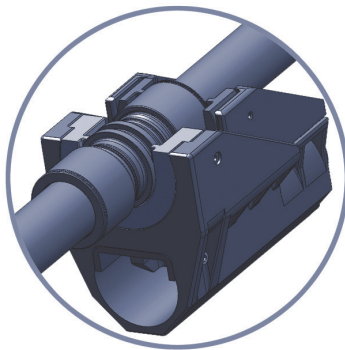
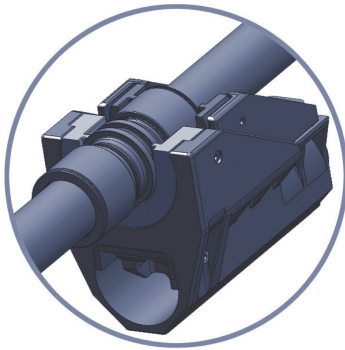


TUBE SOLUTIONS

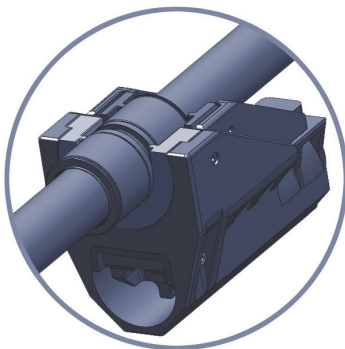
PATENTED WELD EQUIVALENT
Tube Solutions™



PERMANENT
Cold Weld Alternative



ASSEMBLED
Within Minutes

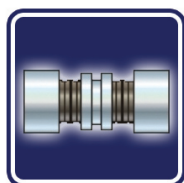


ANSI/ASME
B31.1 B31.3





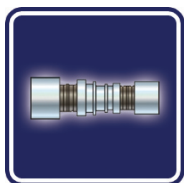
STAINLESS STEEL TUBE FITTINGS



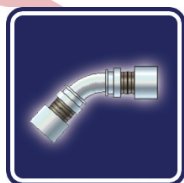
Couplings
Pg.7



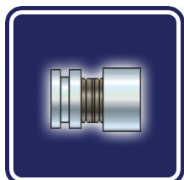
90 Elbows
Pg.13



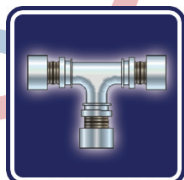
Reducers
Pg.8



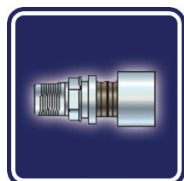
45 Elbows
Pg.14



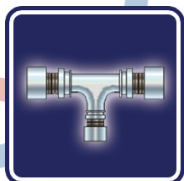
Caps
Pg.9



Tees
Pg.15



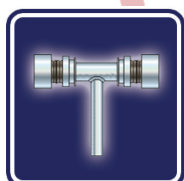
Male Connectors
Pg.10



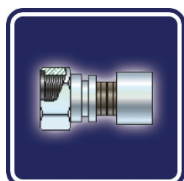
Reducing Branch Tees
Pg.16



Male Connectors
(37° Flare Straight Thread)
Pg.11

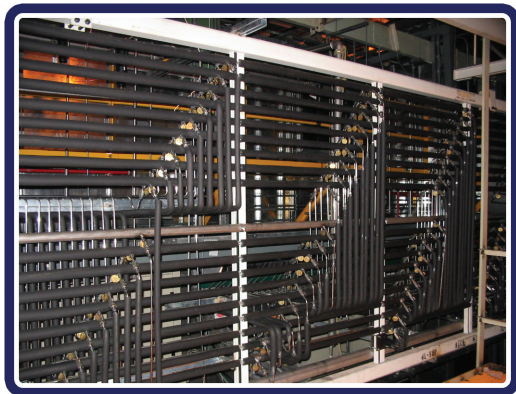


Drop Tees
Pg.17



Female SAE
Connectors
Pg.12

PATENTED WELD EQUIVALENT



LOKRING's stainless steel tube fittings are qualified to the requirements of the ANSI/ASME B31 pressure piping codes for pressure and fatigue design, and materials of construction. Extensive mechanical and environmental testing has demonstrated the mechanical and sealing integrity of the LOKRING connection in a wide range of applications and environmental conditions.

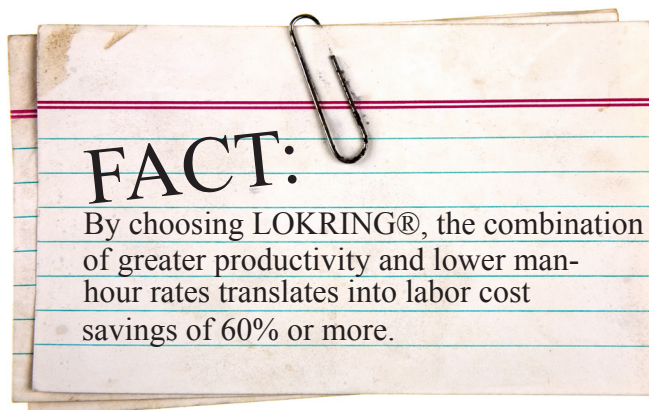
NO WELDS, NO FLANGES NO THREADS, NO LEAKS!

By eliminating welding, many overhead costs relating to safety, personnel, equipment and supplies, inspection rework, and monitoring can be eliminated or substantially reduced.

Some examples of reduced costs are:

