

MED GAS SOLUTIONS

Medical Gas Solutions™



PERMANENT
Cold Braze Alternative



ASSEMBLED
Within Minutes



NFPA 99
(National Fire Protection Association)

LOOKRING®
TECHNOLOGY LLC

Medical Gas Solutions from Lokring

Lokring Technology, LLC offers a patented, permanent, axially swaged tube fitting. This technology for medical gas applications meets the requirements of *NFPA 99: Health Care Facilities Code, 2015 Edition*.

Imagine being able to shut down your medical gas system and within minutes being able to install a tie-in, a tee for future expansion, or to cap off a line for renovation. Medical gas tie-ins can be installed as fast as you can drain the lines.

Simply bleed the medical gas or vacuum line, cut and clean the tubing, and install a Lokring™ fitting. It takes less than five minutes to install a permanent, leak-tight fitting.

Since no brazing is necessary, no expensive nitrogen NF purge is required. Without brazing, no particulate is created during installation. Gas lines go back into service as fast as the credentialed medical gas verifier can document proper concentrations.



Lokring Medical Gas Fittings

The installation of Lokring medical gas fittings takes minimal time and there is less patient disruption due to noise and brazing. Lokring installation is an alternative to brazing. There is no hot work, and no burn permits or fire watches are necessary. In addition, the speed of the Lokring installation reduces system down-time and the additional costs associated with contract labor and overtime staffing.

Fittings are cleaned for oxygen service in sizes 3/8 through 2 in. A simple hand-held tool is all that is necessary. The top photo on the left shows an installer attaching a 1 1/2 in. Lokring coupling to a pre-fabricated, vacuum line tie-in. The oxygen tie-in installation in the middle and bottom photos uses Lokring 1 1/2 in. couplings on Type L copper tubing.

The cost of Lokring medical gas fittings is considerably less than the overall cost of other special fittings for medical gas tie-ins. A short training course is all that is required for contractors with ANSI/ASSE 6010 installer certification. Lokring technology has been used by the marine, biotech, automotive, power generation, chemical processing and railroad industries worldwide since 1989.

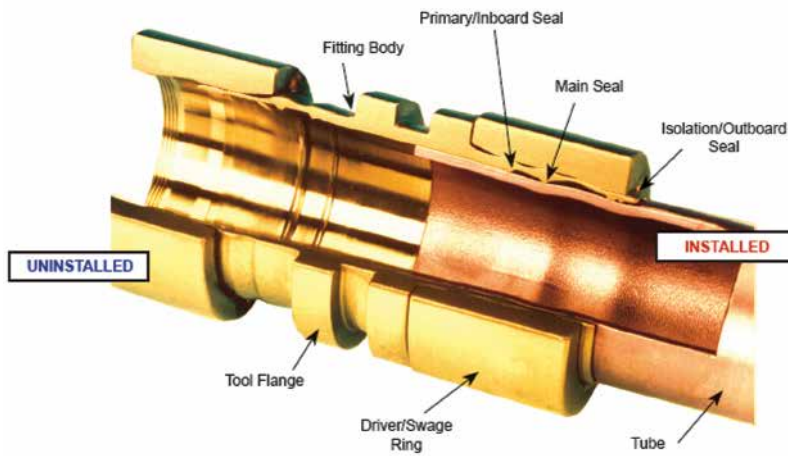
Advantages of Lokring Fittings

- No brazing necessary
- No nitrogen NF purge required
- No danger of particulate formation
- No danger of melting or burning of ambient materials in the area (such as adjacent wiring and pneumatic lines)
- No burn permits needed
- No fire brigade standby necessary
- No shutdown of smoke or fire sensors in the area
- No cooling of brazed joints—immediate usage following leak test
- Minimal patient disruption
- Special configurations available



This outside installation used Lokring couplings to connect existing medical gas lines to new lines for hospital expansion. This installation included 3/4 in. size for nitrogen and nitrous oxide. The oxygen line was 1 1/2 in. size on Type L copper. The total installation time for the three fittings was 20 minutes.

