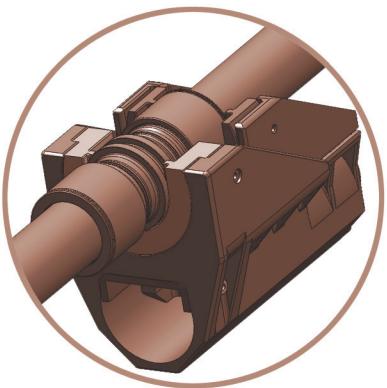
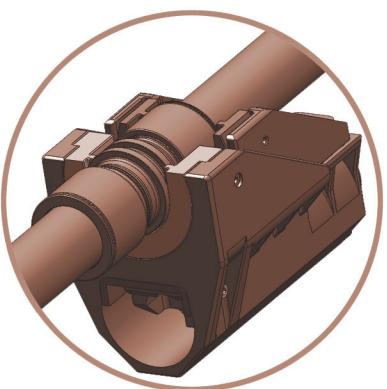


LOCKRING PIPE SOLUTIONS

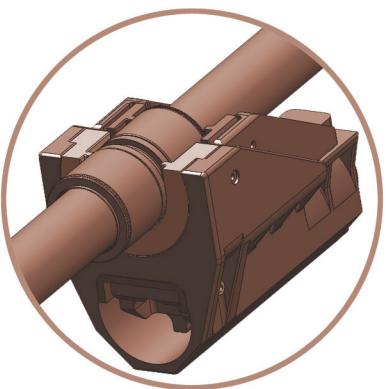
PATENTED WELD EQUIVALENT
Pipe Solutions™



PERMANENT
Cold Weld Alternative



ASSEMBLED
Within Minutes



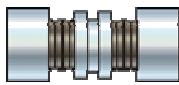
ANSI/ASME
B31.1 B31.3

LOCKRING[®]
TECHNOLOGY LLC

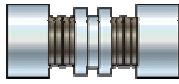
LOKRING Stainless Steel (SS40) and Carbon Steel (CS) Pipe Fittings Table of Contents

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Page 7 Couplings



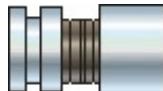
Page 7 Repair / Slip Couplings



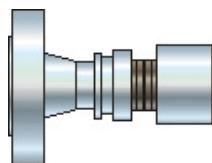
Page 8 Reducing Couplings



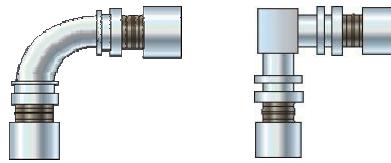
Page 9 Caps



Page 9-10 Flanges
 (ANSI 150# – 1500#)



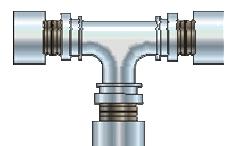
Page 11 90° Elbows
 (Long and Short radius)



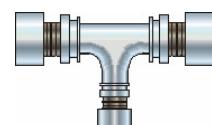
Page 12 45° Elbows



Page 12 TEEs



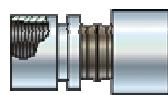
Page 13-14 Reducing Branch TEEs



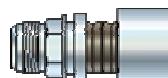
Page 15 Male NPT Adapters



Page 15 Female NPT Adapters



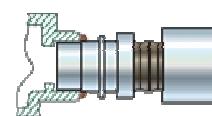
Page 16 Male 37° Flare Adapters



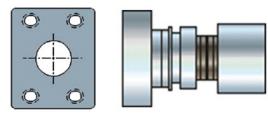
Page 16 Female SAE Adapters



Page 17 Socket Weld Adapters



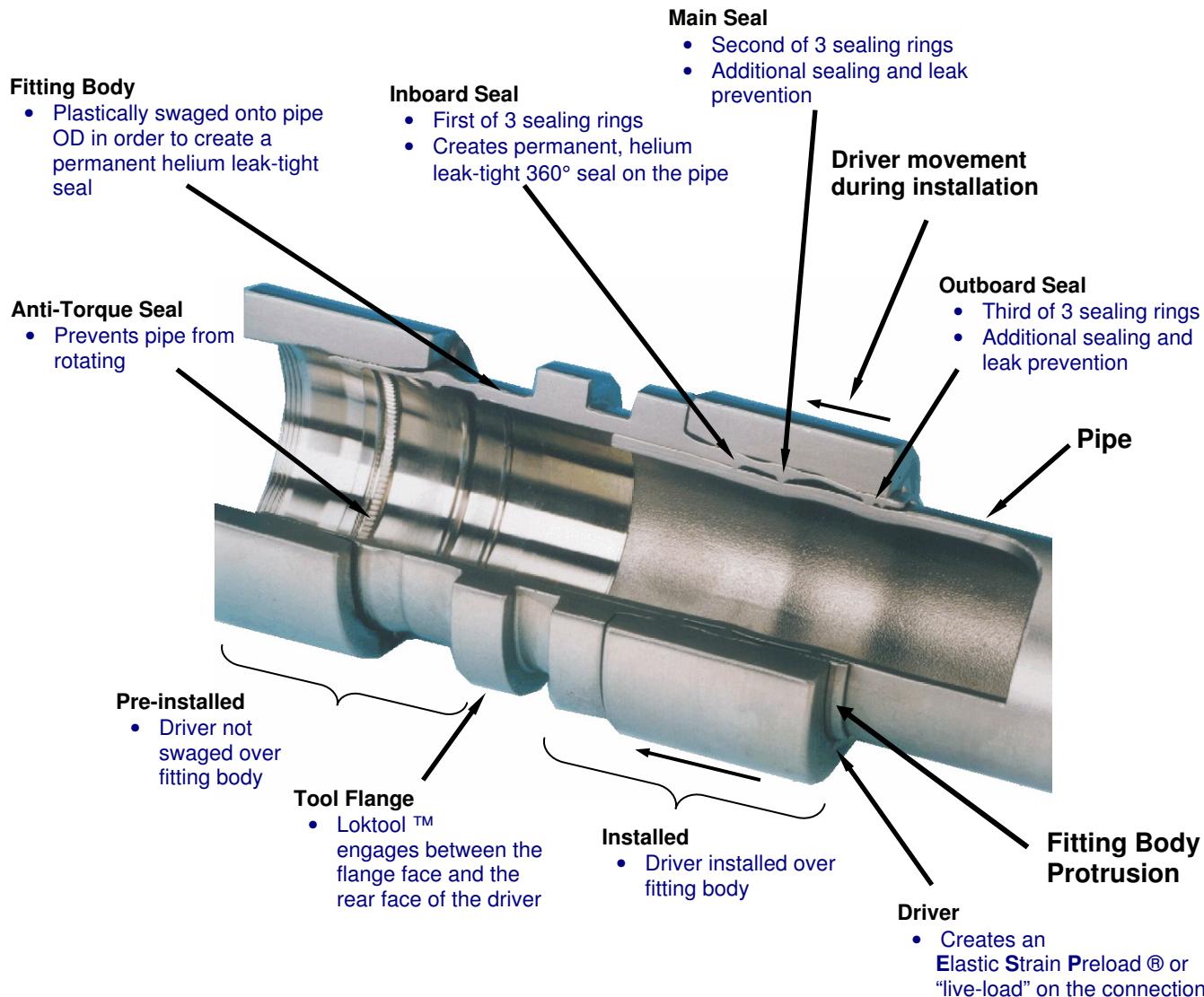
Page 17 SAE Flanged Adapters



- For a full line of tube fittings see the "Lokring Tube Fittings Catalog"

Design

Patented 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 pipe's surface. This compresses the pipe wall first elastically and then plastically.

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

These contact stresses are sufficiently high to plastically yield the pipe surface under the sealing lands, forming a 360° circumferential, permanent, metal-to-metal seal between the pipe 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 use of the connection.

Pressure and Temperature Ratings

Carbon Steel Pipe Fittings: CS Series

Lokring Carbon Steel Pipe Fittings	Lokring Size	Pipe NPS	Pressure Rating in psi (bar)					
			ASME B31.1 Pipe Schedules			ASME B31.3 Pipe Schedules		
			40	80	160	40	80	160
CS Pipe Product	P04	1/4"	4890 (337)	6610 (456)	*	6250 (431)	8810 (607)	*
	P06	3/8"	4040 (279)	5600 (386)	*	5390 (372)	7470 (515)	*
	P08	1/2"	3890 (268)	5250 (362)	4810 (332)	5190 (358)	7000 (483)	6410 (442)
	P12	3/4"	3230 (223)	4400 (303)	4240 (292)	4300 (296)	5870 (405)	5650 (390)
	P16	1"	3030 (209)	3975 (274)	3650 (252)	4050 (279)	5300 (365)	4870 (336)
	P20	1-1/4"	2480 (171)	3350 (231)	*	3310 (228)	4460 (308)	*
	P24	1-1/2"	2200 (152)	2930 (202)	*	2930 (202)	3900 (269)	*
	P32	2"	1790 (123)	2420 (167)	*	2390 (165)	3230 (223)	*
	P48	3"	1700 (117)	2260 (156)	*	2270 (157)	2470 (170)	*

* not tested

TEMPERATURE RATING:
Piping systems containing the piping assemblies listed may establish design pressures up to and including the ambient maximum design pressure given for temperatures from -20° to 400°F (-28°C to 204°C) for ASME B31.1 and B31.3. For temperatures above 400°F the maximum design pressure given shall be multiplied by the temperature de-rating factor listed below.

