	3/4
U12MC2	3/4	1/8
U12MC4	3/4	1/4
U12MC6	3/4	3/8
U12MC8	3/4	1/2
U12MC12	3/4	3/4
U14MC4	7/8	1/4
U14MC6	7/8	3/8
U14MC8	7/8	1/2
U16MC6	1	3/8
U16MC8	1	1/2
U16MC12	1	3/4

MCRS Male Connector -ISO Parallel For Fractional Tube



Unilok Part #	Tube O.D. (in.)	ISO Male Pipe (in.)
U2MCRS2	1/8	1/8
U2MCRS4	1/8	1/4
U2MCRS6	1/8	3/8
U4MCRS2	1/4	1/8
U4MCRS4	1/4	1/4
U4MCRS6	1/4	3/8
U4MCRS8	1/4	1/2
U6MCRS4	3/8	1/4
U6MCRS6	3/8	3/8
U6MCRS8	3/8	1/2
U8MCRS4	1/2	1/4
U8MCRS6	1/2	3/8
U8MCRS8	1/2	1/2
U12MCRS8	3/4	1/2
U12MCRS12	3/4	3/4
U16MCRS8	1	1/2
U16MCRS16	1	1

NOTE: RS threaded fittings conform to ISO standards 228-1. The standard gasket for RS fittings is a 300 series stainless steel outer ring with a Viton® inner ring bonded to it.

**MCRT** Male Connector -ISO Tapered For Fractional Tube



Unilok Part #	Tube O.D. (in.)	ISO Male Pipe (in.)
U2MCRT2	1/8	1/8
U2MCRT4	1/8	1/4
U4MCRT2	1/4	1/8
U4MCRT4	1/4	1/4
U4MCRT6	1/4	3/8
U4MCRT8	1/4	1/2
U5MCRT2	5/16	1/8
U5MCRT4	5/16	1/4
U6MCRT2	3/8	1/8
U6MCRT4	3/8	1/4
U6MCRT6	3/8	3/8
U6MCRT8	3/8	1/2
U8MCRT4	1/2	1/4
U8MCRT6	1/2	3/8
U8MCRT8	1/2	1/2
U8MCRT12	1/2	3/4
U12MCRT12	3/4	3/4
U16MCRT16	1	1

**NOTE:** RT threaded fittings conform to ISO standards 7-1.

**BMC** Bulkhead Male Connector - NPT For Fractional Tube



Unilok Part #	Tube O.D. (in.)	NPT Male Pipe (in.)
U2BMC2	1/8	1/8
U4BMC2	1/4	1/8
U4BMC4	1/4	1/4
U6BMC4	3/8	1/4
U8BMC6	1/2	3/8
U8BMC8	1/2	1/2

MCBT Male Connector Bored Through - NPT For Fractional Tube



Unilok Part #	Tube O.D. (in.)	NPT Male Pipe (in.)
U1MCBT1	1/16	1/16
U1MCBT2	1/16	1/8
U2MCBT1	1/8	1/16
U2MCBT2	1/8	1/8
U2MCBT4	1/8	1/4
U3MCBT2	3/16	1/8
U3MCBT4	3/16	1/4
U4MCBT2	1/4	1/8
U4MCBT4	1/4	1/4
U4MCBT6	1/4	3/8
U4MCBT8	1/4	1/2
U5MCBT4	5/16	1/4
U6MCBT4	3/8	1/4
U6MCBT6	3/8	3/8
U6MCBT8	3/8	1/2
U8MCBT8	1/2	1/2
U10MCBT12	5/8	3/4
U12MCBT12	3/4	3/4
U16MCBT16	1	1





Unilok Part #	Tube O.D. (in.)	NPT Male Pipe (in.)
U4M45E2	1/4	1/8
U4M45E4	1/4	1/4
U6M45E2	3/8	1/8
U6M45E4	3/8	1/4
U6M45E6	3/8	3/8
U8M45E6	1/2	3/8

**ME** Male Elbow - NPT For Fractional Tube



Unilok Part #	Tube O.D. (in.)	NPT Male Pipe (in.)
U1ME1	1/16	1/16
U1ME2	1/16	1/8
U2ME1	1/8	1/16
U2ME2	1/8	1/8
U2ME4	1/8	1/4
U3ME2	3/16	1/8
U3ME4	3/16	1/4
U4ME2	1/4	1/8
U4ME4	1/4	1/4
U4ME6	1/4	3/8
U4ME8	1/4	1/2
U5ME2	5/16	1/8
U5ME4	5/16	1/4
U5ME6	5/16	3/8
U6ME2	3/8	1/8
U6ME4	3/8	1/4
U6ME6	3/8	3/8
U6ME8	3/8	1/2
U6ME12	3/8	3/4
U8ME4	1/2	1/4
U8ME6	1/2	3/8
U8ME8	1/2	1/2
U8ME12	1/2	3/4
U10ME6	5/8	3/8
U10ME8	5/8	1/2
U10ME12	5/8	3/4
U12ME8	3/4	1/2
U12ME12	3/4	3/4
U14ME12	7/8	3/4
U16ME12	1	3/4
U16ME16	1	1