Lokring ESP® (Elastic Strain Preload®) Technology



The leak-free seal is the result of the Lokring fitting'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 seals inside the fitting body and the tube surface.

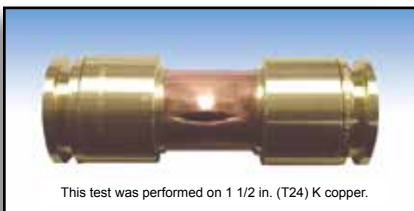
These contact stresses are sufficiently high to plastically yield the tube surface under the seals, forming a

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.

Pressure Testing

This test was performed on 1 1/2 in. Type K copper tubing. As shown, the copper tubing burst at 3200 psi while the fitting remained intact.



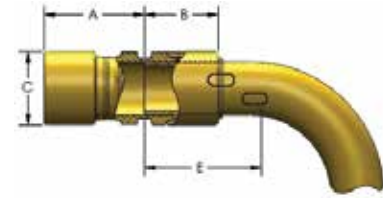
This test was performed on 1 1/2 in. (T24) K copper.

Nominal Fitting Size (TXX)	Tube OD in.	Qualified Wall Thickness K		Qualified Wall Thickness L		Qualified Wall Thickness M	
		Wall in.	Pressure Rating psi	Wall in.	Pressure Rating psi	Wall in.	Pressure Rating psi
3/8 in. (T06)	0.500	0.049	1946	0.035	1341	0.025	982
1/2 in. (T08)	0.625	0.049	1534	0.040	1242	0.028	850
5/8 in. (T10)	0.750	0.049	1266	0.042	1086	—	—
3/4 in. (T12)	0.875	0.065	1466	0.045	1002	0.032	701
1 in. (T16)	1.125	0.065	1126	0.050	850	0.035	580
1 1/4 in. (T20)	1.375	0.065	914	0.055	755	0.042	582
1 1/2 in. (T24)	1.625	0.072	850	0.060	702	0.049	569
2 in. (T32)	2.125	0.083	747	0.070	625	0.058	514

Pressure rating should be derated at elevated temperature. Fittings meet 1000 °F integrity test. See specification FS-BR for details. Temperature rating -425 to 400 °F.

General Information

Dimensions, in.						
Nominal Fitting Size	Tube OD	Qualified Wall Thickness K / L / M	Insertion Depth Pre-Install A	Insertion Depth Post-Install B	Outside Diameter C	Minimum Straight Run Before Obstruction E
3/8 in. (T06)	0.500	0.049 / 0.035 / 0.025	1.23	0.89	0.91	1.68
1/2 in. (T08)	0.625	0.049 / 0.040 / 0.028	1.23	0.89	0.91	1.68
5/8 in. (T10)	0.750	0.049 / 0.042 / —	1.41	1.02	1.02	1.95
3/4 in. (T12)	0.875	0.065 / 0.045 / 0.032	1.55	1.12	1.19	2.04
1 in. (T16)	1.125	0.065 / 0.050 / 0.035	2.04	1.46	1.53	2.63
1 1/4 in. (T20)	1.375	0.065 / 0.055 / 0.042	2.31	1.66	1.86	2.82
1 1/2 in. (T24)	1.625	0.072 / 0.060 / 0.049	2.64	1.90	2.21	3.20
2 in. (T32)	2.125	0.083 / 0.070 / 0.058	3.44	2.47	2.88	4.01