Temperature De-rating Table For Lokring Carbon Steel (CS) Fittings		
Temperature °F (°C)	de-rating factor B31.1	de-rating factor B31.3
400° (204°)	1.00	1.00
500° (260°)	0.95	0.95
600° (315°)	0.87	0.87
650° (343°)	0.75	0.75

LOKRING offers **Carbon Steel Repair Couplings** which are of a 'slip-over' design in order to facilitate repair work. They consist of a stainless steel body with carbon steel drive rings, their pressure ratings are the same as those of LOKRING's Stainless Steel Pipe Fittings and have a temperature rating of the Carbon Steel Pipe Fittings.

NOTES:

1. Fitting material Micro Alloyed Carbon Steel (CS-3000) to ASTM A675 or A513
2. LOKRING Carbon Steel Pipe Fittings are designed with an internal stop facilitating corrosion allowances
3. See LOKRING Specification FS-3000 for details on Pressure and Temperature Ratings
4. See LOKRING "Corrosive Service Guidelines" for specific service details
5. See "LOKRING Fitting Applications Guide" for additional design and service details

MATCHING PIPE:

- Carbon Steel pipe to ASTM A106 and A53
- ERW Carbon Steel pipe to ASTM A53E and A587
- Seamless Carbon Steel pipe to ASTM A106 and A53S
- Pipe shall be of high quality, fully annealed construction with maximum Rockwell B scale hardness of 90

• Pressure and Temperature Ratings

Stainless Steel Pipe Fittings: SS Series

Lokring Stainless Steel Pipe Fittings	Lokring Size	Pipe NPS	Pressure Rating in psi (bar)					
			ASME B31.1 Pipe Schedules			ASME B31.3 Pipe Schedules		
			10	40	80	10	40	80
SS Pipe Product	P04	1/4"	3781 (261)	5300 (365)	6000 (414)	4529 (312)	6300 (434)	8000 (552)
	P06	3/8"	3400 (234)	4900 (338)	5750 (396)	3600 (248)	5200 (359)	6100 (429)
	P08	1/2"	4030 (278)	4760 (328)	4760 (328)	4290 (296)	5060 (349)	5060 (349)
	P12	3/4"	3170 (219)	4210 (290)	4930 (340)	3380 (233)	4470 (308)	5250 (362)
	P16	1"	3340 (230)	3680 (254)	3990 (275)	3550 (245)	3920 (270)	4240 (292)
	P20	1-1/4"	2450 (169)	2700 (186)	2980 (205)	2675 (184)	2910 (201)	3170 (219)
	P24	1-1/2"	2260 (156)	2440 (168)	2440 (168)	2410 (166)	2600 (179)	2600 (179)
	P32	2"	1500 (103)	2200 (152)	2500 (172)	1600 (110)	2300 (159)	2700 (186)
	P48	3"	920 (63)	1700 (117)	1350 (93)	1150 (79)	2100 (145)	1705 (118)

TEMPERATURE RATING:

Piping systems containing the pipe fittings listed above may establish design pressures up to and including the ambient maximum design pressure given for temperatures from -60° to 100°F (-50° to 40°C) for ASME B31.1, and from -325° to 100°F (-200° to 40°C) for ASME B31.3. For temperatures above 200°F the maximum design pressure given shall be multiplied by the temperature de-rating factor listed below.

Temperature De-rating Table for Lokring SS Pipe Fittings		
Temperature °F (°C)	de-rating factor B31.1	de-rating factor B31.3
200° (93°)	1.00	1.00
300° (148°)	0.98	1.00
400° (204°)	0.96	0.97
500° (260°)	0.96	0.90
600° (315°)	0.90	0.85
650° (343°)	0.89	0.84
700° (371°)	0.87	0.82
750° (398°)	0.86	0.81
800° (426°)	0.85	0.80

NOTES:

1. Fitting material 316L Stainless Steel as per ASTM A276 or ASTM 479
2. LOKRING Stainless Steel Pipe Fittings are of a "slip-over" design facilitating zero-clearance pipe repair
3. See LOKRING Specification FS40 for details on Pressure and Temperature Ratings
4. See LOKRING "Corrosive Service Guidelines" for specific service details
5. See "LOKRING Fitting Applications Guide" for additional design and service details

MATCHING PIPE:

- 304/304L and 316/316L Stainless Steel pipe to ASTM A312
- Carbon Steel pipe to ASTM A106 and A53
- Seamwelded (ERW) Carbon Steel pipe to ASTM A53E and A587
- Seamless Carbon Steel pipe to ASTM A106 and A53S
- Pipe shall be of high quality, fully annealed construction with maximum Rockwell B scale hardness of 90
- The Lokring design technology is compatible with the OD and wall thickness tolerance for carbon steel as outlined in BS EN 10216-2:2002 Section 8.7.4.1.

NOTE: Pressure ratings are for Lokring proprietary joint design assembled on designated pipe. Lokring Technology also manufactures non-proprietary joint connections to design standards e.g. SAE, NPS, 37 Flare, etc. which are to be considered by the piping design engineer for rating the system.

Ordering Information

Other fittings not listed in this catalog and special shapes may be available. Consult your authorized Lokring Distributor for details.

To Order

Contact your authorized Lokring Distributor for more information.
See www.lokring.com for a complete listing of distributors.

Dimensions

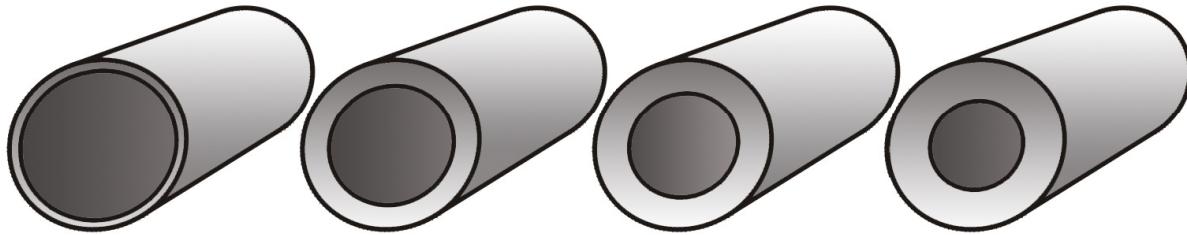
All dimensions are for reference only and subject to change.

CAD Templates

CAD files in .DWG file format are available for most configurations.
Contact your authorized Lokring distributor for details or see www.lokring.com.

Schedule Numbers

Nominal Pipe Size (NPS) 1 Inch (25mm)



Schedule 10
(Light Wall)

Schedule 40
(Standard)

Schedule 80
(Extra Strong)

Schedule 160

Outside Diameter

1.315" (33.4mm)	1.315" (33.4mm)	1.315" (33.4mm)	1.315" (33.4mm)
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Inside Diameter

1.097" (27.864mm)	1.049" (26.65mm)	0.957" (24.31mm)	0.815" (20.7mm)
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Wall Thickness

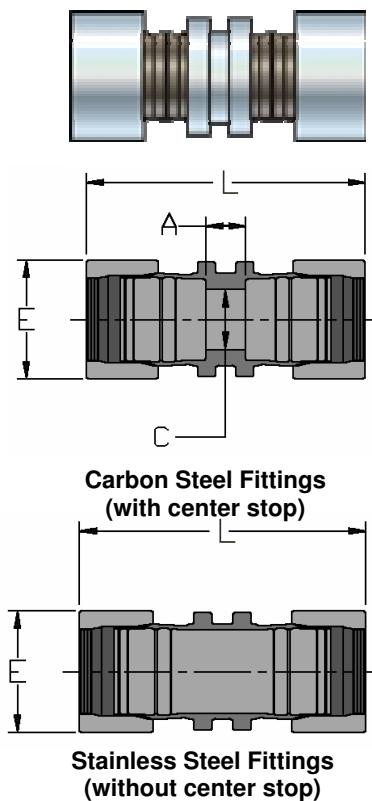
0.109" (2.769mm)	0.133" (3.4mm)	0.179" (4.6mm)	0.250" (6.35mm)
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$$\text{Wall Thickness} = \frac{\text{Outside Diameter} - \text{Inside Diameter}}{2}$$