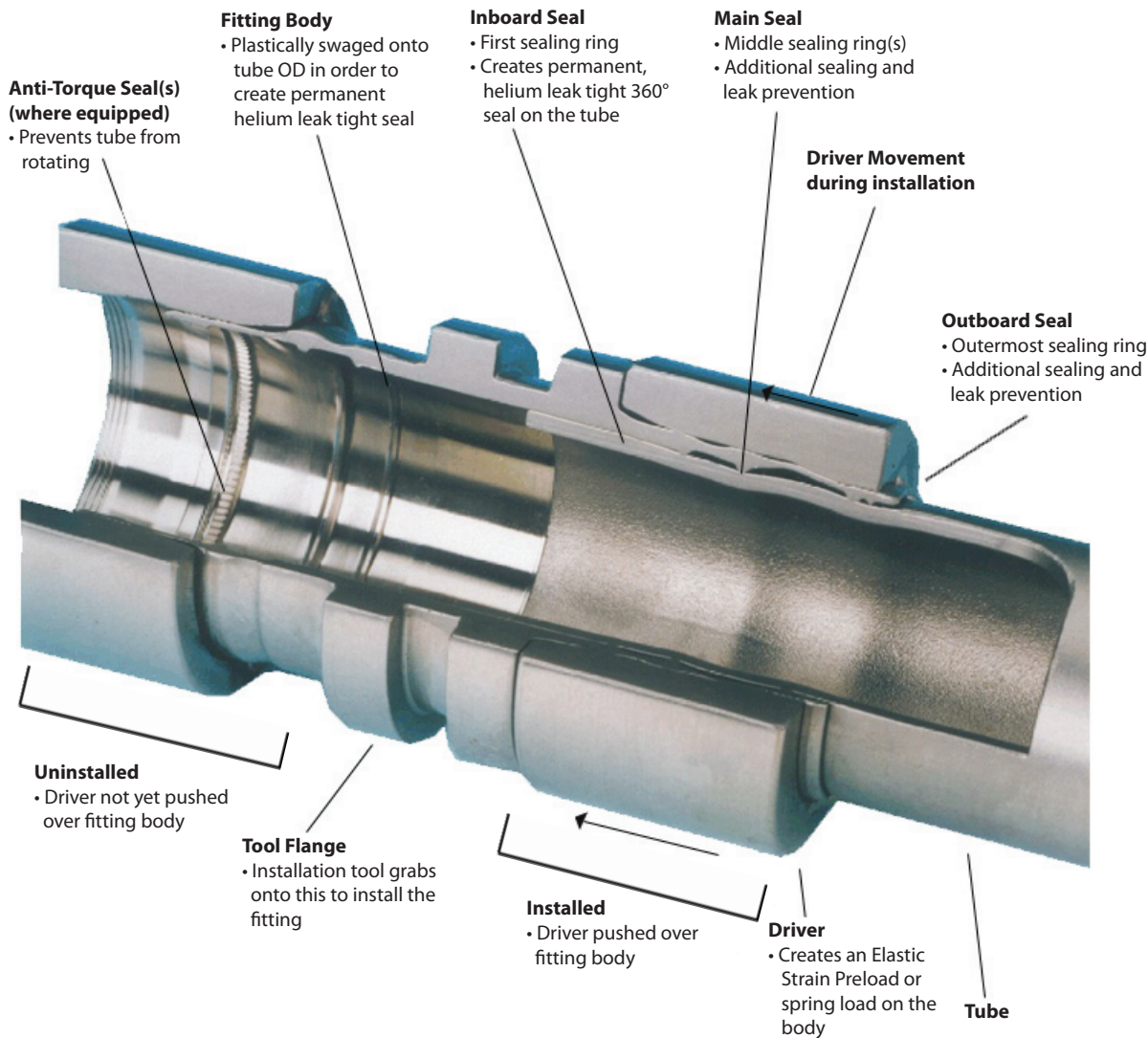
- Obtain fire permit for hot work
- Erect scaffolding and provide ventilation
- "Sniff" area, gas free, and weather protect
- Blank flanges and nozzles
- Establish fire watch
- Build fire box or tarps
- Drain, flush, and dry lines
- Cranes, welders, grinders, and small tools
- Weld consumables (purge gas and filler rod)
- Workers' compensation, insurance, and benefits
- Weld X-ray or other NDT
- Rework of damaged or misaligned spools
- System soak, flush, or passivation; HAZMAT disposal
- Maintain and monitor flanges for leakage

In addition, scarce ASME-certified welders are freed up for large bore pipe or pressure vessel welding.



LOKRING Tube Solutions can be found in many applications, including the Astute Class Attack Submarine.

ELASTIC STRAIN PRELOAD (ESP®) TECHNOLOGY



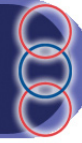
The leak-free seal is the result of LOKRING's ESP® installation where the axial movement of the LOKRING driver over the body swages the body onto the tube's surface. This compresses the tube wall first elastically and then plastically.

The tube wall resists this swaging action, generating high unit compressive loads at the contact points between narrow sealing lands inside the fitting body and the tube surface.

These contact stresses are sufficiently high to plastically yield the tube surface under the sealing lands, forming a 360° circumferential, permanent, metal-to-metal seal between the tube and fitting body.

The driver, which experiences a small increase in diameter (elastic strain) during installation, exerts an elastic, radial preload on the metallic seals for the life of the connection, which is called elastic strain preload (ESP®).

PRESSURE AND TEMPERATURE RATINGS



Lokring Stainless Steel Tube Fitting	Tube O.D. (Measured in inches)	Available Sizes (Defined 1/16")	Tube Wall Thickness Measure In (Inches)						
			0.035	0.049	0.065	0.083	0.095	0.109	0.120
SS Tube Product	1/4	T04	5100	7500	9050 ¹				
	3/8	T06	3300	4800	5650 ¹				
	1/2	T08	2600	3700	4270 ¹	²			
	5/8	T10	2100	2900	3750 ¹	²			
	3/4	T12	1700	2400	4200	²	²		
	7/8	T14		²	2800	²	²	²	
	1"	T16			2400	3100	²	²	
	1-1/4"	T20			1900	2400	2800	3300	²
	1-1/2"	T24			1600	2000	2300	2700	3000
	2"	T32			1100	1500	²	²	²
	2-1/2"	T40			900	1200	²	²	²

¹ - Lokring de-rates the Max Allowable Tube Pressure

² - Consult LOKRING for details

Temperature De-rating Table for Lokring SS Tube Fittings

Temperature Degrees (°F)	Temperature De-Rating Factor
200°	1.00
300°	1.00
400°	0.97
500°	0.90
600°	0.85
650°	0.84
700°	0.82
750°	0.81

NOTES

1. On indicated wall thicknesses at ambient temperature. See specification FS40-T for details.
2. See LOKRING's "Corrosive Service Guidelines" for specific service details.
3. See "LOKRING Fitting Applications Guide" for more details.
4. Fitting material 316L Stainless Steel as per ASTM A276 or ASTM 479.

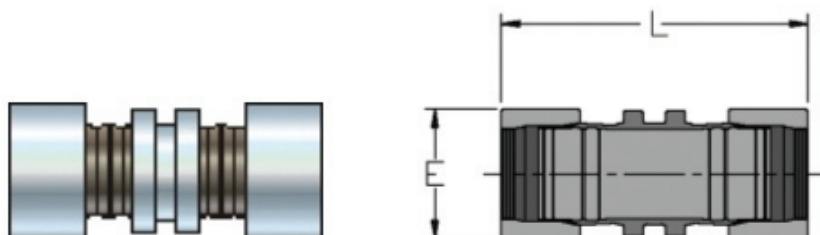
Matching Tube:

- 316/316L stainless steel tube to ASTM A269 or ASTM A213
- 304/304L stainless steel tube to ASTM A269 or ASTM A213



Unlike other mechanically attached fittings, there are no elastomeric or rubber seals, O-rings, or gaskets which can degrade and leak over time from chemical attack, fire, vibration, temperature cycling, cold flow, or loss of elasticity. As a result, fugitive emissions typical of leak-prone screwed or flanged connectors are eliminated.