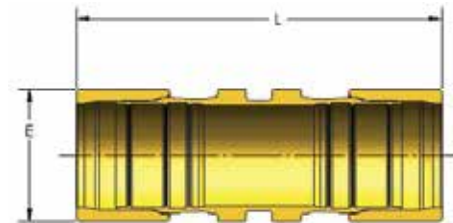
Notes

- Dimensions A, B, C, and E are applicable to all fittings of the same size within this catalog.
- For use on copper tube in accordance with ASTM B819, Type K and L wall, and drawn for copper tube in accordance with ASTM B88 Type K and L wall.
- For tooling dimensions refer to proper catalog or www.lokring.com.
- Coupling "thru-bore" design permits tube to pass completely through.
- Fitting material 360 brass in accordance with ASTM B16.
- Fittings are cleaned to CGA G-4.1 standard. (OC = Oxygen Clean)
- Fittings meet the requirements of NFPA 99-2015 and meet or exceed the design requirements of brazed fittings.
- CAD files in .DWG file format are available for most configurations.
- All dimensions are reference only and are subject to change.
- Due to variation in heat affected zones (HAZ), Lokring fittings should be installed at least 6 in. from a brazed joint.
- Fittings individually bagged after cleaning.

Couplings

Tubing Size in.	Ordering Information			Dimensions, in.			Loktool® Installation Tool Kit
	Fitting Material	Shape	Fitting Size TXX	Part Length (Uninstalled) L	E	Take-Out A	
3/8	BR	- CPL -	T06	2.47	0.91	—	IT20
1/2	BR	- CPL -	T08	2.47	0.91	—	IT20
5/8	BR	- CPL -	T10	2.82	1.02	—	IT20
3/4	BR	- CPL -	T12	3.11	1.19	—	IT20
1	BR	- CPL -	T16	4.07	1.53	—	IT50
1 1/4	BR	- CPL -	T20	4.62	1.86	—	IT50
1 1/2	BR	- CPL -	T24	5.28	2.21	—	IT50
2	BR	- CPL -	T32	6.88	2.88	N/A	IT50

BR-CPL-TXX

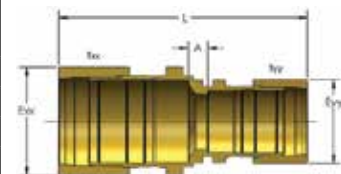


All dimensions are for reference only and are subject to change. Consult your authorized Lokring distributor for details and other available options.

Reducers

Tubing Size in.	Ordering Information			Dimensions, in.				Loktool Installation Tool Kit
	Fitting Material	Shape	Fitting Size TXX-TYY	Part Length (Uninstalled) L	Take-Out A	Exx	Eyy	
1/2 to 3/8	BR	- RED -	T08 - T06	2.47	0.42	0.91	0.91	IT20
5/8 to 1/2	BR	- RED -	T10 - T08	2.84	0.19	1.02	0.91	IT20
3/4 to 1/2	BR	- RED -	T12 - T08	3.17	0.38	1.19	0.91	IT20
3/4 to 5/8	BR	- RED -	T12 - T10	3.15	0.19	1.19	1.02	IT20
1 to 1/2	BR	- RED -	T16 - T08	2.47	0.42	0.91	0.91	IT20
1 to 3/4	BR	- RED -	T16 - T12	3.95	0.36	1.53	1.19	IT50
1 1/4 to 1	BR	- RED -	T20 - T16	4.61	0.27	1.86	1.53	IT50
1 1/2 to 1 1/4	BR	- RED -	T24 - T20	5.27	0.32	2.21	1.86	IT50
2 to 1 1/2	BR	- RED -	T32 - T24	6.58	0.51	2.88	2.21	IT50