Pipe Schedule

Nominal Pipe Size	Outside Diameter	NOMINAL WALL THICKNESS			
		SCHED. 10	SCHED. 40	SCHED. 80	SCHED. 160
1/4	.540	0.065	0.088	0.119	-
3/8	.675	0.065	0.091	0.126	-
1/2	.840	0.083	0.109	0.147	0.188
3/4	1.050	0.083	0.113	0.154	0.219
1	1.315	0.109	0.133	0.179	0.250
1-1/4	1.660	0.109	0.140	0.191	0.250
1-1/2	1.900	0.109	0.145	0.200	0.281
2	2.375	0.109	0.154	0.218	0.344
2-1/2	2.875	-	0.203	0.276	0.375
3	3.500	0.120	0.216	0.300	0.438

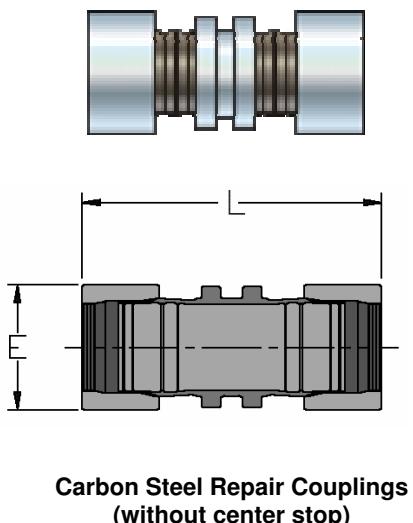
Couplings



Pipe Size NPS	Ordering Information			Dimensions				LokTool™
	Fitting Material	Shape	Fitting Size PXX	Take - Out A	Part Length (uninstalled) L	C	E	Standard Installation Tool
1/4	CS	- CPL -	P04	0.40	2.88	0.38	1.05	IT20
	SS			N/A	2.88	N/A	1.05	
3/8	CS	- CPL -	P06	0.45	3.20	0.50	1.24	IT30
	SS			N/A	3.20	N/A	1.24	
1/2	CS	- CPL -	P08	0.47	3.33	0.63	1.46	IT45
	SS			N/A	3.45	N/A	1.46	
3/4	CS	- CPL -	P12	0.47	3.71	0.81	1.60	IT45
	SS			N/A	3.88	N/A	1.63	
1	CS	- CPL -	P16	0.60	4.55	1.03	1.95	IT45 / IT60
	SS			N/A	4.39	N/A	1.96	
1-1/4	CS	- CPL -	P20	0.59	5.02	1.38	2.29	IT60
	SS			N/A	5.02	N/A	2.36	
1-1/2	CS	- CPL -	P24	0.66	5.44	1.59	2.61	IT60
	SS			N/A	5.60	N/A	2.58	
2	CS	- CPL -	P32	0.71	6.54	2.05	3.25	IT60
	SS			N/A	6.14	N/A	3.10	
3	CS	- CPL -	P48	0.85	9.43	2.94	4.34	IT100
	SS			N/A	9.43	N/A	4.50	

All dimensions are for reference only and are subject to change.
 Insertion depth = (L-A) / 2

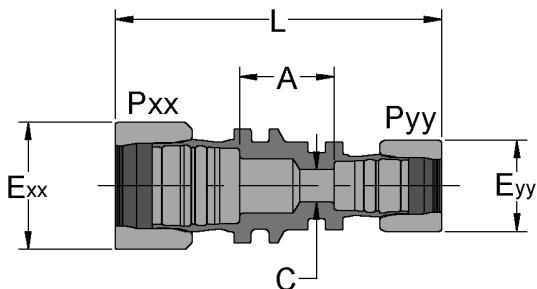
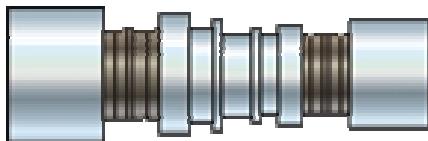
Repair Couplings (Slip Couplings)



Pipe Size NPS	Ordering Information			Dimensions			LokTool™
	Fitting Body Material	Shape	Fitting Size PXX	Take - Out A	Part Length (uninstalled) L	E	Standard Installation Tool
3/8	CS	- RCPL -	P06	N/A	3.20	1.24	IT30
1/2	CS	- RCPL -	P08	N/A	3.33	1.46	IT45
3/4	CS	- RCPL -	P12	N/A	3.71	1.60	IT45
1	CS	- RCPL -	P16	N/A	4.55	1.95	IT45 / IT60
1-1/4	CS	- RCPL -	P20	N/A	5.02	2.29	IT60
1-1/2	CS	- RCPL -	P24	N/A	5.44	2.61	IT60
2	CS	- RCPL -	P32	N/A	6.54	3.25	IT60
3	CS	- RCPL -	P48	N/A	9.43	4.34	IT60

*LOKRING's Carbon Steel Repair Couplings are 'slip-over' couplings made without an internal stop in order to facilitate zero-clearance pipe repair work. They consist of a stainless steel body with carbon steel drivers, their pressure ratings are the same as those of LOKRING's stainless steel pipe fittings and their temperature ratings are those of the carbon steel fittings.

Reducing Couplings

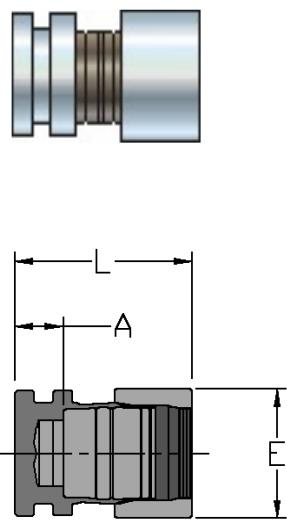


Pipe Size NPS	Ordering Information			Dimensions				
	Fitting Material	Shape	Fitting Size PXX-PYY	Take - Out, A	Part Length (uninstalled) L	ID C	Exx	Eyy
1/2 – 1/4	CS	- RED -	P08-P04	1.09	3.75	0.38	1.46	1.05
	SS			- *	-	-	-	-
1/2 – 3/8	CS	- RED -	P08-P06	1.12	3.92	0.49	1.46	1.24
	SS			0.67	3.99	0.49	1.46	1.24
3/4 – 1/2	CS	- RED -	P12-P08	1.25	4.29	0.63	1.60	1.46
	SS			0.83	4.49	0.64	1.63	1.46
1 – 1/2	CS	- RED -	P16-P08	1.50	4.90	0.63	1.95	1.46
	SS			1.02	4.93	0.64	1.96	1.46
1 – 3/4	CS	- RED -	P16-P12	1.50	5.10	0.81	1.95	1.60
	SS			0.90	5.03	0.82	1.96	1.63
1-1/4 – 3/4	CS	- RED -	P20-P12	1.41	5.24	0.87	2.29	1.60
	SS			- *	-	-	-	-
1-1/4 – 1	CS	- RED -	P20-P16	1.73	5.92	1.03	2.29	1.95
	SS			1.04	5.78	1.07	2.36	1.96
1-1/2 – 1/2	CS	- RED -	P24-P08	2.12	5.94	0.63	2.61	1.46
	SS			- *	-	-	-	-
1-1/2 – 3/4	CS	- RED -	P24-P12	2.00	6.01	0.81	2.61	1.60
	SS			1.85	6.59	0.82	2.58	1.63
1-1/2 – 1	CS	- RED -	P24-P16	1.88	6.24	1.03	2.61	1.95
	SS			1.70	6.70	1.07	2.58	1.96
1-1/2 – 1-1/4	CS	- RED -	P24-P20	1.68	6.29	1.38	2.61	2.29
	SS			1.88	6.22	1.44	2.58	2.36
2 – 1/2	CS	-RED-	P32-P08	2.50	6.84	0.63	3.25	1.46
	SS			- *	-	-	-	-
2-3/4	CS	-RED-	P32-P12	2.25	6.78	0.81	3.25	1.60
	SS			*	-	-	-	-
2 – 1	CS	- RED -	P32-P16	2.25	7.15	1.03	3.25	1.95
	SS			2.07	7.28	1.05	3.10	1.96
2 – 1-1/4	CS	- RED -	P32-P20	2.23	7.36	1.38	3.25	2.29
	SS			1.77	7.38	1.44	3.10	2.36
2 – 1-1/2	CS	- RED -	P32-P24	2.01	7.31	1.59	3.25	2.61
	SS			1.24	7.11	1.65	3.10	2.58
3 – 1/2	CS	- RED -	P48-P08	5.20	10.91	0.63	4.34	1.46
	SS			- *	-	-	-	-
3 – 1	CS	- RED -	P48-P16	5.42	11.68	0.96	4.34	1.95
	SS			4.50	11.28	1.05	4.50	1.96
3 – 1-1/2	CS	-RED-	P48-P24	5.37	12.05	1.51	4.34	2.61
	SS			- *	-	-	-	-
3 – 2	CS	- RED -	P48-P32	5.39	12.59	1.94	4.34	3.25
	SS			4.61	12.39	2.07	4.50	3.10