Couplings (Without center stop*)



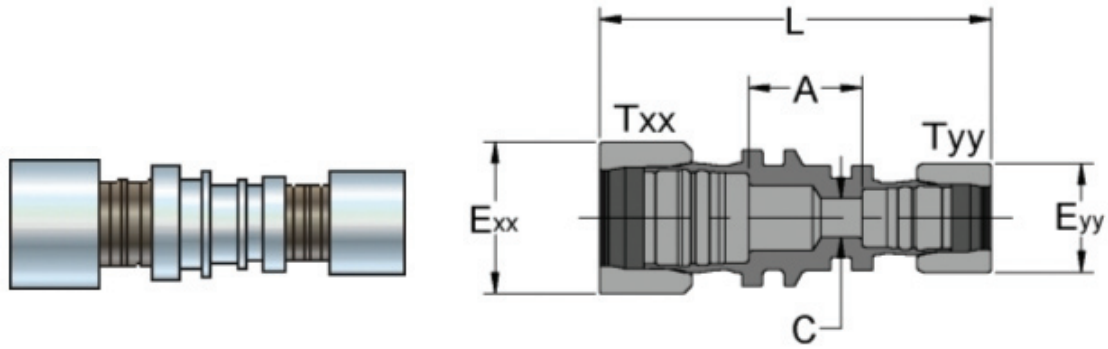
Tube Size OD	Ordering Information			Part Length (Uninstalled) L	E	Take-Out* A	Installation Tool Kit
	Fitting Material	Shape	Fitting Size TXX				
1/4*	SS	-CPL-	T04	1.81	0.54	0.04	IT04 / IT10 / IT20
3/8	SS	-CPL-	T06	2.52	0.72	N/A	IT10 / IT20
1/2	SS	-CPL-	T08	2.68	0.87	N/A	IT10 / IT20
5/8	SS	-CPL-	T10	3.06	1.05	N/A	IT10 / IT20
3/4	SS	-CPL-	T12	3.13	1.17	N/A	IT20
7/8	SS	-CPL-	T14	2.95	1.19	N/A	IT20
1	SS	-CPL-	T16	3.17	1.37	N/A	IT20 / IT45
1-1/4	SS	-CPL-	T20	4.07	1.80	N/A	IT45
1-1/2	SS	-CPL-	T24	4.24	2.10	N/A	IT45 / IT50 / IT60
2	SS	-CPL-	T32	5.31	2.55	N/A	IT50 / IT60
2-1/2	SS	-CPL-	T40	6.54	3.10	N/A	IT60

*1/4" (T04) Fitting is manufactured with a travel stop (take-out) to aid with assembly.

All dimensions are for reference only and are subject to change.

Consult your authorized Lokring distributor for details and other options.

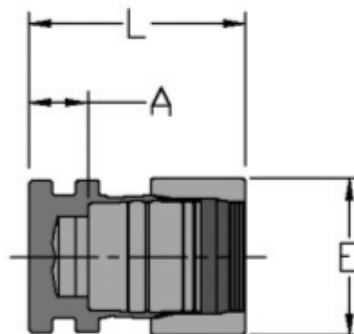
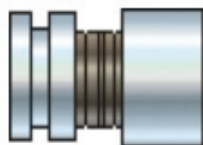
Reducers



Tube Size OD	Ordering Information			Part Length (Uninstalled) L	Exx	Eyy	Take-Out, A	C	Installation Tool Kit
	Fitting Material	Shape	Fitting Size TXX-TYY						
3/8 - 1/4	SS	-RED-	T06-T04	3.29	0.72	0.54	1.16	0.16	IT10 / IT20
1/2 - 1/4	SS	-RED-	T08-T04	3.18	0.87	0.54	0.97	0.16	IT10 / IT20
1/2 - 3/8	SS	-RED-	T08-T06	3.30	0.87	0.72	0.70	0.30	IT10 / IT20
5/8 - 1/2	SS	-RED-	T10-T08	3.61	1.05	0.87	0.74	0.41	IT10 / IT20
3/4 - 1/2	SS	-RED-	T12-T08	3.55	1.17	0.87	0.64	0.41	IT20
3/4 - 5/8	SS	-RED-	T12-T10	3.83	1.17	1.05	0.74	0.54	IT20
7/8 - 3/4	SS	-RED-	T14-T12	3.75	1.19	1.17	0.71	0.67	IT20
1 - 1/2	SS	-RED-	T16-T08	3.99	1.37	0.87	1.06	0.41	IT20
1 - 3/4	SS	-RED-	T16-T12	3.82	1.37	1.17	1.34	0.67	IT20
1 - 7/8	SS	-RED-	T16-T14	3.90	1.37	1.19	0.84	0.76	IT20
1-1/4 - 1	SS	-RED-	T20-T16	4.52	1.80	1.37	0.90	0.83	IT45
1-1/4 - 3/4	SS	-RED-	T24-T12	4.83	2.10	1.17	1.15	0.66	IT20 & IT45/ IT50/IT60
1-1/2 - 1	SS	-RED-	T24-T16	4.71	2.10	1.37	1.00	0.87	IT20 & IT45/ IT50/IT60
1-1/2 - 1-1/4	SS	-RED-	T24-T20	5.00	2.10	1.80	0.84	1.09	IT45
2 - 1-1/4	SS	-RED-	T32-T20	5.82	2.55	1.80	1.13	1.09	IT45
2 - 1-1/2	SS	-RED-	T32-T24	6.20	2.55	2.10	1.43	1.33	IT50 / IT60

NOTE: Lokring also offers pipe to tube, tube to pipe reducer solutions.
All dimensions are for reference only and are subject to change.
Consult your authorized Lokring distributor for details and other options.

Caps



Tube Size OD	Ordering Information			Part Length (Uninstalled) L	E	Take-out A	Installation Tool Kit
	Fitting Material	Shape	Fitting Size TXX-TYY				
1	SS	-CAP-	T16	2.00	1.37	0.42	IT20 / IT45
1 - 1/4	SS	-CAP-	T20	2.46	1.80	0.42	IT45
1 - 1/2	SS	-CAP-	T24	2.54	2.10	0.42	IT45 / IT50 / IT60
2	SS	-CAP-	T32	3.10	2.55	0.49	IT50 / IT60

All dimensions are for reference only and are subject to change.
Consult your authorized Lokring distributor for details and other options.
Insertion depth= L-A

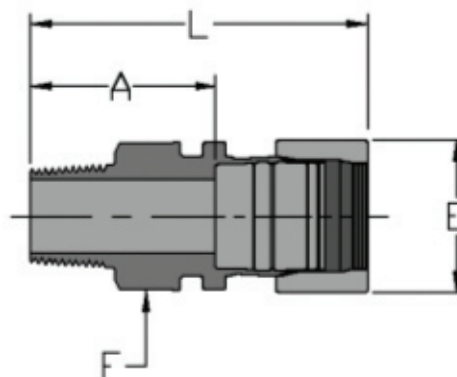
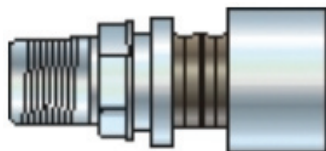


No other connector (flanged or threaded) is capable of passing helium leak testing anywhere close to the level of a Lokring fitting. Lokring was independently tested by the California Air Resources Board (CARB), on 2×10^{-11} atmosphere cc/sec helium leak rate. In fact, they stated the fitting meets all the criteria of a welded connection.