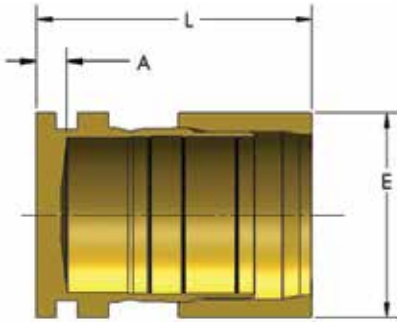
BR-RED-TXX-TYY



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

Caps

BR-CAP-TXX

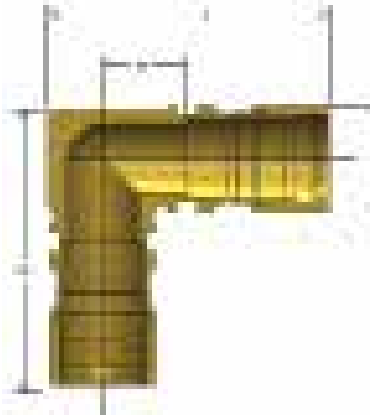


Tubing Size in.	Ordering Information			Dimensions, in.			Loktool
	Fitting Material	Shape	Fitting Size TXX	Part Length (Uninstalled) L	E	Take-Out A	Installation Tool Kit
3/8	BR	- CAP -	T06	1.47	0.91	0.24	IT20
1/2	BR	- CAP -	T08	1.47	0.91	0.24	IT20
5/8	BR	- CAP -	T10	1.65	1.02	0.24	IT20
3/4	BR	- CAP -	T12	1.76	1.19	0.21	IT20
1	BR	- CAP -	T16	2.33	1.53	0.29	IT50
1 1/4	BR	- CAP -	T20	2.62	1.86	0.31	IT50
1 1/2	BR	- CAP -	T24	2.98	2.21	0.34	IT50
2	BR	- CAP -	T32	3.86	2.88	0.42	IT50

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

90° Elbows

BR-EL90-FRG-TXX

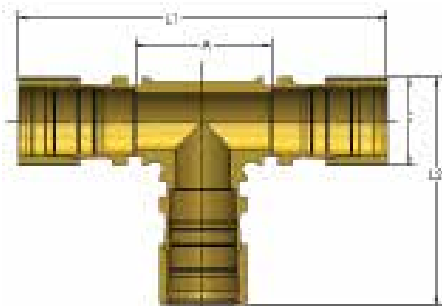


Tubing Size in.	Ordering Information			Dimensions			Loktool	
	Fitting Material	Shape	Fitting Size TXX	Part Length (Uninstalled) L1	Part Length (Uninstalled) L2	E	Take-Out A	Installation Tool Kit
1/2	BR	- EL 90 -	T08	2.79	2.73	0.91	1.05	IT20
5/8	BR	- EL 90 -	T10	4.09	4.28	1.02	2.17	IT20
3/4	BR	- EL 90 -	T12	3.53	3.41	1.19	1.16	IT20
1	BR	- EL 90 -	T16	4.01	3.99	1.53	1.19	IT50

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

Tees

BR-TEE-FRG-TXX



Tubing Size in.	Ordering Information			Dimensions, in.			Loktool	
	Fitting Material	Shape	Fitting Size TXX	Part Length (Uninstalled) L1	Part Length (Uninstalled) L2	E	Take-Out A	Installation Tool Kit
1/2	BR	-TEE-FRG-	T08	4.57	2.99	0.91	1.05	IT20
5/8	BR	-TEE-FRG-	T10	7.16	4.28	1.02	2.17	IT20
3/4	BR	-TEE-FRG-	T12	2.79	2.73	0.71	1.05	IT20
1	BR	-TEE-FRG-	T16	6.46	3.99	1.53	2.39	IT50

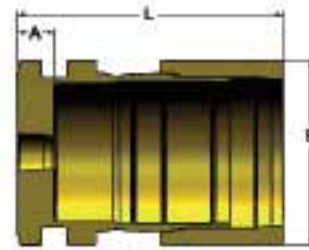
All dimensions are for reference only and are subject to change. Consult your authorized Lokring distributor for details and other available options.

Gage Port Caps

Tubing Size in.	Ordering Information			Dimensions, in.			Loktool
	Fitting Material	Shape	Fitting Size TXX	Part Length (Uninstalled) L	E	Take-Out A	Installation Tool Kit
3/8	BR	- GCAP -	T06	1.64	0.91	0.43	IT20
1/2	BR	- GCAP -	T08	1.64	0.91	0.41	IT20
5/8	BR	- GCAP -	T10	1.81	1.02	0.40	IT20
3/4	BR	- GCAP -	T12	1.96	1.19	0.41	IT20
1	BR	- GCAP -	T16	2.40	1.53	0.36	IT50
1 1/4	BR	- GCAP -	T20	2.68	1.86	0.37	IT50
1 1/2	BR	- GCAP -	T24	3.00	2.21	0.37	IT50
2	BR	- GCAP -	T32	3.81	2.88	0.37	IT50

Thread size is 1/8 in.-27-FPT.
 All dimensions are for reference only and are subject to change.
 Consult your authorized Lokring distributor for details and other available options.