**MERT** Male Elbow -ISO Tapered For Fractional Tube



Unilok Part #	Tube O.D. (in.)	ISO Male Pipe (in.)
U2MERT2	1/8	1/8
U4MERT2	1/4	1/8
U4MERT4	1/4	1/4
U4MERT6	1/4	3/8
U4MERT8	1/4	1/2
U5MERT4	5/16	1/4
U6MERT2	3/8	1/8
U6MERT4	3/8	1/4
U6MERT6	3/8	3/8
U6MERT8	3/8	1/2
U8MERT4	1/2	1/4
U8MERT6	1/2	3/8
U8MERT8	1/2	1/2

**NOTE:** RT threaded fittings conform to ISO standards 7-1.

#### **MBT** Male Branch Tee - NPT For Fractional Tube



Unilok Part #	Tube O.D. (in.)	NPT Male Pipe (in.)
U2MBT2	1/8	1/8
U2MBT4	1/8	1/4
U3MBT2	3/16	1/8
U4MBT2	1/4	1/8
U4MBT4	1/4	1/4
U5MBT2	5/16	1/8
U6MBT4	3/8	1/4
U6MBT6	3/8	3/8
U8MBT6	1/2	3/8
U8MBT8	1/2	1/2
U10MBT8	5/8	1/2
U12MBT12	3/4	3/4

**MRT** Male Run Tee - NPT For Fractional Tube



Unilok Part #	Tube O.D. (in.)	NPT Male Pipe (in.)
U2MRT2	1/8	1/8
U2MRT4	1/8	1/4
U3MRT2	3/16	1/8
U4MRT2	1/4	1/8
U4MRT4	1/4	1/4
U5MRT2	5/16	1/8
U6MRT4	3/8	1/4
U6MRT6	3/8	3/8
U8MRT6	1/2	3/8
U8MRT8	1/2	1/2
U10MRT8	5/8	1/2
U12MRT12	3/4	3/4

#### Tube to Female Pipe

FC Female Connector - FNPT For Fractional Tube



Unilok Part #	Tube O.D. (in.)	NPT Female Pipe (in.)
U1FC1	1/16	1/16
U1FC2	1/16	1/8
U2FC2	1/8	1/8
U2FC4	1/8	1/4
U3FC2	3/16	1/8
U4FC2	1/4	1/8
U4FC4	1/4	1/4
U4FC6	1/4	3/8
U4FC8	1/4	1/2
U5FC2	5/16	1/8
U5FC4	5/16	1/4
U6FC2	3/8	1/8
U6FC4	3/8	1/4
U6FC6	3/8	3/8
U6FC8	3/8	1/2
U6FC12	3/8	3/4
U8FC4	1/2	1/4
U8FC6	1/2	3/8
U8FC8	1/2	1/2
U8FC12	1/2	3/4
U10FC6	5/8	3/8
U10FC8	5/8	1/2
U12FC8	3/4	1/2
U12FC12	3/4	3/4
U14FC12	7/8	3/4
U16FC12	1	3/4
U16FC16	1	1

**BFC** Bulkhead Female Connector - FNPT For Fractional Tube



Unilok Part #	Tube O.D. (in.)	NPT Female Pipe (in.)
U2BFC2	1/8	1/8
U4BFC2	1/4	1/8
U4BFC4	1/4	1/4
U6BFC4	3/8	1/4
U8BFC6	1/2	3/8
U8BFC8	1/2	1/2

#### Tube to Female Pipe

FE Female Elbow - FNPT For Fractional Tube



Unilok Part #	Tube O.D. (in.)	NPT Female Pipe (in.)
U2FE2	1/8	1/8
U2FE4	1/8	1/4
U3FE2	3/16	1/8
U4FE2	1/4	1/8
U4FE4	1/4	1/4
U4FE6	1/4	3/8
U4FE8	1/4	1/2
U5FE2	5/16	1/8
U5FE4	5/16	1/4
U6FE2	3/8	1/8
U6FE4	3/8	1/4
U6FE6	3/8	3/8
U6FE8	3/8	1/2
U8FE4	1/2	1/4
U8FE6	1/2	3/8
U8FE8	1/2	1/2
U10FE6	5/8	3/8
U10FE8	5/8	1/2
U12FE8	3/4	1/2
U12FE12	3/4	3/4
U14FE12	7/8	3/4
U16FE12	1	3/4
U16FE16	1	1