Repair with our through-bore designs are as simple as cut, slip fitting over pipe, and LOK!

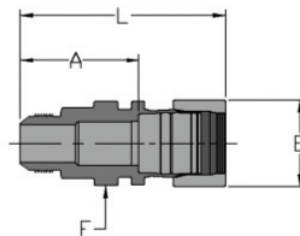
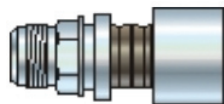
Male Connectors



Tube Size OD	Ordering Information			Part Length (Uninstalled) L	E	Take-Out A	Across Wrench Flats F	Thread	Installation Tool Kit
	Fitting Material	Shape	Fitting Size TXX-YYMPT						
1/4	SS	-ADPT-	T04-1/4 MPT	2.34	0.54	1.47	0.56	1/4-18	IT04 / IT10 / IT20
	SS	-ADPT-	T04-1/2 MPT	2.54	0.54	1.67	0.88	1/2-14	IT04 / IT10 / IT20
3/8	SS	-ADPT-	T06-1/4 MPT	2.67	0.72	1.41	0.56	1/4-18	IT10 / IT20
	SS	-ADPT-	T06-1/2 MPT	2.86	0.72	1.60	0.88	1/2-14	IT10 / IT20
1/2	SS	-ADPT-	T08-3/8 MPT	2.41	0.87	1.07	0.69	3/8 - 18	IT10 / IT20
	SS	-ADPT-	T08-1/2 MPT	2.96	0.87	1.62	0.92	1/2 - 14	IT10 / IT20
	SS	-ADPT-	T08-3/4 MPT	3.17	0.87	1.83	1.13	3/4 - 14	IT10 / IT20
3/4	SS	-ADPT-	T12-1/2 MPT	3.20	1.17	1.64	0.88	1/2 - 14	IT20
	SS	-ADPT-	T12-3/4 MPT	3.42	1.17	1.86	1.13	3/4 - 14	IT20
	SS	-ADPT-	T12-1 MPT	3.75	1.17	2.18	1.38	1 - 11-1/2	IT20
1	SS	-ADPT-	T16-1/4 MPT	3.20	1.37	1.61	0.56	1/4-18	IT20 / IT45
	SS	-ADPT-	T16-1/2 MPT	3.86	1.53	1.86	0.94	1/2 - 14	IT20 / IT45
	SS	-ADPT-	T16-3/4 MPT	3.40	1.37	1.81	1.13	3/4 - 14	IT20 / IT45
	SS	-ADPT-	T16-1 MPT	3.72	1.37	2.14	1.38	1 - 11-1/2	IT20 / IT45
1-1/4	SS	-ADPT-	T20-1 1/4 MPT	4.74	1.80	2.50	1.75	1-1/4 - 11-1/2	IT45
1-1/2	SS	-ADPT-	T24-1 1/2 MPT	4.69	2.10	2.57	2.00	1-1/2 - 11-1/2	IT45 / IT50 / IT60

All dimensions are for reference only and are subject to change.
Consult your authorized Lokring distributor for details and other options.
Insertion depth= L-A

Male Connectors (37° Flare Straight Thread)



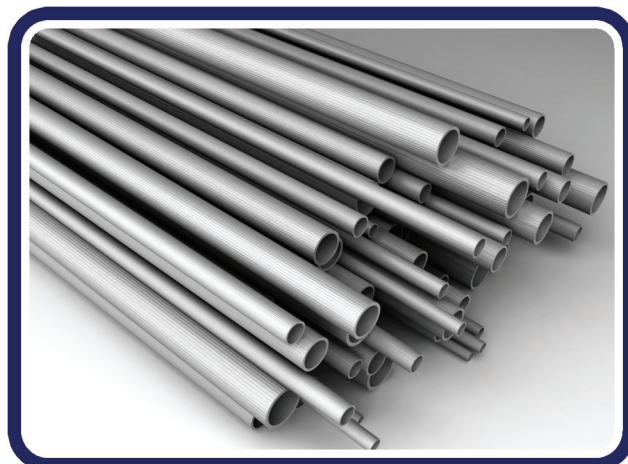
Tube Size OD	Ordering Information			Part Length (Unin- stalled) L	E	Take- Out A	Across Wrench Flats F	Thread	Installation Tool Kit
	Fitting Material	Shape	Fitting Size TXX-37ANY						
1/4	SS	-ADPT-	T04 - 37AN0.25	2.04	0.54	1.17	0.50	7/16 - 20 UNF	IT04 / IT10 / IT20
3/8	SS	-ADPT-	T06 - 37AN0.375	2.41	0.72	1.15	0.63	9/16 - 18 UNF	IT10 / IT20
1/2	SS	-ADPT-	T08 - 37AN0.50	2.60	0.87	1.26	0.81	3/4 - 16 UNF	IT10 / IT20
5/8	SS	-ADPT-	T10 - 37AN0.625	3.03	1.05	1.49	0.94	7/8 - 14 UNF	IT20
3/4	SS	-ADPT-	T12-37AN0.75	3.34	1.17	1.78	1.13	1 1/16 - 12 UN	IT20
7/8	SS	-ADPT-	T14-37AN0.875	3.36	1.19	1.88	1.25	1 3/16 - 12 UN	IT20
1	SS	-ADPT-	T16-37AN1.00	3.52	1.37	1.93	1.38	1 5/16 - 12 UN	IT20 / IT45
1-1/4	SS	-ADPT-	T20-37AN1.25	4.34	1.80	2.31	1.69	1 5/8 - 12 UN	IT45
1-1/2	SS	-ADPT-	T24-37AN1.50	5.12	2.10	3.00	2.00	1 7/8 - 12 UN	IT45 / IT50 / IT60

Threaded end conforms to SAE J514 (37° FLARE).

All dimensions are for reference only and are subject to change.

Consult your authorized Lokring distributor for details and other options.

Insertion depth= L-A

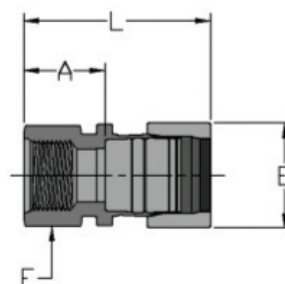
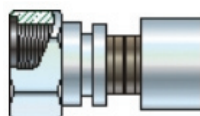


Both stainless and carbon steel LOKRING® fittings are qualified to the requirements of the ANSI/ASME B31 pressure piping codes for pressure and fatigue design and materials of construction. Extensive mechanical and environmental testing has demonstrated the mechanical and sealing integrity of the LOKRING® connection in a wide range of applications and environmental conditions.