*Consult your authorized Lokring distributor for details

All dimensions are for reference only and subject to change

Caps



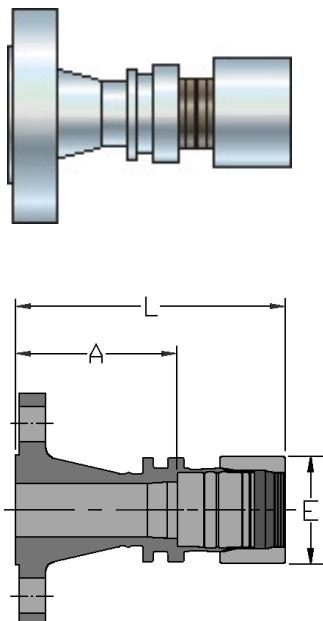
Pipe Size NPS	Ordering Information			Take - Out A	Part Length (uninstalled) L	E
	Fitting Material	Shape	Fitting Size PXX			
1/2	CS	- CAP -	P08	0.53	1.96	1.46
	SS			0.85	2.57	1.46
3/4	CS	- CAP -	P12	0.55	2.16	1.60
	SS			0.91	2.85	1.63
1	CS	- CAP -	P16	0.73	2.70	1.95
	SS			1.04	3.24	1.96
1-1/4	CS	- CAP -	P20	2.25	4.47	2.29
	SS			1.11	3.65	2.36
1-1/2	CS	- CAP -	P24	0.82	3.21	2.61
	SS			1.22	4.02	2.58
2	CS	- CAP -	P32	2.34	5.25	3.25
	SS			1.29	4.36	3.10
3	CS	- CAP -	P48	3.05	7.34	4.34
	SS			2.63	7.34	4.50

All dimensions are for reference only and subject to change
 Insertion depth= L-A

ANSI Class Flange Adapters (150# - 1500#)

NOTE: 150# dimensions shown

150# Rating



Pipe Size NPS	Ordering Information			Take - Out A	Part Length (uninstalled) L	E
	Fitting Material	Shape	Fitting Size PXX			
1/2	CS	- FLNG150 -	P08	2.53	3.96	1.46
	SS			2.23	3.95	1.46
3/4	CS	- FLNG150 -	P12	2.72	4.33	1.60
	SS			2.44	4.37	1.63
1	CS	- FLNG150 -	P16	2.96	4.93	1.95
	SS			2.57	4.76	1.96
1-1/4	CS	- FLNG150 -	P20	3.00	5.22	2.29
	SS			2.67	5.16	2.36
1-1/2	CS	- FLNG150 -	P24	3.26	5.64	2.61
	SS			2.87	5.67	2.58
2	CS	- FLNG150 -	P32	3.34	6.25	3.25
	SS			2.98	6.03	3.10
3	CS	- FLNG150 -	P48	3.80	8.09	4.34
	SS			3.68	8.40	4.50

Also available as 300#, 600#, 900# and 1500# flanges.

*Consult your authorized Lokring distributor for details and other available options.

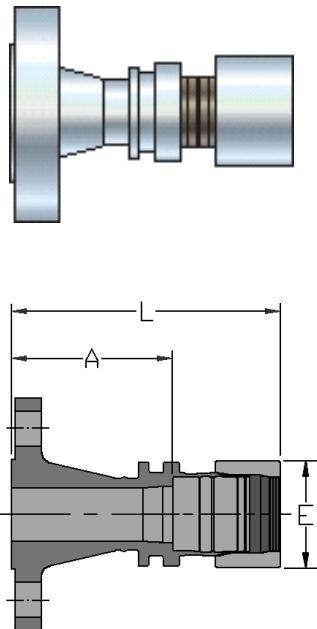
Replace the 150, in the ordering information, with desired class # to specify part

All dimensions are for reference only and subject to change

Insertion depth= L-A

ANSI Class Flange Adapters (Continued)

300# Capacity



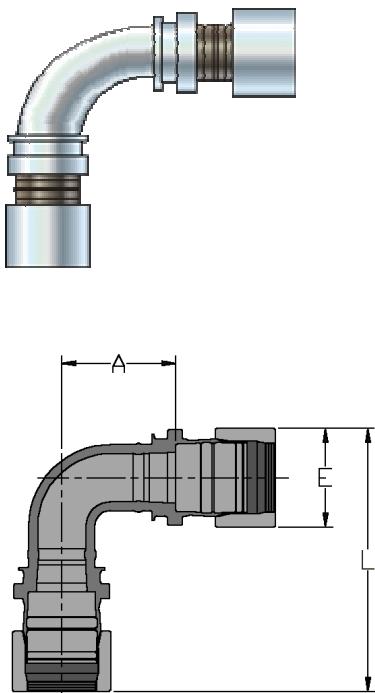
Pipe Size NPS	Ordering Information			Take - Out A	Part Length (uninstalled) L	E
	Fitting Material	Shape	Fitting Size PXX			
1/2	CS	- FLNG300 -	P08	2.71	4.14	1.46
	SS			2.41	4.13	1.46
3/4	CS	- FLNG300 -	P12	2.98	4.60	1.60
	SS			2.63	4.57	1.63
1	CS	- FLNG300 -	P16	3.21	5.19	1.95
	SS			2.82	5.01	1.96
1-1/4	CS	- FLNG300 -	P20	3.31	5.53	2.29
	SS			2.98	5.53	2.36
1-1/2	CS	- FLNG300 -	P24	3.50	5.90	2.61
	SS			2.95	5.92	2.58
2	CS	- FLNG300 -	P32	3.59	6.50	3.25
	SS			3.25	6.53	3.25
3	CS	- FLNG300 -	P48	4.17	8.46	4.34
	SS			3.66	8.40	4.50

*All dimensions are for reference only and subject to change
 Insertion depth= L-A

NOTE: Lokring ANSI Class Flange Adapters with 600#, 900# and 1500# ratings are also available. Please contact your authorized Lokring distributor for additional information.

90° Elbows

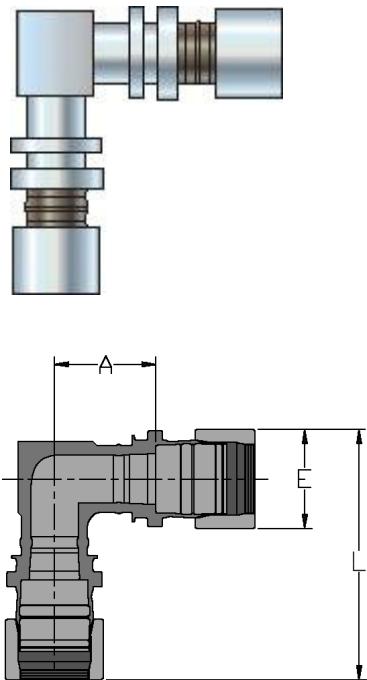
Long Radius



Pipe Size NPS	Ordering Information			Take - Out A	Part Length (uninstalled) L	E
	Fitting Material	Shape	Fitting Size PXX			
1/2	CS	- EL90 -	P08	2.15	4.31	1.46
	SS					
3/4	CS	- EL90 -	P12	1.79	4.20	1.60
	SS					
1	CS	- EL90 -	P16	2.27	5.22	1.95
	SS					
1-1/4	CS	- EL90 -	P20	2.63	5.99	2.29
	SS					
1-1/2	CS	- EL90 -	P24	3.07	6.76	2.61
	SS					
2	CS	- EL90 -	P32	3.84	8.38	3.25
	SS					
3	CS	- EL90 -	P48	5.55	12.01	4.34
	SS					

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

Short Radius

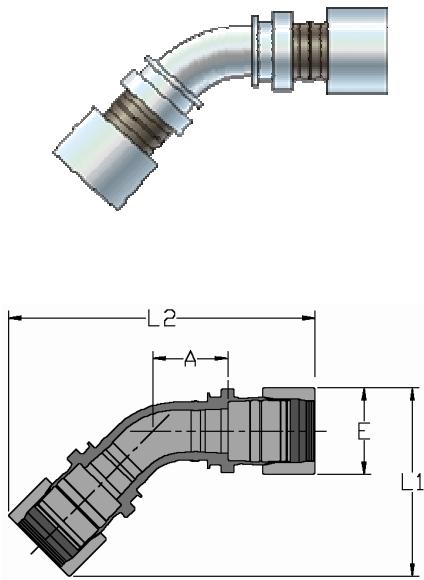


Pipe Size NPS	Ordering Information			Take - Out A	Part Length (uninstalled) L	E
	Fitting Material	Shape	Fitting Size PXX			
1/4	CS	- EL90SR -	P04	-	-	-
	SS					
3/8	CS	- EL90SR -	P06	-	-	-
	SS					
1/2	CS	- EL90SR -	P08	1.62	3.78	1.46
3/4	CS	- EL90SR -	P12	1.54	3.96	1.60

*Consult your authorized Lokring distributor for details and other available options
 All Dimensions are for reference only
 Insertion depth L-A - 1/2 E