**FBT** Female Branch Tee - FNPT For Fractional Tube



Unilok Part #	Tube O.D. (in.)	NPT Female Pipe (in.)
U2FBT2	1/8	1/8
U4FBT2	1/4	1/8
U4FBT4	1/4	1/4
U6FBT4	3/8	1/4
U8FBT4	1/2	1/4
U8FBT6	1/2	3/8
U8FBT8	1/2	1/2
U10FBT8	5/8	1/2
U12FBT12	3/4	3/4
U16FBT12	1	3/4
U16FBT16	1	1

#### Tube to Female Pipe

**FRT** Female Run Tee - FNPT For Fractional Tube



Unilok Part #	Tube O.D. (in.)	NPT Female Pipe (in.)
U2FRT2	1/8	1/8
U4FRT2	1/4	1/8
U4FRT4	1/4	1/4
U6FRT4	3/8	1/4
U8FRT6	1/2	3/8
U8FRT8	1/2	1/2
U12FRT12	3/4	3/4

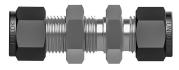
#### Tube to Tube Union





Unilok Part #	Tube O.D. (in.)
U1U	1/16
U2U	1/8
U3U	3/16
U4U	1/4
U5U	5/16
U6U	3/8
U8U	1/2
U10U	5/8
U12U	3/4
U14U	7/8
U16U	1

**BU** Bulkhead Union For Fractional Tube



Unilok Part #	Tube O.D. (in.)
U1BU	1/16
U2BU	1/8
U3BU	3/16
U4BU	1/4
U5BU	5/16
U6BU	3/8
U8BU	1/2
U10BU	5/8
U12BU	3/4
U16BU	1

#### **BRU** Bulkhead Reducing Union For Fractional Tube

Unilok Part #	Tube 1 O.D. (in.)	Tube 2 O.D. (in.)
U4BRU2	1/4	1/8
U6BRU4	3/8	1/4
U8BRU4	1/2	1/4
U8BRU6	1/2	3/8



#### **RU** Reducing Union For Fractional Tube



Unilok Part #	Tube 1 O.D. (in.)	Tube 2 O.D. (in.)
U2RU1	1/8	1/16
U3RU1	3/16	1/16
U3RU2	3/16	1/8
U4RU1	1/4	1/16
U4RU2	1/4	1/8
U4RU3	1/4	3/16
U5RU2	5/16	1/8
U5RU4	5/16	1/4
U6RU1	3/8	1/16
U6RU2	3/8	1/8
U6RU4	3/8	1/4
U6RU5	3/8	5/16
U8RU2	1/2	1/8
U8RU4	1/2	1/4
U8RU6	1/2	3/8
U10RU6	5/8	3/8
U10RU8	5/8	1/2
U12RU4	3/4	1/4
U12RU6	3/4	3/8
U12RU8	3/4	1/2
U12RU10	3/4	5/8
U16RU8	1	1/2
U16RU12	1	3/4

#### **UE** Union Elbow For Fractional Tube



Unilok Part #	Tube O.D. (in.)
U1UE	1/16
U2UE	1/8
U3UE	3/16
U4UE	1/4
U5UE	5/16
U6UE	3/8
U8UE	1/2
U10UE	5/8
U12UE	3/4
U14UE	7/8
U16UE	1

UCS Union Cross For Fractional Tube



Unilok Part #	Tube O.D. (in.)
U2UCS	1/8
U4UCS	1/4
U5UCS	5/16
U6UCS	3/8
U8UCS	1/2
U12UCS	3/4
U16UCS	1

**UT** Union Tee For Fractional Tube



Unilok Part #	Tube O.D. (in.)
U1UT	1/16
U2UT	1/8
U3UT	3/16
U4UT	1/4
U5UT	5/16
U6UT	3/8
U8UT	1/2
U10UT	5/8
U12UT	3/4
U14UT	7/8
U16UT	1

**RUT** Reducing Union Tee -Configuration A For Fractional Tube



Unilok Part #	Tube 1 O.D. (in.)	Tube 2 O.D. (in.)
U6RUT64	3/8	1/4
U8RUT84	1/2	1/4
U8RUT86	1/2	3/8
U10RUT106	5/8	3/8
U12RUT126	3/4	3/8
U12RUT128	3/4	1/2
U16RUT166	1	3/8
U16RUT168	1	1/2
U16RUT1612	1	3/4