Fittings are installed with simple hydraulic tooling and form a leak-tight, metal-to-metal seal without O-rings or other elastomeric seals. The fittings are installed without hot work or open flame making them ideal for installations in operating areas where welding is not feasible due to explosive atmospheres, etc. and where the use of a threaded connection is not accept-

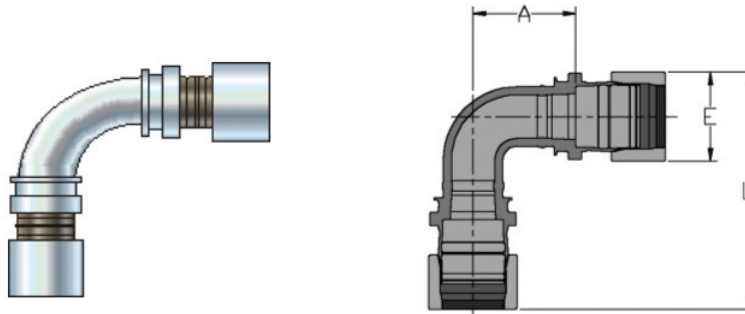
Female SAE Connectors



Tube Size OD	Ordering Information			Part Length (Uninstalled) L	E	Take-Out A	Across Wrench Flats F	Thread	Installation Tool Kit
	Fitting Material	Shape	Fitting Size TXX-SAEFYY						
1/4	SS	-ADPT-	T04-SAEF0.25	1.88	0.54	1.01	0.75	7/16 - 20 UNF	IT04 / IT10 / IT20
3/8	SS	-ADPT-	T06-SAEF0.375	2.18	0.72	0.92	0.94	9/16 - 18 UNF	IT10 / IT20
1/2	SS	-ADPT-	T08-SAEF0.50	2.43	0.87	1.09	1.13	3/4 - 16 UNF	IT10 / IT20
5/8	SS	-ADPT-	T10 -SAEF0.625	2.78	1.05	1.25	1.25	7/8 - 14 UNF	IT20
3/4	SS	-ADPT-	T12 -SAEF0.75	2.91	1.17	1.35	1.44	1 1/16 - 12 UN	IT20
7/8	SS	-ADPT-	T14 -SAEF0.875	2.76	1.19	1.28	1.44	1 3/16 - 12 UN	IT20
1	SS	-ADPT-	T16-SAEF1.00	3.09	1.37	1.50	1.63	1 5/16 - 12 UN	IT20 / IT45
1-1/4	SS	-ADPT-	T20-SAEF1.25	3.50	1.80	1.46	2.00	1 5/8 - 12UN	IT45
1-1/2	SS	-ADPT-	T24-SAEF1.50	3.78	2.10	1.66	2.25	1 7/8 - 12 UN	IT45 / IT50 / IT60

Threaded end conforms to SAE J1926/1 (O-ring straight thread adapter)
 All dimensions are for reference only and are subject to change.
 Consult your authorized Lokring distributor for details and other options.
 Insertion depth= L-A

90° Elbows



Tube Size OD	Ordering Information			Part Length (Uninstalled) L	E	Take-Out A	Installation Tool Kit
	Fitting Material	Shape	Fitting Size TXX				
1/4	SS	-EL90-	T04	2.03	0.54	3.33	IT04 / IT10 / IT20
3/8	SS	-EL90-	T06	2.82	0.72	1.20	IT10 / IT20
1/2	SS	-EL90-	T08	2.78	0.87	1.01	IT10 / IT20
5/8	SS	-EL90-	T10	3.10	1.05	1.05	IT10 / IT20
3/4	SS	-EL90-	T12	3.56	1.17	1.41	IT20
7/8	SS	-EL90-	T14	3.62	1.19	1.55	IT20
1	SS	-EL90-	T16	4.16	1.37	2.02	IT20
1-1/4	SS	-EL90-	T20	4.69	1.80	1.88	IT45
1-1/2	SS	-EL90-	T24	5.33	2.10	2.29	IT45 / IT50

All dimensions are for reference only and are subject to change.
Consult your authorized Lokring distributor for details and other options.
Insertion depth= L-A - 1/2 E

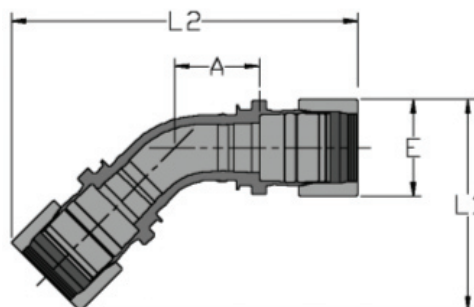
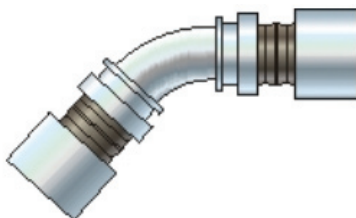


A fitter/helper can routinely field erect, fit-up, and install 50 to 60 Lokring fittings in a single shift. This productivity more than doubles the rate at which welded tubing systems are typically shop fabricated and field erected.



The patented metal-to-metal Lokring seal remains intact when subjected to extreme thermal loads, including fire. Stainless steel Lokring fittings are qualified to the API-607 Rev 4, fire test standards.

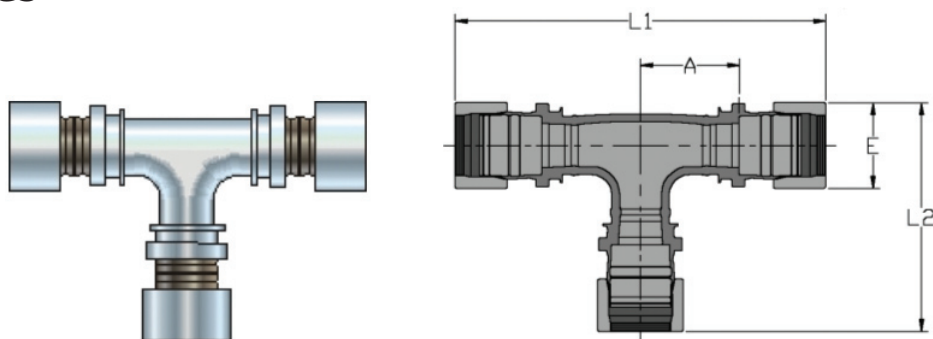
45° Elbows



Tube Size OD	Ordering Information			Part Length (Uninstalled) L1	Part Length (Uninstalled) L2	E	Take-Out A	Installation Tool Kit
	Fitting Material	Shape	Fitting Size TXX					
3/8	SS	-EL45-	T06	2.32	4.40	0.72	1.18	IT10 / IT20
1/2	SS	-EL45-	T08	2.44	4.44	0.87	1.09	IT10 / IT20
5/8	SS	-EL45-	T10	2.60	4.51	1.05	0.90	IT20
3/4	SS	-EL45-	T12	2.82	4.84	1.17	1.04	IT20
7/8	SS	-EL45-	T14	2.88	4.93	1.19	1.17	IT20
1	SS	-EL45-	T16	3.27	5.56	1.37	1.39	IT20 / IT45
1-1/4	SS	-EL45-	T20	3.85	6.24	1.80	1.26	IT45
1-1/2	SS	-EL45-	T24	4.28	6.78	2.10	1.42	IT45 / IT50
2	SS	-EL45-	T32	5.51	8.96	2.55	2.08	IT50 / IT60
2-1/2	SS	-EL45-	T40	6.48	10.38	3.10	2.18	IT60

All dimensions are for reference only and are subject to change.
Consult your authorized Lokring distributor for details and other options.