**90° Elbow Fittings
 (Short Radius Style)**

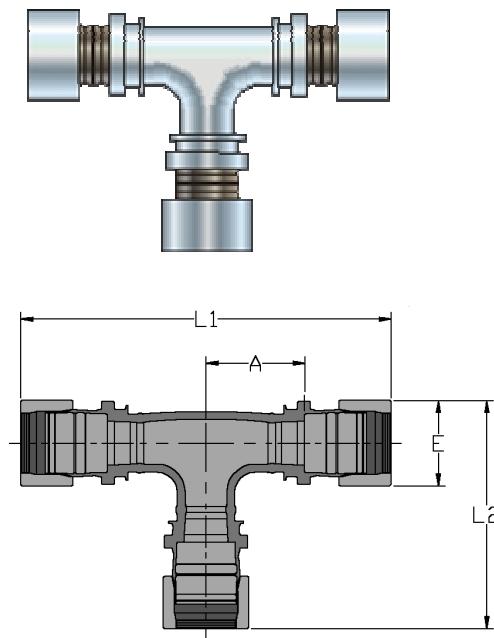
45° Elbows



Pipe Size NPS	Ordering Information			Take - Out A	Part Length (uninstalled) L1	Part Length (uninstalled) L2	E
	Fitting Material	Shape	Fitting Size PXX				
1/4	CS	- EL45 -	P04	- *	-	-	-
	SS			1.02	2.62	4.55	1.05
3/8	CS	- EL45 -	P06	- *	-	-	-
	SS			0.95	2.85	4.77	1.24
1/2	CS	- EL45 -	P08	1.28	3.15	5.13	1.46
	SS			0.98	3.14	5.11	1.46
3/4	CS	- EL45 -	P12	1.41	3.49	5.72	1.60
	SS			0.82	3.54	5.80	1.63
1	CS	- EL45 -	P16	1.61	4.23	6.84	1.95
	SS			1.25	4.10	6.57	1.96
1-1/4	CS	- EL45 -	P20	1.75	4.73	7.56	2.29
	SS			1.42	4.80	7.58	2.36
1-1/2	CS	- EL45 -	P24	1.94	5.28	8.31	2.61
	SS			1.56	5.26	8.33	2.58
2	CS	- EL45 -	P32	2.21	6.39	9.89	3.25
	SS			1.86	6.08	9.41	3.10
3	CS	- EL45 -	P48	3.20	8.82	14.14	4.34
	SS			2.63	8.97	14.06	4.50

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

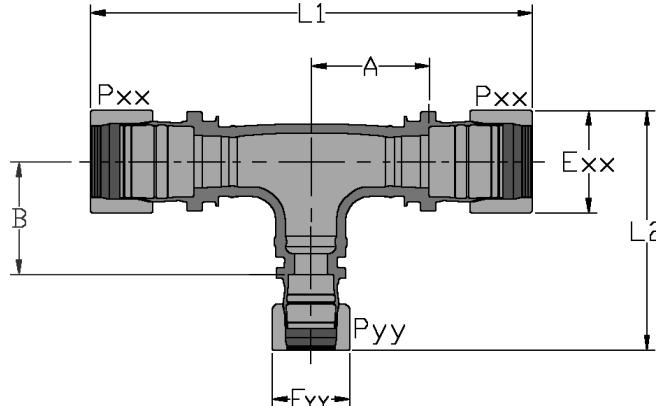
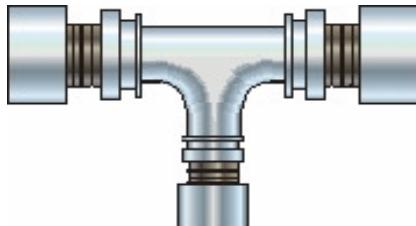
Tees



Pipe Size NPS	Ordering Information			Take - Out A	Part Length (uninstalled) L1	Part Length (uninstalled) L2	E
	Fitting Material	Shape	Fitting Size PXX				
1/4	CS	- TEE -	P04	- *	-	-	-
	SS			1.10	5.07	3.06	1.05
3/8	CS	- TEE -	P06	- *	-	-	-
	SS			1.10	5.39	3.32	1.24
1/2	CS	- TEE -	P08	1.65	6.17	3.81	1.46
	SS			1.13	5.69	3.58	1.46
3/4	CS	- TEE -	P12	1.78	6.80	4.20	1.60
	SS			1.26	6.41	4.02	1.63
1	CS	- TEE -	P16	2.27	8.48	5.22	1.95
	SS			1.88	8.15	5.05	1.96
1-1/4	CS	- TEE -	P20	2.63	9.69	5.99	2.29
	SS			2.30	9.69	6.02	2.36
1-1/2	CS	- TEE -	P24	3.07	10.91	6.76	2.61
	SS			2.68	10.96	6.77	2.58
2	CS	- TEE -	P32	3.34	12.51	7.88	3.25
	SS			2.98	12.10	7.60	3.10
3	CS	- TEE -	P48	4.43	17.43	10.88	4.34
	SS			4.00	17.43	10.96	4.50

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

Reducing Branch Tees



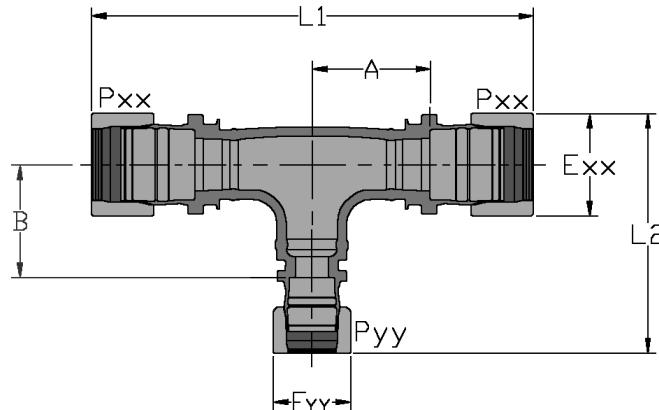
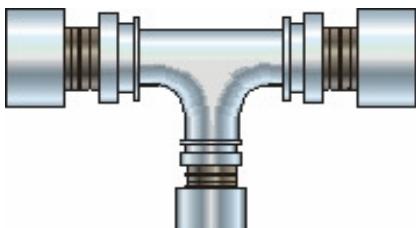
Pipe Size NPS	Ordering Information			Take - Out, A	Take - Out, B	Part Length (uninstalled) L1	Part Length (uninstalled) L2	Exx	Eyy
	Fitting Material	Shape	Fitting Size PXX-PYY						
1/2 – 1/4	CS	- RTEE -	P08-P04	- *	-	-	-	-	-
	SS			1.13	1.17	5.69	3.34	1.46	1.05
1/2 – 3/8	CS	- RTEE -	P08-P06	- *	*	-	-	-	-
	SS			1.13	1.10	5.69	3.43	1.46	1.24
3/4 – 1/4	CS	- RTEE -	P12-P04	- *	-	-	-	-	-
	SS			1.26	1.28	6.41	3.53	1.63	1.05
3/4 – 1/2	CS	- RTEE -	P12-P08	1.54	2.01	6.32	4.25	1.60	1.46
	SS			1.26	1.33	6.41	3.83	1.63	1.46
1 – 1/4	CS	- RTEE -	P16-P04	- *	-	-	-	-	-
	SS			1.88	2.64	8.15	5.06	1.96	1.05
1 – 1/2	CS	- RTEE -	P16-P08	2.27	2.15	8.49	4.55	1.95	1.46
	SS			1.88	2.13	8.15	4.83	1.96	1.46
1 – 3/4	CS	- RTEE -	P16-P12	2.27	2.16	8.49	4.75	1.95	1.60
	SS			1.88	2.02	8.15	4.94	1.96	1.63
1-1/4 – 3/4	CS	- RTEE -	P20-P12	2.63	3.04	9.70	5.80	2.29	1.60
	SS			- *	-	-	-	-	-
1-1/4 – 1	CS	- RTEE -	P20-P16	2.63	2.72	9.70	5.84	2.29	1.95
	SS			2.30	2.50	9.69	5.87	2.36	1.96
1-1/2 – 1/2	CS	- RTEE -	P24-P08	3.07	2.90	10.91	5.63	2.61	1.46
	SS			2.68	2.88	10.96	5.90	2.58	1.46
1-1/2 – 3/4	CS	- RTEE -	P24-P12	3.07	2.91	10.91	5.83	2.61	1.60
	SS			2.68	2.77	10.96	6.00	2.58	1.63
1-1/2 – 1	CS	- RTEE -	P24-P16	3.07	3.02	10.91	6.30	2.61	1.95
	SS			2.68	2.63	10.96	6.12	2.58	1.96
1-1/2 – 1-1/4	CS	- RTEE -	P24-P20	3.07	3.20	10.91	6.72	2.61	2.29
	SS			2.68	2.70	10.96	6.53	2.58	2.36

*Consult your authorized Lokring distributor for details and other available options

All dimensions are for reference only and subject to change

Insertion depth= $(L1-2A) / 2$ AND $L2 - \frac{1}{2} EXX - B$

Reducing Branch Tees ... (continued)