**RUT** Reducing Union Tee -Configuration B For Fractional Tube

Unilok Part #	Tube 1 O.D. (in.)	Tube 2 O.D. (in.)
U6RUT46	3/8	1/4

**RUT** Reducing Union Tee -Configuration C For Fractional Tube

Unilok Part #	Tube 1 O.D. (in.)	Tube 2 O.D. (in.)
U8RUT66	1/2	3/8
U10RUT66	5/8	3/8
U12RUT66	3/4	3/8

**RUT** Reducing Union Tee -Configuration D For Fractional Tube

Unilok Part #	Tube 1 O.D. (in.)	Tube 2 O.D. (in.)	Tube 3 O.D. (in.)
U10RUT86	5/8	1/2	3/8
U12RUT86	3/4	1/2	3/8
U16RUT126	1	3/4	3/8

**DA** Dielectric Adapter For Fractional Tube

Unilok Part #	Tube End 1 (in.)	Tube End 2 (in.)
U8DA6	3/8	1/2



The SSP Instrumentation Dielectric Adapter is supplied with pre-swaged 3/8" nut and ferrules. The dielectric connection has a captive 1/2" nut. Dielectric Stop Collar and assembly instructions are also supplied with the adapter. By using 3/8" and 1/2" tube-ended SSP Instrumentation tube fittings with the adapter, a wide range of dielectric fitting configurations can be built.

**DU** Dielectric Union For Fractional Tube

Unilok Part #	Length (in.)
U4DU	4.08
U6DU	4.20
U8DU	4.79
U6DMC4	3.80



Dielectric fittings are designed to isolate monitoring and control instruments and equipment from electrical current and voltages. Manufactured in 316 stainless steel with thermoplastic insulators, SSP Instrumentation's dielectric fittings provide high dielectric strength in applications up to 5,000 PSIG. Typical applications for dielectric fittings are on impulse lines in natural gas pipeline monitoring stations. For additional factory assembled configurations, contact your local distributor.

#### Materials and Technical Data

Body: 316 Stainless Steel Insulator: Polyetherimide Pressure Rating: 5,000 PSIG Temperature Rating: From -40°F to +200°F Electrical Resistance: 1.0 x 10E7 Ohm at 70°F (20°C) at 10 VDC @ 50% relative humidity; voltage breakdown resistance of 3,000 VDC.

#### Tube to Welded Systems

**TSWU** Tube Socket Weld Connector

For Fractional Tube



Unilok Part #	Tube Size (in.)
U2TSWU2	1/8
U4TSWU4	1/4
U6TSWU6	3/8
U8TSWU8	1/2
U12TSWU12	3/4
U16TSWU16	1

**TSWE** Tube Socket Weld Elbow

For Fractional Tube



Unilok Part #	Tube Size (in.)
U4TSWE4	1/4
U6TSWE6	3/8
U8TSWE8	1/2

#### Tube to Welded Systems

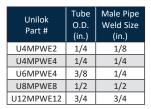
**MPWC** Male Pipe Weld Connector

For Fractional Tube



		Male
Unilok	Tube	Pipe
Part #	0.D.	Weld
Fall#	(in.)	Size
		(in.)
U2MPWC2	1/8	1/8
U3MPWC2	3/16	1/8
U4MPWC2	1/4	1/8
U4MPWC4	1/4	1/4
U5MPWC2	5/16	1/8
U5MPWC4	5/16	1/4
U6MPWC4	3/8	1/4
U6MPWC6	3/8	3/8
U6MPWC8	3/8	1/2
U8MPWC6	1/2	3/8
U8MPWC8	1/2	1/2
U8MPWC12	1/2	3/4
U10MPWC8	5/8	1/2
U12MPWC12	3/4	3/4
U16MPWC16	1	1

**MPWE** Male Pipe Weld Elbow For Fractional Tube





# Tube Stub Connectors / Adapters

BR

Bulkhead Reducer / Adapter For Fractional Tube

Unilok Part #	Tube O.D. (in.)
U2BR2	1/8
U4BR4	1/4
U6BR6	3/8
U8BR8	1/2



**MA** Male Adapter - NPT For Fractional Tube



Unilok Part #	Tube O.D. (in.)	NPT Male Pipe (in.)
U2MA2	1/8	1/8
U2MA4	1/8	1/4
U3MA2	3/16	1/8
U3MA4	3/16	1/4
U4MA2	1/4	1/8
U4MA4	1/4	1/4
U4MA6	1/4	3/8
U4MA8	1/4	1/2
U5MA2	5/16	1/8
U5MA4	5/16	1/4
U6MA2	3/8	1/8
U6MA4	3/8	1/4
U6MA6	3/8	3/8
U6MA8	3/8	1/2
U8MA4	1/2	1/4
U8MA6	1/2	3/8
U8MA8	1/2	1/2
U10MA8	5/8	1/2
U12MA8	3/4	1/2
U12MA12	3/4	3/4
U16MA12	1	3/4
U16MA16	1	1