Tees



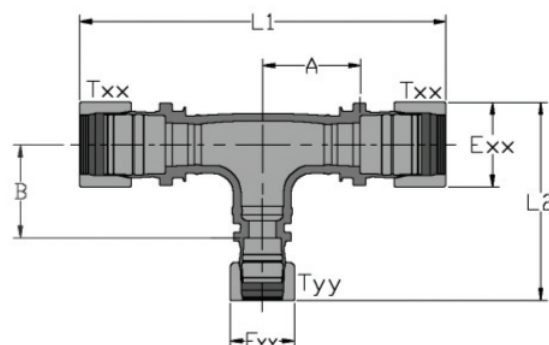
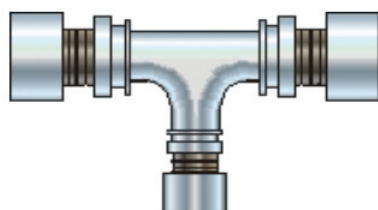
Tube Size OD	Ordering Information			Part Length (Uninstalled) L1	Part Length (Uninstalled) L2	E	Take-Out A	Standard Tool Installation
	Fitting Material	Shape	Fitting Size TXX					
1/4	SS	-TEE-	T04	-	-	-	*	IT04 / IT10 / IT20
3/8	SS	-TEE-	T06	6.08	3.40	0.72	1.15	IT10 / IT20
1/2	SS	-TEE-	T08	4.60	2.73	0.87	0.96	IT10 / IT20
5/8	SS	-TEE-	T10	5.16	3.10	1.05	1.05	IT10 / IT20
3/4	SS	-TEE-	T12	5.95	3.56	1.17	1.41	IT20
7/8	SS	-TEE-	T14	5.57	3.38	1.19	1.31	IT20
1	SS	-TEE-	T16	5.78	3.57	1.37	1.30	IT20
1-1/4	SS	-TEE-	T20	7.58	4.69	1.80	1.88	IT45
1-1/2	SS	-TEE-	T24	8.58	5.34	2.10	2.29	IT45 / IT50
2	SS	-TEE-	T32	11.72	7.14	2.55	3.21	IT50 / IT60
2-1/2	SS	-TEE-	T40	13.20	8.15	3.10	3.30	IT60

All dimensions are for reference only and are subject to change.
Consult your authorized Lokring distributor for details and other options.
Insertion depth= (L1-2A) / 2



The overriding advantages of the LOKRING joint as compared to a welded connector is that the fitting is installed cold. This greatly improves plant safety, eliminating the need for fire watch or permit even in a fully operating

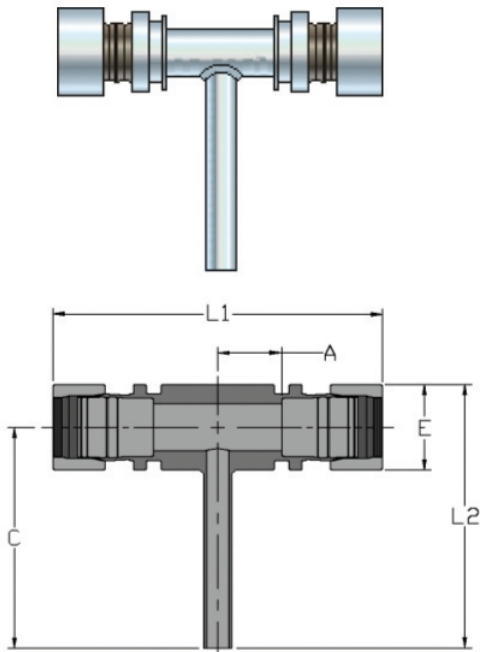
Reducing Branch Tees



Tube Size OD	Ordering Information			Part Length (Uninstalled) L1	Part Length (Uninstalled) L2	Exx	Eyy	Take-Out A	Take-Out B	Installation Tool Kit
	Fitting Material	Shape	Fitting Size Txx-Tyy							
3/8 - 1/4	SS	- RTEE -	T06-T04	4.82	2.65	0.72	0.54	1.15	1.42	IT10 / IT20
1/2 - 3/8	SS	- RTEE -	T08-T06	4.60	2.84	0.87	0.72	0.96	1.15	IT10 / IT20
5/8 - 1/2	SS	- RTEE -	T10-T08	5.16	3.10	1.05	0.87	1.05	1.24	IT10 / IT20
3/4 - 3/8	SS	- RTEE -	T12-T06	5.47	3.40	1.17	0.72	1.18	1.50	IT10 / IT20
3/4 - 1/2	SS	- RTEE -	T12-T08	5.95	3.70	1.17	0.87	1.41	1.73	IT10 / IT20
3/4 - 5/8	SS	- RTEE -	T12-T10	5.47	3.45	1.17	1.05	1.17	1.34	IT20
7/8 - 3/4	SS	- RTEE -	T14-T12	5.57	3.33	1.19	1.17	1.31	1.17	IT20
1 - 3/8	SS	- RTEE -	T16-T06	5.78	3.50	1.37	0.72	1.30	1.56	IT20
1 - 1/2	SS	- RTEE -	T16-T08	5.78	3.56	1.37	0.87	1.30	1.53	IT20
1 - 3/4	SS	- RTEE -	T16-T12	5.78	3.42	1.37	1.17	1.30	1.17	IT20
1 - 7/8	SS	- RTEE -	T16-T14	5.78	3.47	1.37	1.19	1.30	1.31	IT20
1-1/4 - 1	SS	- RTEE -	T20-T16	7.83	4.50	1.80	1.37	1.88	2.02	IT45
1-1/2 - 1	SS	- RTEE -	T24-T16	8.83	5.58	2.10	1.37	2.29	2.94	IT45
1-1/2 - 1-1/4	SS	- RTEE -	T24-T20	8.83	5.38	2.10	1.80	2.29	2.29	IT45
2 - 1	SS	- RTEE -	T32-T16	11.72	5.38	2.55	1.37	3.26	2.52	IT45 & IT50
2 - 1-1/2	SS	- RTEE -	T32-T24	11.72	6.62	2.55	2.10	3.21	3.22	IT50 / IT60

All dimensions are for reference only and are subject to change.
Consult your authorized Lokring distributor for details and other options.
Insertion depth= (L1-2A) / 2 AND L2- 1/2 Exx-B