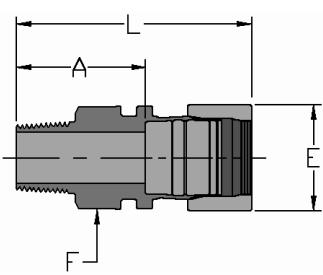
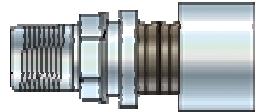
Pipe Size NPS	Ordering Information			Take - Out, A	Take - Out, B	Part Length (uninstalled) L1	Part Length (uninstalled) L2	Exx	Eyy
	Fitting Material	Shape	Fitting Size PXX-PYY						
2 - 1/2	CS	- RTEE -	P32-P08	3.34	2.65	12.51	5.70	3.25	1.46
	SS			2.98	2.63	12.10	5.90	3.10	1.46
2 - 3/4	CS	- RTEE -	P32-P12	3.34	2.66	12.51	5.90	3.25	1.60
	SS			2.98	2.52	12.10	6.01	3.10	1.63
2 - 1	CS	- RTEE -	P32-P16	3.34	2.77	12.51	6.37	3.25	1.95
	SS			2.98	2.38	12.10	6.12	3.10	1.96
2 - 1-1/4	CS	- RTEE -	P32-P20	3.34	3.33	12.51	7.17	3.25	2.29
	SS			- *	-	-	-	-	-
2 - 1-1/2	CS	- RTEE -	P32-P24	3.34	3.20	12.51	7.21	3.25	2.61
	SS			2.98	3.26	12.10	7.61	3.10	2.58
3 - 1/2	CS	- RTEE -	P48-P08	- *	-	-	-	-	-
	SS			4.00	3.26	17.43	7.23	4.50	1.46
3 - 3/4	CS	- RTEE -	P48-P12	4.35	3.39	17.28	7.18	4.34	1.60
	SS			4.00	3.15	17.43	7.34	4.50	1.63
3 - 1	CS	- RTEE -	P48-P16	4.35	3.50	17.28	7.64	4.34	1.95
	SS			4.00	3.00	17.43	7.45	4.50	1.96
3 - 1-1/4	CS	- RTEE -	P48-P20	4.35	3.83	17.43	8.21	4.34	2.29
	SS			- *	-	-	-	-	-
3 - 1-1/2	CS	- RTEE -	P48-P24	4.35	3.75	17.28	8.32	4.34	2.61
	SS			4.00	3.31	17.43	8.36	4.50	2.58
3 - 2	CS	- RTEE -	P48-P32	4.35	3.78	17.28	8.86	4.34	3.25
	SS			4.00	3.48	17.43	8.80	4.50	3.10

*Consult your authorized Lokring distributor for details and other available options

All dimensions are for reference only and subject to change

Insertion depth= (L1-2A) / 2 AND L2- 1/2 EXX - B

Male Adapters (NPT Taper Thread)



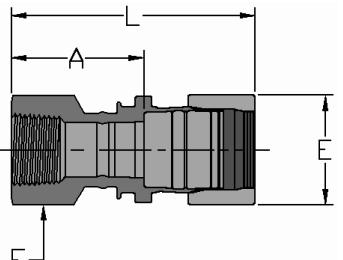
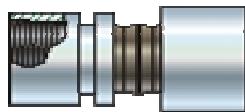
Pipe Size NPS	Ordering Information			Take - Out A	Part Length (uninstalled) L	E	Across Wrench Flats F	Thread
	Fitting Material	Shape	Fitting Size PXX-YYMPT					
1/4	CS	- ADPT -	P04-1/4 MPT	1.47	2.71	1.05	0.88	1/4-18
	SS	- ADPT -		1.45	2.89	1.05	0.63	
3/8	CS	- ADPT -	P06-3/8 MPT	*	-	-	-	3/8-18
	SS	- ADPT -		1.58	3.17	1.24	0.75	
1/2	CS	- ADPT -	P08-1/2 MPT	1.69	3.12	1.46	1.13	1/2-14
	SS	- ADPT -		1.46	3.18	1.46	0.94	
3/4	CS	- ADPT -	P12-3/4 MPT	1.83	3.45	1.60	1.38	3/4-14
	SS	- ADPT -		1.95	3.89	1.63	1.12	
1	CS	- ADPT -	P16-1 MPT	2.36	4.34	1.95	1.63	1-11.5
	SS	- ADPT -		2.26	4.46	1.96	1.37	
1-1/4	CS	- ADPT -	P20-1 1/4 MPT	2.70	4.92	2.29	1.69	1-1/4-11.5
	SS	- ADPT -		2.37	4.91	2.36	1.75	
1-1/2	CS	- ADPT -	P24-1 1/2 MPT	2.45	4.83	2.61	2.13	1-1/2-11.5
	SS	- ADPT -		2.53	5.33	2.58	2.00	
2	CS	- ADPT -	P32-2 MPT	2.51	5.43	3.25	2.50	2-11.5
	SS	- ADPT -		2.62	5.69	3.10	2.38	
3	CS	- ADPT -	P48-3 MPT	3.29	7.58	4.34	3.50	3-8
	SS	- ADPT -		*	-	-	-	

*Consult your authorized Lokring distributor for details

All dimensions are for reference only and subject to change.

Insertion depth= L-A

Female Adapters (NPT Taper Thread)



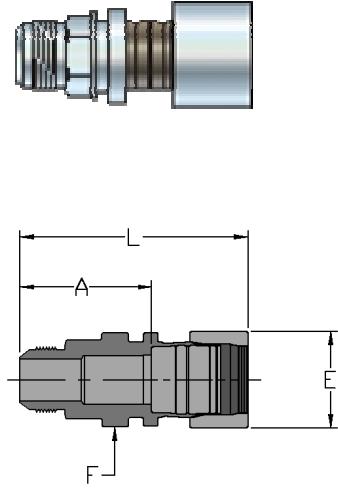
Pipe Size NPS	Ordering Information			Take - Out A	Part Length (uninstalled) L	E	Across Wrench Flats F	Thread
	Fitting Material	Shape	Fitting Size PXX-YYFPT					
1/4	CS	- ADPT -	P04-1/4 FPT	*	-	-	-	1/4-18
	SS	- ADPT -		0.60	2.20	1.05	0.69	
3/8	CS	- ADPT -	P06-3/8 FPT	*	-	-	-	3/8-18
	SS	- ADPT -		0.90	2.50	1.24	0.94	
1/2	CS	- ADPT -	P08-1/2 FPT	0.98	2.41	1.46	1.13	1/2-14
	SS	- ADPT -		0.78	2.51	1.46	1.13	
3/4	CS	- ADPT -	P12-3/4 FPT	1.97	3.59	1.60	1.31	3/4-14
	SS	- ADPT -		0.80	2.74	1.63	1.31	
1	CS	- ADPT -	P16-1 FPT	2.38	4.35	1.95	1.69	1-11.5
	SS	- ADPT -		0.91	3.11	1.96	1.50	
1-1/4	CS	- ADPT -	P20-1 1/4 FPT	1.75	3.96	2.29	N/A	1-1/4-11.5
	SS	- ADPT -		0.93	3.48	2.36	1.88	
1-1/2	CS	- ADPT -	P24-1 1/2 FPT	1.81	4.20	2.61	N/A	1-1/2-11.5
	SS	- ADPT -		0.93	3.73	2.58	2.06	
2	CS	- ADPT -	P32-2 FPT	1.89	4.81	3.25	N/A	2-11.5
	SS	- ADPT -		*	-	-	-	

*Consult your authorized Lokring distributor for details

All dimensions are for reference only and subject to change.

Insertion depth= L-A

Male Adapters (37° Flare Straight Thread)**



Pipe Size NPS	Ordering Information			Take - Out A	Part Length (uninstalled) L	E	Across Wrench Flats F	Thread
	Fitting Material	Shape	Fitting Size PXX-YYF37					
1/2	CS	- ADPT -	P08-37F08	1.84	3.27	1.46	0.81	3/4-16 UNF
	SS			1.36	3.08	1.46	1.13	
3/4	CS	- ADPT -	P12-37F12	2.33	3.95	1.60	1.13	1 1/16-12 UN
	SS			1.60	3.54	1.63	1.13	
1	CS	- ADPT -	P16-37F16	2.63	4.61	1.95	1.38	1 5/16-12 UN
	SS			*	-	-	-	
1-1/4	CS	- ADPT -	P20-37F20	2.72	4.94	2.29	1.68	1 5/8-12 UN
	SS			*	-	-	-	
1-1/2	CS	- ADPT -	P24-37F24	3.32	5.72	2.61	2.00	1 7/8-12 UN
	SS			*	-	-	-	
2	CS	- ADPT -	P32-37F32	3.58	6.50	3.25	2.63	2 1/2-12 UN
	SS			*	-	-	-	

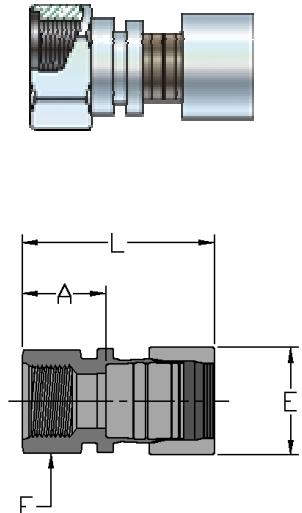
* Consult your authorized Lokring distributor for details