# Tube Stub Connectors / Adapters

**FA** Female Adapter - FNPT For Fractional Tube



Unilok Part #	Tube O.D. (in.)	NPT Female Pipe (in.)
U2FA2	1/8	1/8
U2FA4	1/8	1/4
U3FA4	3/16	1/4
U4FA2	1/4	1/8
U4FA4	1/4	1/4
U4FA6	1/4	3/8
U4FA8	1/4	1/2
U5FA4	5/16	1/4
U6FA2	3/8	1/8
U6FA4	3/8	1/4
U6FA6	3/8	3/8
U6FA8	3/8	1/2
U8FA4	1/2	1/4
U8FA6	1/2	3/8
U8FA8	1/2	1/2
U10FA8	5/8	1/2
U12FA8	3/4	1/2
U12FA12	3/4	3/4
U12FA16	3/4	1
U16FA12	1	3/4
U16FA16	1	1

## Tube Stub Connectors / Adapters





Unilok Part #	Tube 1 O.D. (in.)	Tube 2 O.D. (in.)
U1R2	1/16	1/8
U1R4	1/16	1/4
U2R1	1/8	1/16
U2R2	1/8	1/8
U2R3	1/8	3/16
U2R4	1/8	1/4
U2R6	1/8	3/8
U2R8	1/8	1/2
U3R2	3/16	1/8
U3R4	3/16	1/4
U4R2	1/4	1/8
U4R3	1/4	3/16
U4R4	1/4	1/4
U4R5	1/4	5/16
U4R6	1/4	3/8
U4R8	1/4	1/2
U4R10	1/4	5/8
U4R12	1/4	3/4
U5R6	5/16	3/8
U5R8	5/16	1/2
U6R4	3/8	1/4
U6R6	3/8	3/8
U6R8	3/8	1/2
U6R10	3/8	5/8
U6R12	3/8	3/4
U8R4	1/2	1/4
U8R6	1/2	3/8
U8R8	1/2	1/2
U8R10	1/2	5/8
U8R12	1/2	3/4
U8R16	1/2	1
U10R12	5/8	3/4
U10R14	5/8	7/8
U10R16	5/8	1
U12R8	3/4	1/2
U12R16	3/4	1

**NOTE:** For Heat Exchanger Tee applications, certain Reducer / Adapter fittings can be "bored through" to accommodate a process tube's insertion. Consult with the local distributor for further information on "bored through" Reducer / Adapter (RBT) fittings.

## Tube Stub Connectors / Adapters

### PC

Port Connector For Fractional Tube



Unilok Part #	Tube O.D. (in.)
U1PC	1/16
U2PC	1/8
U4PC	1/4
U5PC	5/16
U6PC	3/8
U8PC	1/2
U12PC	3/4
U16PC	1

#### **RPC** Reducing Port Connector For Fractional Tube



Unilok Part #	Tube 1 O.D. (in.)	Tube 2 O.D. (in.)
U2RPC1	1/8	1/16
U4RPC1	1/4	1/16
U4RPC2	1/4	1/8
U6RPC2	3/8	1/8
U6RPC4	3/8	1/4
U8RPC4	1/2	1/4
U8RPC6	1/2	3/8
U12RPC8	3/4	1/2

## Tube Stub Connectors / Adapters

#### **HBA** Hose Barb Adapter For Fractional Tube



Unilok Part #	Hose I.D. (in.)	Tube Size (in.)
U2HBA2	1/8	1/8
U2HBA4	1/8	1/4
U4HBA4	1/4	1/4
U4HBA6	1/4	3/8
U5HBA4	5/16	1/4
U6HBA6	3/8	3/8
U6HBA8	3/8	1/2
U8HBA6	1/2	3/8
U8HBA8	1/2	1/2
U12HBA12	3/4	3/4



Unilok Part #	Tube O.D. (in.)
U4CU1	1/4





Unilok Part #	Tube O.D. (in.)
U4CU2	1/4



# Unilok to 37 $^{\circ}$ Flare

**ANU** AN Union For Fractional Tube



Unilok Part #	Tube O.D. (in.)	AN Tube Flare Size (in.)
U1ANU2	1/16	1/8
U2ANU2	1/8	1/8
U2ANU4	1/8	1/4
U4ANU4	1/4	1/4
U5ANU5	5/16	5/16
U6ANU4	3/8	1/4
U6ANU6	3/8	3/8
U8ANU8	1/2	1/2
U12ANU12	3/4	3/4
U16ANU16	1	1