Drop Tees



Drop 0yy	Drop Designation
001	3/8 OD X 0.035 WALL TUBE
002	3/8 OD SWAGELOK® FITTING**
003	1/2 OD X 0.049 WALL TUBE
005	3/8 OD CPI FITTING***
008	1/2 OD CPI FITTING***
009	1/2" OD SWAGELOK® FITTING*
011	5/8 OD X 0.065 WALL TUBE
012	3/4 OD X 0.049 WALL TUBE
013	1/2" NPT - FEMALE THREADED END
026	12mm OD TUBE

**SWAGELOK is a registered trademark of SWAGELOK CO.
***CPI is a trademark of PARKER HANNIFIN CORPORATION

Tube Size OD	Ordering Information			Part Length (Unin- stalled) L1	Part Length (Unin- stalled) L2	E	Take- Out A	Take- Out C	Installation Tool Kit
	Fitting Material	Shape	Fitting Size Txx- 0yy						
1/2	SS	- TEE -	T08-001	4.34	3.69	0.87	0.83	3.26	IT10 / IT20
5/8	SS	- TEE -	T10-001	4.84	3.85	1.05	0.89	3.33	IT20
3/4	SS	- TEE -	T12-001	4.91	3.98	1.17	0.89	3.40	IT20
7/8	SS	- TEE -	T14-001	4.66	4.02	1.19	0.85	3.43	IT20
1	SS	- TEE -	T16-001	4.97	4.22	1.37	0.90	3.54	IT20 / IT45
1-1/4	SS	- TEE -	T20-001	5.94	4.60	1.80	0.94	3.70	IT45
1-1/2	SS	- TEE -	T24-001	6.15	4.91	2.10	0.96	3.86	IT45 / IT50 / IT60
2	SS	- TEE -	T32-001	7.26	5.36	2.55	0.98	4.08	IT50 / IT60
2-1/2	SS	- TEE -	T40-001	9.73	5.91	3.10	1.60	4.36	IT60

Drop Tees are also available in reducing form.

All dimensions are for reference only and are subject to change.

Consult your authorized Lokring distributor for details and other options.

OTHER PRODUCTS OFFERED



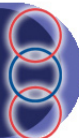
In addition to the fittings listed in this catalog, LOKRING offers, as standard, additional stainless steel (SS) tube fittings including:

- Metric fittings
- SAE fittings
- Double Containment couplings
- Pipe to tube, tube to pipe adapters
- Male and Female pipe thread connectors
- Socket weld connectors
- Tube and pipe stub connectors
- Ferrule type tube fitting connectors
- ANSI flange connectors
- CIP connectors
- 45° Tees
- Unions, union threads, union tails

Specials may exist and can be created to your specifications, contact your authorized LOKRING distributor for details.

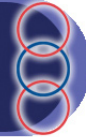


ADDITIONAL FITTING LINES



- Medical Gas brass fittings
- Bulkhead penetrators for pipe & tube
- Carbon Steel (MAS-3000) pipe fittings
- Marine 90/10 copper nickel (CN-200) pipe fittings
- Marine 70/30 copper nickel (CN-700) pipe and tube fittings
- Marine 70/30 copper nickel (CN-3300) tube fittings
- Marine stainless steel (SS-3300) pipe fittings
- Marine stainless steel (SS-3300) tube fittings
- Railroad carbon steel (RR) pipe fittings
- Stainless steel (SS40) pipe fittings
- Timberwolf (low temperature) carbon steel (TW) pipe fittings

INSTALLATION TOOLS



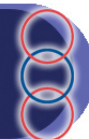
- LOKRING tools come in several sizes to accommodate fittings of different sizes.
- To install a LOKRING fitting, a LOKTOOL™ tool head with inserts, multipurpose gage, hydraulic pump, and hydraulic hose are needed.
- Tools, inserts and gages come packaged either as:
 - Individual tool kits (ITK Series) designed for installing one size of fittings only,
 - or*
 - Multiple purpose tool kits (MTK Series) designed for installing multiple size fittings with one tool.

Contact your authorized LOKRING distributor for ordering details.



LOKRING Technology is dedicated to the relentless pursuit of perfection in understanding and satisfying the industry's fluid and gas connection requirements. Using state-of-the-art computer aided technology, LOKRING designs and produces the most advanced fluid and gas transfer connectors on the market today.

HYDRAULIC PUMPS



- All LOKTOOL™ system components (installation tool, hose, pump, hydraulic couplers) are rated for 10,000 psi max operating pressure.
- Any pumps or hose can be used with any of LOKRING's installation tools.

Fast, Simple, Portable Installation – ¼" to 2 ½" joints fully made in minutes!!



• **Manual Pump (PUMP-P-19-QD):**

Manually operated, designed for low volume installations (or emergency repairs) where there is limited or no access to electricity or compressed air, or for atmospheres which need to be fire-safe.



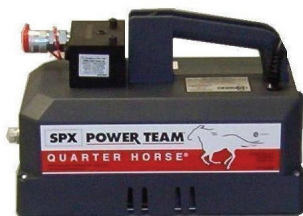
• **Manual Pump (Hand Pump):**

Manually operated, designed for low volume installations where space is critical. No electricity or compressed air is needed.



• **Pneumatic Pump (PUMP-TURBO-AIR-QD):**

Foot operated, lightweight, pneumatic pump operates off shop air (80 psi/minimum). Fast and suitable for installation of LOKRING fittings in atmospheres which need to be fire-safe.



• **Electric Pump (PUMP-OTC-QTRHRSE-ELEC):**

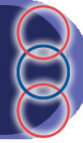
120 VAC, foot operated, high speed pump, best selection for high volume installations of larger size fittings.



• **Hydraulic Hose Assembly (HH15-QD):**

15 ft. hose with quick connects for all fitting sizes, pumps, and tool heads. Two or more hoses can be connected together to form longer

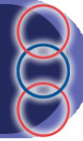
HOW TO SELECT TOOLING



Tool Selection for Stainless Steel (SS40 & SS-3000) Tube fitting sizes:											
Tool	1/4 T04	3/8 T06	1/2 T08	5/8 T10	3/4 T12	7/8 T14	1 T16	1-1/4 T20	1-1/2 T24	2 T32	2-1/2 T40
IT04											
IT10											
IT20											
IT45											
IT50											
IT60											

The shaded cells show which tool can install which size fitting.