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

All dimensions are for reference only and subject to change

Insertion depth= L-A

Female Adapters (SAE Straight Thread)*



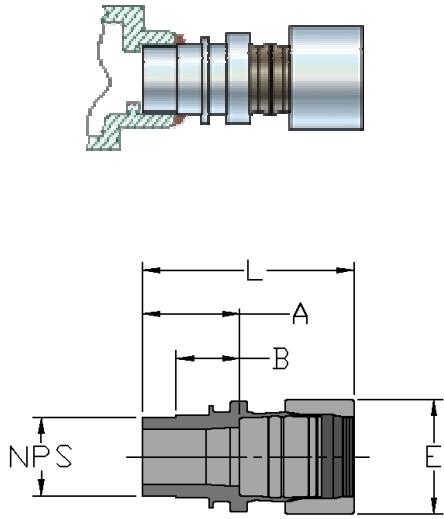
Pipe Size NPS	Ordering Information			Take - Out A	Part Length (uninstalled) L	E	Across Wrench Flats F	Thread
	Fitting Material	Shape	Fitting Size PXX-YYSAE					
1/2	CS	- ADPT -	P08-0.50SAE	1.00	2.43	1.46	1.06	3/4 -16 UNF
	SS			0.82	2.54	1.46	1.06	
3/4	CS	- ADPT -	P12-0.75SAE	1.38	3.00	1.60	1.44	1 1/16-12 UN
	SS			1.18	3.12	1.63	1.44	
1	CS	- ADPT -	P16-1.00SAE	1.50	3.48	1.95	1.63	1 5/16-12 UN
	SS			1.20	3.40	1.96	1.63	
1-1/4	CS	- ADPT -	P20-1.25SAE	1.50	3.72	2.29	2.00	1 5/8-12 UN
	SS			1.17	3.72	2.36	2.00	
1-1/2	CS	- ADPT -	P24-1.50SAE	1.63	4.02	2.61	2.25	1 7/8-12 UN
	SS			1.37	4.17	2.58	2.25	
2	CS	- ADPT -	P32-2.00SAE	3.00	5.93	3.25	3.00	2 1/2-12 UN
	SS			2.64	5.71	3.10	3.00	

* Threaded end conforms to SAE J1926/1 (O-ring straight thread adapter)

All dimensions are for reference only and subject to change

Insertion depth= L-A

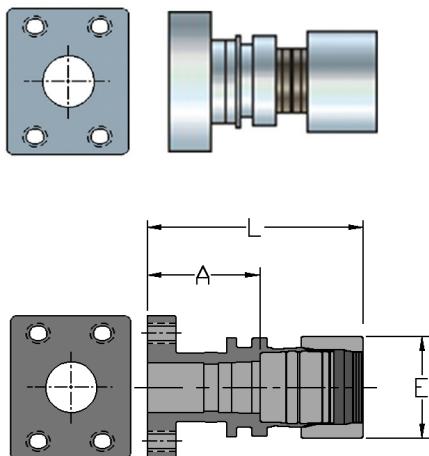
Socket Weld Adapters



Pipe Size NPS	Ordering Information			Take - Out A	Take - Out B	Part Length (uninstalled) L	E
	Fitting Material	Shape	Fitting Size PXX-YYNPS				
3/8	CS	- ADPT -	P06-3/8 NPS	1.34	1.00	2.71	1.24
	SS			1.34	1.00	2.94	1.24
1/2	CS	- ADPT -	P08-1/2 NPS	1.40	1.00	2.83	1.46
	SS			1.40	1.00	3.12	1.46
3/4	CS	- ADPT -	P12-3/4 NPS	1.46	1.00	3.08	1.60
	SS			1.46	1.00	3.40	1.63
1	CS	- ADPT -	P16-1 NPS	1.52	1.00	3.50	1.95
	SS			1.52	1.00	3.72	1.96
1-1/4	CS	- ADPT -	P20-1 1/4 NPS	1.59	1.00	3.81	2.29
	SS			1.59	1.00	4.14	2.36
1-1/2	CS	- ADPT -	P24-1 1/2 NPS	1.65	1.00	4.04	2.61
	SS			1.65	1.00	4.45	2.58
2	CS	- ADPT -	P32-2 NPS	1.70	1.00	4.62	3.25
	SS			1.67	1.02	4.74	3.10

*Non LOKRING end manufactured to match up with 6000 lb socket weld adapter
 All dimensions are for reference only and subject to change
 Insertion depth= L-A

SAE61 Solid Flange Adapters



Pipe Size NPS	Ordering Information			Take - Out A	Part Length (uninstalled) L	E
	Fitting Material	Shape	Fitting Size PXX			
1/2	CS	- SAE61SLD -	P08	1.72	3.14	1.46
	SS			1.41	3.13	1.46
3/4	CS	- SAE61SLD -	P12	1.72	3.33	1.60
	SS			1.44	3.38	1.63
1	CS	- SAE61SLD -	P16	2.14	4.12	1.95
	SS			1.63	3.82	1.96
1-1/4	CS	- SAE61SLD -	P20	2.19	4.42	2.29
	SS			1.86	4.41	2.36
1-1/2	CS	- SAE61SLD -	P24	2.68	5.08	2.61
	SS			2.18	4.98	2.58
2	CS	- SAE61SLD -	P32	2.84	5.75	3.25
	SS			2.48	5.55	3.10
3	CS	- SAE61SLD -	P48	3.37	7.66	4.34
	SS			3.38	8.09	4.50

* Non LOKRING end conforms to SAE J518 code 61 solid (tapped holes)

* Consult your authorized Lokring distributor for details such as code 62 and split flange designs

All dimensions are for reference only and subject to change.

Insertion depth= L-A

Other products offered

- **Fittings:**

In addition to the fittings listed in this catalog, LOKRING offers additional carbon steel (CS) and stainless steel (SS) pipe fittings including:

- ANSI flange tee connectors
- CIP connectors
- Crosses
- Ferrule type tube fitting drop tees
- Metric fittings
- NPS pipe to metric adapters
- NPT elbow connectors
- NPT tee connectors
- Pipe to tube adapters
- Pipe stub connectors
- Railroad fittings
- Run reducing tees
- SAE flange elbow connectors
- SAE threaded tee connectors
- Several styles of SAE flange connectors
- SAE threaded tee connectors
- Threaded pipe stub connectors
- Tube stub drop tees
- Unions, union thread, union tails



- **Special Configurations:**

Special configurations not seen in this catalog may exist and can be quoted. Please contact your local authorized LOKRING Distributor for details.

Additional fitting lines:

- Bulkhead Penetrators for pipe and tube
- Marine stainless steel (SS-3300) tube fittings
- Marine 70/30 copper nickel (CN-3300) tube fittings
- Marine stainless steel (SS-3300) pipe fittings
- Marine 90/10 copper nickel (CN-200) pipe fittings
- Marine 70/30 copper nickel (CN-700) pipe and tube fittings
- Railroad carbon steel (RR) pipe fittings
- Medical Gas brass tube fittings
- Stainless steel (SS40) tube fittings
- 333 process 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 designed for installing one size of fittings only, (ITK Series)

or

- Multiple tool kits designed for installing multiple size fittings with one tool (MTK Series).

Contact your authorized LOKRING distributor for ordering details.



Loktools will install both carbon steel (CS) and stainless steel (SS40) pipe fittings. Inserts may be specific to the fitting material.

How to select tooling

- The shaded cells show which size tool can install which size fitting.
- Specify the fitting size and material along with which tool size is desired in order to receive the proper setup for installing Lokring fittings.

Tool selection for Carbon and Stainless Pipe fitting sizes:									
Tool	1/4	3/8	1/2	3/4	1	1-1/4	1-1/2	2	3
IT20									
IT45									
IT60									
IT100									

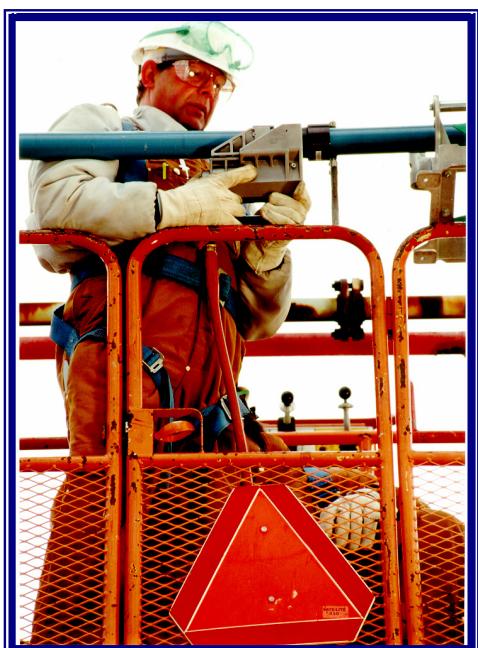
NOTE: Tool rentals are available through your local Lokring Distributor

Hydraulic Pumps

- All LOKTOOL™ system components (Installation Tool, Hose, Pump, Hydraulic Couplers) are rated for 10,000 psi max operating pressure.
- All pumps, hoses, and tools sold by Lokring are equipped with the same connectors, allowing versatility to suit your installation needs.