**ANBU** AN Bulkhead Union For Fractional Tube



Unilok Part #	Tube O.D. (in.)	AN Tube Flare Size (in.)
U4ANBU4	1/4	1/4
U6ANBU6	3/8	3/8
U8ANBU8	1/2	1/2
U12ANBU12	3/4	3/4
U16ANBU16	1	1

**ANF** Female AN Adapter For Fractional Tube



Unilok Part #	Tube O.D. (in.)	AN Flare Size (in.)
U2ANF2	1/8	1/8
U2ANF4	1/8	1/4
U4ANF4	1/4	1/4
U6ANF6	3/8	3/8
U8ANF8	1/2	1/2

# Unilok to 37 $^\circ$ Flare





Unilok Part #	Tube O.D. (in.)	AN Tube Flare Size (in.)
U4ANA4	1/4	1/4
U6ANA4	3/8	1/4
U6ANA6	3/8	3/8
U8ANA8	1/2	1/2
U12ANA12	3/4	3/4
U16ANA16	1	1

### Tube to O-Ring Seal

OMC O-Ring Seal Male Connector\* For Fractional Tube



Unilok Part #	Tube O.D. (in.)	NPT* Male Pipe (in.)
U2OMC2	1/8	1/8
U40MC2	1/4	1/8
U40MC4	1/4	1/4
U60MC4	3/8	1/4
U60MC6	3/8	3/8
U60MC8	3/8	1/2
U80MC8	1/2	1/2

\*Connects to Female Short NPT Thread

**OSC** O-Ring Seal Male Straight Thread Connector\* For Fractional Tube



Unilok Part #	Tube O.D. (in.)	Thread Size
U1OSC2	1/16	5/16 - 24
U2OSC2	1/8	5/16 - 24
U3OSC3	3/16	3/8 - 24
U4OSC4	1/4	7/16 - 20
U5OSC5	5/16	1/2 - 20
U6OSC6	3/8	9/16 - 18
U8OSC8	1/2	3/4 - 16
U12OSC12	3/4	1-1/16 - 12
U160SC16	1	1-5/16 - 12

\*Connects to Female Straight Thread - SAE J1926

# Tube to SAE / MS

**MCST** 

Male Connector -Straight Thread Boss For Fractional Tube

Unilok Part #	Tube O.D. (in.)	Thread Size
U2MCST2	1/8	5/16 - 24
U4MCST4	1/4	7/16 - 20
U4MCST6	1/4	9/16 - 18
U4MCST8	1/4	3/4 - 16
U4MCST10	1/4	7/8 - 14
U5MCST5	5/16	1/2 - 20
U6MCST4	3/8	7/16 - 20
U6MCST6	3/8	9/16 - 18
U6MCST8	3/8	3/4 - 16
U6MCST10	3/8	7/8 - 14
U8MCST6	1/2	9/16 - 18
U8MCST8	1/2	3/4 - 16
U8MCST10	1/2	7/8 - 14
U8MCST12	1/2	1-1/16 - 12
U10MCST8	5/8	3/4 - 16
U10MCST10	5/8	7/8 - 14
U12MCST8	3/4	3/4 - 16
U12MCST12	3/4	1-1/16 - 12
U14MCST14	7/8	1-3/16 - 12
U16MCST12	1	1-1/16 - 12
U16MCST16	1	1-5/16 - 12

90 Durometer Viton<sup>®</sup> O-Ring is standard. Other O-Ring compounds are available.

**MEST** Male Elbow -Straight Thread Boss For Fractional Tube



Unilok Part #	Tube O.D. (in.)	SAE / MS Thread Size
U4MEST4	1/4	7/16 - 20
U4MEST6	1/4	9/16 - 18
U5MEST5	5/16	1/2 - 20
U6MEST4	3/8	7/16 - 20
U6MEST6	3/8	9/16 - 18
U6MEST8	3/8	3/4 - 16
U8MEST6	1/2	9/16 - 18
U8MEST8	1/2	3/4 - 16
U10MEST10	5/8	7/8 - 14
U12MEST12	3/4	1-1/16 - 12
U16MEST16	1	1-5/16 - 12

90 Durometer Viton<sup>®</sup> O-Ring is standard. Other O-Ring compounds are available.

# Tube to SAE / MS

**M45EST** 45° Male Elbow -Straight Thread Boss For Fractional Tube



Unilok Part #	Tube O.D. (in.)	SAE / MS Thread Size
U4M45EST4	1/4	7/16 - 20
U6M45EST6	3/8	9/16 - 18
U8M45EST8	1/2	3/4 - 16
U12M45EST12	3/4	1-1/16 - 12
U16M45EST16	1	1-5/16 - 12