TOOLING DIMENSIONS



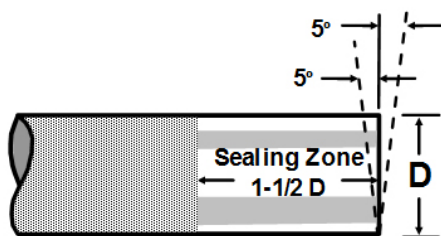
Stainless Steel Tube Fittings							
Dimensions in Inches Fitting Size	Tube OD	LOKTOOL™ Size	W Tool Width	L Tool Length	H Tool Height	N Minimum Spacing Center to Center	N* Minimum Spacing Center to Center, with fittings Adjacent each other
1/4" (T04)	0.25	IT04	1.21	2.98	1.75	0.85	1.00
1/4" (T04)	0.25	IT10	1.67	5.01	3.21	1.09	1.23
3/8" (T06)	0.375	IT10	1.67	5.01	3.21	1.15	1.32
3/8" (T06)	0.375	IT20	2.36	5.01	3.21	1.49	1.67
1/2" (T08)	0.50	IT10	1.67	5.01	3.21	1.21	1.40
1/2" (T08)	0.50	IT20	2.36	5.01	3.21	1.56	1.74
5/8" (T10)	0.625	IT10	1.67	5.01	3.21	1.27	1.49
5/8" (T10)	0.625	IT20	2.36	5.01	3.21	1.62	1.83
3/4" (T12)	0.75	IT20	2.36	5.01	3.21	1.68	1.89
7/8" (T14)	0.875	IT20	2.36	5.01	3.21	1.74	1.91
1" (T16)	1.00	IT20	2.36	5.01	3.21	1.81	1.99
1-1/4" (T20)	1.25	IT45	3.91	6.38	4.91	2.71	2.99
1-1/2" (T24)	1.50	IT45	3.91	6.38	4.91	2.83	3.14
1-1/2" (T24)	1.50	IT50	4.21	7.29	5.33	2.98	3.29
2" (T32)	2.00	IT50	4.21	7.29	5.33	3.23	3.51
2" (T32)	2.00	IT60	5.01	8.59	5.84	3.63	3.91
2-1/2" (T40)	2.50	IT60	5.01	8.59	5.84	3.88	4.21

INSTALLATION INSTRUCTIONS

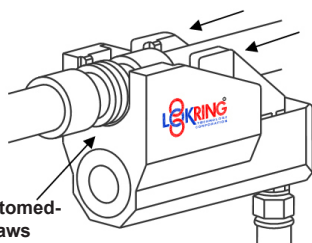


INSTALLATION PROCEDURE

Note: Refer to LOKRING procedure LP-105 for detailed installation instructions.

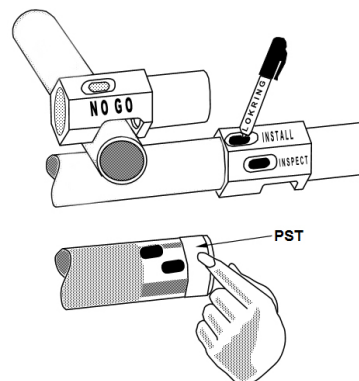
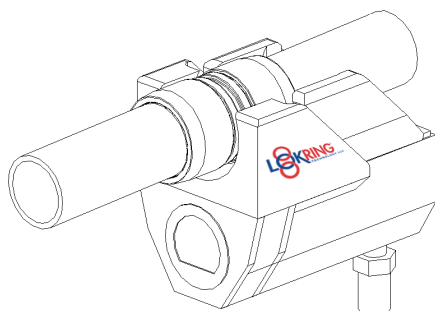


STEP 1: Cut tube to within 5° square. Using 60# grit abrasive cloth, sand tube sealing zone in circumferential direction to clean surface and remove scratches. Finish sand with 120# grit abrasive.



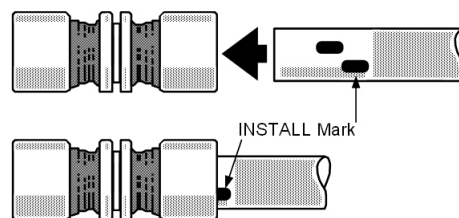
Fitting fully bottomed-out in tool jaws

STEP 3: Select and assemble required LOKRING tool. Inspect and cycle tool to assure proper function.

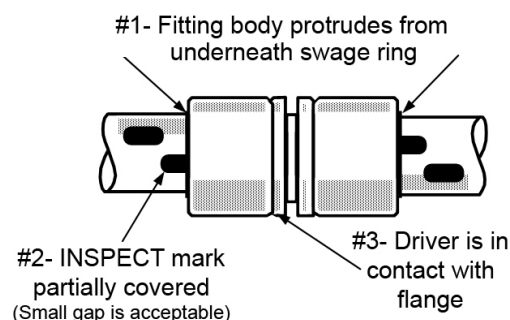


STEP 2: Using Multipurpose Gage, verify that tube OD is correctly sized, and mark tube ends as shown.

Special Note: A thin coat of Loctite® 567 PST (Pipe Sealant with Teflon) may be applied as an aide to seal where tube surface is poor, and is suggested in applications where the tube wall thickness to OD ratio is less than 0.07. The PST should be applied from the end of the tube up to the first inspection mark.



STEP 4: Position fitting on "INSTALL" mark, fully engage and actuate tool.



STEP 5: Carry out visual checks below to verify successful installation.

To Order

Other parts not listed in this catalog may be available. Contact your LOKRING distributor for more information. See www.LOKRING.com for a complete listing of distributors.

Dimensions

All dimensions are reference only and subject to change.

CAD Templates

CAD files AutoCAD-DWG, AutoCAD-DXF and Intergraph PDS are available for most configurations. Contact your authorized Lokring distributor for details or see www.LOKRING.com

LOKRING TECHNOLOGY STANDARD PRODUCT WARRANTY

Lokring warrants that goods delivered hereunder shall be free from defects in material and workmanship under normal use and service for a period of one (1) year from shipment. If during such one (1) year period,

1. Lokring is notified promptly upon discovery of any defect in the goods, including a detailed description of such defect.
2. Lokring is afforded the opportunity to inspect such goods at the installation site prior to any attempt to repair or retrofit.
3. If requested by Lokring, Customer returns such goods to Lokring for further examination (FOB destination); and upon examination of such, Lokring determines that such goods were defective and such defects were not caused by accident, abuse, misuse, neglect, alteration, improper installation, repair or alteration (other than at the specific direction of Lokring), improper testing or use contrary to instruction of Lokring, then within a reasonable time Lokring shall at its sole option credit the customer for such goods.

Any goods replaced under this warranty shall be returned to the customer, transportation charges prepaid, and Lokring will reimburse the customer for any transportation charges incurred under section (2) above. The performance of this warranty does not extend the warranty period of any goods beyond the period applicable to the goods originally delivered.

In no event shall Lokring be liable for claims for any other damages whatsoever (whether direct, immediate, foreseeable, consequential or special) suffered by Buyer or anyone else arising out of any breach by Lokring. This express warranty is in lieu of and excludes all other warranties, guarantees, and/or representations, expressed or implied.

System design and system safety are the ultimate responsibilities of the end-user. Consideration to system function, compatibility, product ratings, as well as other factors, must be given to ensure proper product selection and function. All information in this catalog has been compiled with regard to accuracy; however, the most up to date information should be verified before use of the product. Lokring reserves the right to change product dimensions, ratings, or other information.



A FITTING END TO YOUR TUBING CONCERNS™



**38376 APOLLO PARKWAY
WILLOUGHBY, OHIO 44094
TEL: 440-942-0880
FAX: 440-942-1186
WWW.LOKRING.COM**

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