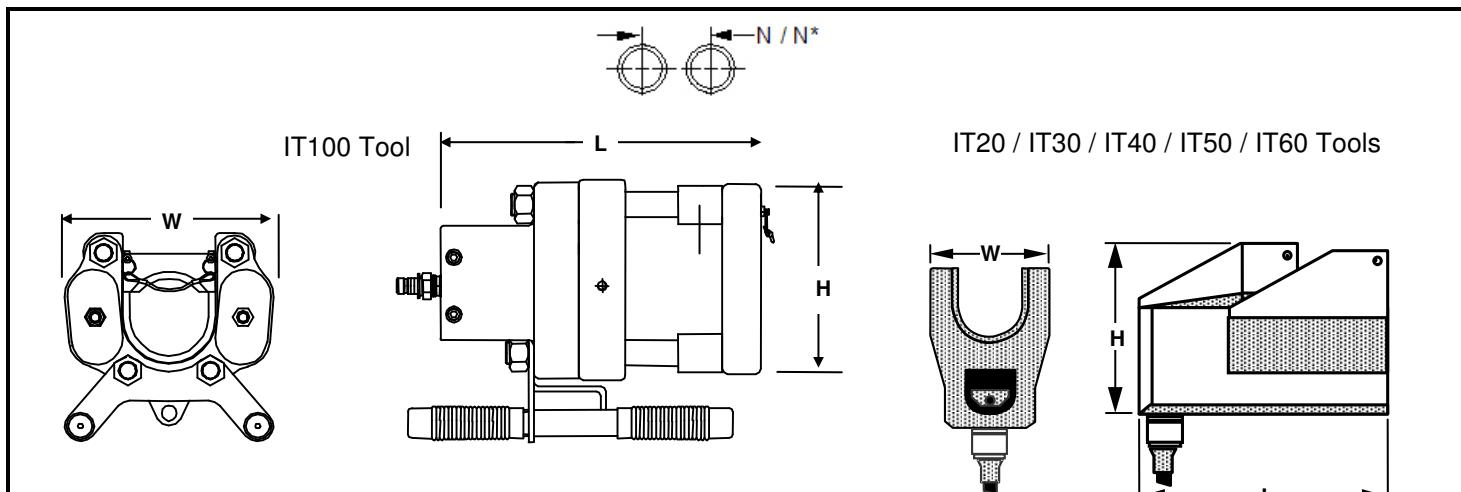
**Fast, Simple, Portable Installation –
 ¼" to 3" joints fully made in minutes!!**



- **Electric Pump (PUMP-OTC-QTRHRSE-ELEC):** Foot operated, high speed pump, best selection for high volume installations of larger size fittings.
- **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.
- **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.
- **Hydraulic Hose Assembly (HH15-QD):** 15 ft hose for all fitting sizes, pumps, and tool heads. Two or more hoses can be connected together to form longer lengths.



Tooling Dimensions (Carbon and Stainless Steel Pipe Fittings)



Dimensions	Pipe Or Tube OD	LOKTOOL Size	W	L	H	N	N*
Fitting Size			Tool Width	Tool Length	Tool Height	Minimum Spacing Center to Center	Minimum Spacing Center to Center, with fittings adjacent each other
1/4" NPS (P04)	0.540	IT20	2.36	5.00	3.20	1.58	1.83
3/8" NPS (P06)	0.675	IT30	2.66	6.45	3.97	1.80	2.08
3/8" NPS (P06)	0.675	IT45	3.91	6.38	4.91	2.43	2.70
3/8" NPS (P06)	0.675	IT50	4.21	7.29	5.33	2.58	2.85
1/2" NPS (P08)	0.840	IT30	2.66	6.45	3.97	1.88	2.19
1/2" NPS (P08)	0.840	IT45	3.91	6.38	4.91	2.51	2.81
1/2" NPS (P08)	0.840	IT50	4.21	7.29	5.33	2.66	2.96
3/4" NPS (P12)	1.050	IT30	2.66	6.45	3.97	1.99	2.27
3/4" NPS (P12)	1.050	IT45	3.91	6.38	4.91	2.61	2.90
3/4" NPS (P12)	1.050	IT50	4.21	7.29	5.33	2.76	3.05
1" NPS (P16)	1.315	IT45	3.91	6.38	4.91	2.75	3.06
1" NPS (P16)	1.315	IT50	4.21	7.29	5.33	2.90	3.21
1" NPS (P16)	1.315	IT60	5.01	8.59	5.84	3.30	3.61
1-1/4" NPS (P20)	1.660	IT50	4.21	7.29	5.33	3.07	3.41
1-1/4" NPS (P20)	1.660	IT60	5.01	8.59	5.84	3.47	3.81
1-1/2" NPS (P24)**	1.900	IT50	4.21	7.29	5.33	3.19	3.52
1-1/2" NPS (P24)	1.900	IT60	5.01	8.59	5.84	3.59	3.94
2" NPS (P32)	2.375	IT60	5.01	8.59	5.84	3.83	4.26
3" NPS (P48)	3.500	IT100	10.18	12.52	7.89	6.98	7.47

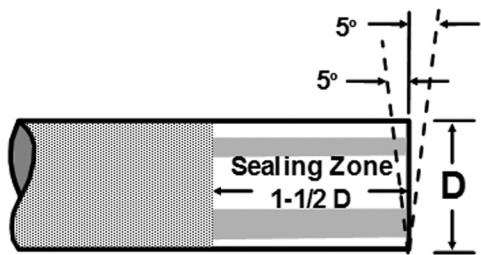
* Carbon Steel CS fittings only
** Stainless Steel SS fittings only

Installation Instructions

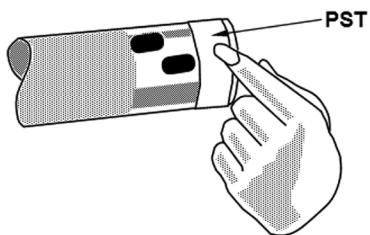
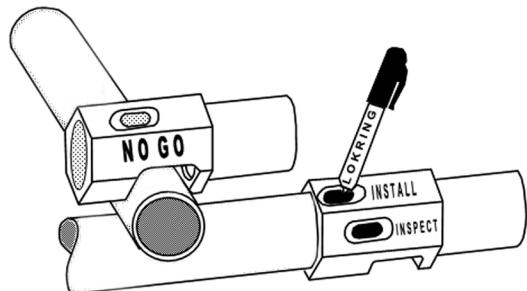
INSTALLATION PROCEDURE

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

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



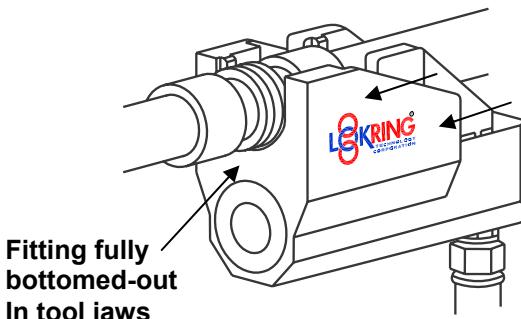
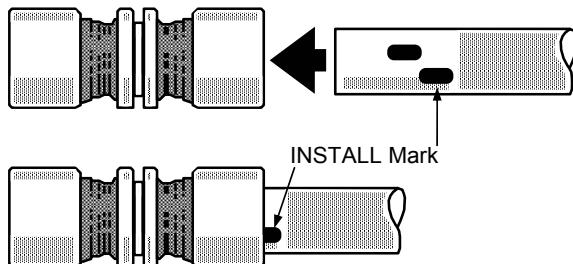
Step 2: Using Multipurpose Gage, verify that pipe OD is correctly sized, and mark pipe ends as shown.



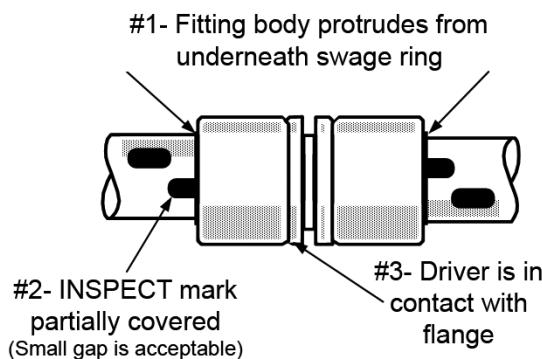
Special Note: A thin coat of Loctite® 567 PST (Pipe Sealant with Teflon) may be applied as an aide to seal where pipe surface is poor, and is suggested for Sch 10 pipe and thinner.

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

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



STEP 5: Carry out 3 visual checks below to verify successful installation.



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 (ii) 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 PIPING CONCERNS™



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