90 Durometer Viton<sup>®</sup> O-Ring is standard. Other O-Ring compounds are available.

**MBTST** Male Branch Tee - Straight Thread Boss For Fractional Tube

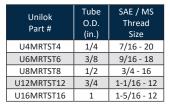


Unilok Part #	Tube O.D. (in.)	SAE / MS Thread Size
U4MBTST4	1/4	7/16 - 20
U6MBTST6	3/8	9/16 - 18
U8MBTST8	1/2	3/4 - 16
U12MBTST12	3/4	1-1/16 - 12
U16MBTST16	1	1-5/16 - 12

90 Durometer Viton<sup>®</sup> O-Ring is standard. Other O-Ring compounds are available.

## Tube to SAE / MS

**MRTST** Male Run Tee -Straight Thread Boss For Fractional Tube





90 Durometer Viton<sup>®</sup> O-Ring is standard. Other O-Ring compounds are available.

### **MAST** Male Adapter -Straight Thread Boss For Fractional Tube



Unilok Part #	Tube O.D. (in.)	SAE / MS Thread Size
U2MAST2	1/8	5/16 - 24
U4MAST4	1/4	7/16 - 20
U6MAST4	3/8	7/16 - 20
U6MAST6	3/8	9/16 - 18
U6MAST8	3/8	3/4 - 16
U8MAST6	1/2	9/16 - 18
U8MAST8	1/2	3/4 - 16
U12MAST12	3/4	1-1/16 - 12
U16MAST16	1	1-5/16 - 12

90 Durometer Viton<sup>®</sup> O-Ring is standard. Other O-Ring compounds are available.

# Cap and Plug

### **CP** Cap For Fractional Tube



Unilok Part #	Tube O.D. (in.)
U1CP	1/16
U2CP	1/8
U3CP	3/16
U4CP	1/4
U5CP	5/16
U6CP	3/8
U8CP	1/2
U10CP	5/8
U12CP	3/4
U14CP	7/8
U16CP	1
U20CP	1-1/4
U24CP	1-1/2

Ρ

Plug For *Fractional* Tube



Unilok Part #	Tube O.D. (in.)
U1P	1/16
U2P	1/8
U3P	3/16
U4P	1/4
U5P	5/16
U6P	3/8
U8P	1/2
U10P	5/8
U12P	3/4
U16P	1
U20P	1-1/4
U24P	1-1/2

### Components

### Ν

NUT For Fractional Tube



Unilok Part #	Tube O.D. (in.)
U1N	1/16
U2N	1/8
U3N	3/16
U4N	1/4
U5N	5/16
U6N	3/8
U8N	1/2
U10N	5/8
U12N	3/4
U14N	7/8
U16N	1

#### **F** Ferrule For Fractional Tube



Unilok Part #	Tube O.D. (in.)
U1F	1/16
U2F	1/8
U3F	3/16
U4F	1/4
U5F	5/16
U6F	3/8
U8F	1/2
U10F	5/8
U12F	3/4
U14F	7/8
U16F	1





A Ferrule Set consists of one front ferrule and is conveniently packaged and sold in multiples of ten per "holding tube" housing.

Unilok Part #	Tube O.D. (in.)
U1FS	1/16
U2FS	1/8
U3FS	3/16
U4FS	1/4
U5FS	5/16
U6FS	3/8
U8FS	1/2

### Components

### **KN** Knurled Nut For Fractional Tube



Unilok Part #	Tube O.D. (in.)
U1KN	1/16
U2KN	1/8
U3KN	3/16
U4KN	1/4
U5KN	5/16
U6KN	3/8
U8KN	1/2
U10KN	5/8
U12KN	3/4
U14KN	7/8
U16KN	1

#### BN

Bulkhead Locknut For Fractional Tube



Unilok Part #	Tube O.D. (in.)
U1BN	1/16
U2BN	1/8
U3BN	3/16
U4BN	1/4
U5BN	5/16
U6BN	3/8
U8BN	1/2
U10BN	5/8
U12BN	3/4
U14BN	7/8
U16BN	1

### Components

**TI** Tube Insert For Fractional Tube



Unilok Part #	Tube O.D. (in.)	Tube I.D. (in.)
U3TI2	3/16	1/8
U4TI2	1/4	1/8
U4TI17	1/4	0.170
U4TI3	1/4	3/16
U5TI2	5/16	1/8
U5TI3	5/16	3/16
U5TI4	5/16	1/4
U6TI3	3/8	3/16
U6TI4	3/8	1/4
U8TI4	1/2	1/4
U8TI6	1/2	3/8
U10TI6	5/8	3/8
U10TI8	5/8	1/2
U12TI8	3/4	1/2
U12TI10	3/4	5/8
U16TI12	1	3/4