BR-GCAP-TXX

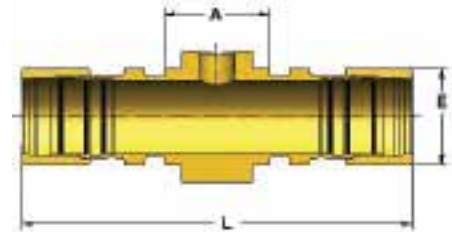


Gage Port Couplings

Tubing Size in.	Ordering Information			Dimensions, in.			Loktool
	Fitting Material	Shape	Fitting Size TXX	Part Length (Uninstalled) L	E	Take-Out A	Installation Tool Kit
1/2	BR	- GCPL -	T08	3.78	0.91	0.75	IT20
5/8	BR	- GCPL -	T10	5.45	1.02	0.70	IT20
3/4	BR	- GCPL -	T12	4.15	1.19	0.75	IT20
1	BR	- GCPL -	T16	4.41	1.53	0.60	IT50
1 1/4	BR	- GCPL -	T20	6.20	1.86	0.68	IT50
1 1/2	BR	- GCPL -	T24	7.07	2.21	0.60	IT50
2	BR	- GCPL -	T32	7.09	2.88	0.75	IT50

Thread size is 1/8 in.-27-FPT.
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 Consult your authorized Lokring distributor for details and other available options.

BR-GCPL-TXX



Installation Tools

Medical gas training classes and certification are required to install Lokring fittings. Training is available through your authorized Lokring distributor.

To install a Lokring fitting, a Lokring tool kit with tool head, inserts, multipurpose gage(s), hydraulic pump, and hydraulic hose is needed.

Two tool kits are available for installing multiple fitting sizes:

- Ordering number **MTK20-BR** for 3/8, 1/2, 5/8, and 3/4 in. tubing
- Ordering number **MTK50-BR** for 1, 1 1/4, 1 1/2, and 2 in. tubing.

Tool kits are also available for installing individual fitting sizes:

- IT20 kits for 3/8, 1/2, 5/8, and 3/4 in. tubing
- IT50 kits for 1, 1 1/4, 1 1/2, and 2 in. tubing.

Contact your authorized Lokring distributor for ordering information.

Tool rentals may be available through your authorized Lokring distributor.



Other parts not listed in this catalog may be available. As well, some parts listed here may be subject to availability at time of order. Consult your authorized Lokring distributor for details.

To Order

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 in 2D and 3D for most configurations. Contact your authorized Lokring distributor for details.

The Lokring Technology, LLC Limited Lifetime Warranty

Lokring and its authorized distributors warrant to the purchaser of Lokring components from them that these components shall be free from defects in material and workmanship under normal use and service for the life of the product.

The purchaser's remedies shall be limited to replacement of any Lokring components that fail through a defect in material or workmanship.

IN NO EVENT SHALL LOKRING, OR ITS AUTHORIZED DISTRIBUTORS, BE LIABLE FOR ANY OTHER DAMAGES (WHETHER DIRECT, INDIRECT, FORSEEABLE, CONSEQUENTIAL, OR INCIDENTAL) SUFFERED BY THE PURCHASER OR ANYONE ELSE ARISING OUT OF THE USE OF LOKRING PRODUCTS. THIS EXPRESS WARRANTY DISCLAIMS ALL OTHER WARRANTIES, GUARANTEES, AND REPRESENTATIONS, EXPRESS OR IMPLIED.

Safe Selection

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™



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