DW
Bonded Washer
For Fractional Tube
6

Unilok Part #	ISO Pipe Size (in.)
2DW-BSPP-SS-V	1/8
4DW-BSPP-SS-V	1/4
6DW-BSPP-SS-V	3/8
8DW-BSPP-SS-V	1/2
12DW-BSPP-SS-V	3/4
16DW-BSPP-SS-V	1

Comes standard as a 300 series stainless steel outer ring with a Viton® inner ring bonded to it. Also available with Buna-N.

### SSP Tubing

For Fractional Tube

SSP Part Number	Tube O.D. (in.)	Wall Thickness
RTT3160125X028	1/8	0.028
RTT3160250X035		0.035
RTT3160250X049	1/4	0.049
RTT3160250X065		0.065
RTT3160375X035		0.035
RTT3160375X049	TT3160375X049 3/8	
RTT3160375X065		0.065
RTT3160500X035		0.035
RTT3160500X049	1/2	0.049
RTT3160500X065		0.065
RTT3160625X065	5/8	0.065
RTT3160750X065		0.065
RTT3160750X095	3/4	0.095
RTT3161000X083	1	0.083
RTT3161000X109		0.109

#### Safety

To help ensure the safe and reliable performance of tube fitting products, complete system design must be considered prior to the installation of the tubing and tube fittings. Determining the design compatibility of materials, media, flows, temperatures and pressures; as well as implementing proper installation, operation and maintenance of the system are the responsibility of the systems' owners, designers and users.

#### SSP Safety Reminders

All SSP products are designed and manufactured with safety in mind. The following is a limited list of general safety practices: Do not install, tighten or loosen a tube fitting while the system is under pressure.

Do not loosen a tube fitting, nut or plug to relieve or bleed system pressure.

Always use a back-up wrench to hold the tube fitting body steady when tightening or loosening tube fitting nuts.

There is no need to disassemble a new tube fitting prior to use.

Use proper thread lubricants and sealants on tapered pipe threads.

Very soft, pliable plastic tubing requires a tube insert.

Tube fitting and tubing material should be similar (stainless steel fittings on stainless steel tubing, brass fittings on copper tubing, etc.) with the tubing material being fully annealed. For more specific information, refer to the Selection Guide for Instrumentation Tubing in the Duolok<sup>®</sup> catalog.

Do not weld tube fittings that are assembled. Prior to welding, remove the nut and ferrules and protect the seat and thread area of the tube fitting by covering with a plug or another nut.

#### Unilok<sup>®</sup> Tube Fittings LIFETIME LIMITED WARRANTY

SSP guarantees all Unilok tube fittings and Unilok tube fitting components to be free from defects in materials and workmanship. Additionally, SSP guarantees Unilok product performance to the published catalog specifications when properly installed according to the catalog selection and installation instructions. To initiate a warranty claim, suspected defective product must be returned to SSP with the nature of potential defect documented for factory evaluation. Any product with a determined defect in material or workmanship will be replaced with an equivalent product at no charge.

This warranty comprises the sole and entire warranty pertaining to items provided hereunder. There is no other warranty, guarantee, express or implied representation of any kind whatsoever. All other warranties including, but not limited to, merchantability and fitness for purpose, whether express, implied, or arising by operation of law. Course of dealing, or trade usage are hereby disclaimed. There are no warranties which extend beyond the description on the face hereof; and this warranty does not apply in the case of abuse, mishandling, or normal use depreciation. In no event, whether alleged to arise from breach of contract, express or implied warranty, by operation of law, negligence or otherwise, will SSP be liable for any incidental, consequential, lost property, or other special damages of any kind whatsoever. The exclusive only remedy under this warranty is the replacement of determined defective parts as set forth above. Duolok<sup>®</sup>, Unilok<sup>®</sup>, Griplok<sup>®</sup>, TruFit<sup>®</sup> & FloLok<sup>®</sup> are registered trademarks of SSP Fittings Corp.

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It is the sole responsibility of the system designers and users to properly select and use products for their specific applications. This document has been printed for users with technical expertise as a reference for further investigation to determine specific product needs relative to design requirements.

557

Founded 1926 Privately owned, third generation business Modern single-site vertically integrated manufacturing facility DFARS-compliant raw material ISO 9001 quality management system Limited Lifetime Warranty





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