Local Distributor:

American LOKRING Corporation
2525 Dundee Road
Winter Haven, FL 33884
863-325-9262 www.lokringusa.com FX-863-324-8626
LOKRING tube connection technology in the service field

General remarks
LOKRING tube connection technology represents a proven method of producing hermetically sealed metal-to-metal tube connections. The LOKRING tube connectors are used in the air-conditioning* (including automotive) and in the refrigeration* and appliance* industries.

100% Quality
American LOKRING Corporation is responsible for the delivery of quality tube connectors and tools as ordered from this catalog. The purchaser is responsible for the assembly of LOKRING tube connectors and use of LOKRING tools in accordance with supplied instruction and exclusively with original LOKRING parts.

Commitment to Customer Service
This catalog contains information about LOKRING tube connectors for tube diameters from 1.6mm (1/16") up to 35mm (1 3/8").

American LOKRING reserves the right to makes changes for the purposes of technical improvement. Product descriptions and size range current as of March 2005.

*The use of LOKRING tube connections in other fields should be discussed with American LOKRING Corporation
**Structure and Function of LOKRING Couplings**

LOKRING Technology takes advantage of the fundamental laws of physics, material properties and basic engineering principles to arrive at an elegant design for joining tubes of similar or dissimilar materials. A LOKRING Union Coupling consists of two LOKRINGS and a tubular body.

During assembly of a LOKRING Connection, the tubes to be joined are inserted into the coupling up to an internal stop. The LOKRING Assembly Tool is then used to apply pressure to the coupling causing it to compress and complete the connection. This is a quick and simple method of joining tubes that eliminates the fire hazards of brazing and proper torque concerns of threaded connections.

**LOKRING Technical Information**

The special inner profile of the LOKRING Connector causes the diameter of the LOKRING body to be reduced until it is in immediate contact with the outer surface of the tube that is being connected. This grip creates a metal-to-metal hermetic seal with a slight reduction of the tubes. This reduction causes no detectable change in pressure or flow rate.

The radial forces of the tube and the connecting body resisting reduction are directed to the outside. And the radial forces of the LOKRINGS resisting expansion are directed to the inside causing a state of equilibrium known as elastic strain pre-load. This equilibrium is maintained for the life of the LOKRING connection.
- Easy and Fast Assembly.
- Highly Reliable connections.
- No Special Preparation.
- No Welding, Soldering, or Thread cutting
- Ecologically Safe.
- Hermetically Sealed Metal-to-Metal Connections
- No Notch Effect on the Assembly Area.
- Connections Tubes of Different Materials.

50 SERIES ASSEMBLY

To facilitate the application of LOKPREP at the end of the tubes which have to be connected, all the LOKRING couplings, reducing couplings, elbows and tee-connectors, with one connection >=12 mm, are supplied, loosely joined by a nylon loop. The assembly has to be performed according to the following instructions:

1. Clean Cut and prepare tubes as normal for LOKRING applications. See previous page.

2. Assembly
   - Cut the nylon loop(s) and position the LOKRINGS on the tubes to be connected.
   - Attach the LOKRING joint to one of the tube ends up to the internal stop of the connection.
   - Apply the LOKPREP drop by drop at the end of the top of the tube directly behind the LOKRING body. The LOKPREP will be pulled in by the capillary action between tube and body. Sufficient LOKPREP should be applied so that any excess leaks out from the bottom of the joint.
   - The LOKRING has to be pushed onto the body. Then the LOKRING and the joint must be seated squarely in the assembly jaws of the handtool. By operating the hand assembly tool, the LOKRING is compressed onto the joint up to the center stop.
   - Assemble second tube (as well as the third tube of the tee-connection) in the same manner.

LOKRING Technical Information

Pressure Area

LOKRING Couplings are designed for a maximum operation pressure of Pn = 725psi (50 bar) and a testing pressure of Pp = 4 x Pn + 2900 psi (200 bar). LOKRING Couplings can be used in temperature range between -58 F and + 302 F (-50 C and +150 C).

The expansion or contraction of the material caused by temperature changes has no impact in the elasticity of the tube connection. Burst tests have shown that the LOKRING Tube Connector is stronger than the burst point of the tube.
GENERAL INFORMATION
Cutting tubes
When cutting tubes, use a suitable “chip-less” cutter or the LOKRING LRSZ Tube Cutter. This ensures that the outer diameter of the tube is burr-free and chip and slivers are prevented from contaminating the system. For cutting capillary tube without cleaning or reaming, use the LOKRING CPT1 Cutter.

Preparing tube ends
In order to produce a hermetically sealed, metal-to-metal joint, the tube ends must be clean, free of burrs and in good condition. They must be straight for at least 1 1/4". Clean the tubes with emery cloth or an abrasive pad. The tubes must be free of paint, grit, oil and grease. Always clean the tube ends in a rotary direction. This prevents the creation of leak paths through lengthwise groves.

Applying LOKPREP (Important Step)
On the outer surface of the cleaned tube ends, apply a thin film of LOKPREP to the tube end that will be inserted into the LOKRING coupling.

Assembly
Insert the tube ends up to the center stop in the LOKRING connector. To ensure 100% distribution of the LOKPREP, rotate the connector 360 degrees.

Open the manual assembly tool and firmly seat the LOKRING connector squarely within the assembly jaws. The 50 Series couplings are “split”. While holding the tubes in place, operate the ratchet handle on the assembly tool until the LOKRING is completely compressed and meets at the center stop. It is important that both tube ends are held completely within the connector during assembly. The LOKRING connection is completed and the system can be pressurized or it can be evacuated.

HAND Assembly Tools
For All LOKRING Tube Connectors
The LOKRING Assembly Handtools feature a folding handle to allow for easy assembly of all Series 00 and Series 50 LOKRING Connectors. The design provides maximum compression with minimal effort.

The MZ & MZ-V Heavy Duty Handtools work with all sizes of LOKRING Connectors, both double-sided and single sided.

The lightweight HMRK-L Handtool is especially designed for smaller LOKRING Connectors through 19mm (3/4").

- Hardened Steel Jaws are interchangeable.
- Specialized accessories allow for custom applications.
- 12 month material and workmanship warranty.
- Replacement parts for wear items.

LOKRING Assembly Tools
MZ Handtool
MZ-V Handtool
Assembly Jaws
Heavy-Duty Jaws for a lifetime of service. LOKRING MB Jaws, in two styles for Double-Sided and Single-Sided Connectors, fit both MZ (all) and HMRK-L (through 19 EVPM) Handtools.

<table>
<thead>
<tr>
<th>Tube Size</th>
<th>Double-Sided</th>
<th>Single-Sided</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 3mm</td>
<td>MB 3</td>
<td>MB 8 EVP</td>
</tr>
<tr>
<td>3.5 - 8mm</td>
<td>MB 8</td>
<td>MB 8 EVP</td>
</tr>
<tr>
<td>9 - 11mm</td>
<td>MB 10</td>
<td>MB 10 EVP</td>
</tr>
<tr>
<td>11 - 13mm</td>
<td>n/a</td>
<td>MB 12 EVP</td>
</tr>
<tr>
<td>14 - 17mm</td>
<td>n/a</td>
<td>MB 16 EVP</td>
</tr>
<tr>
<td>18 - 20mm</td>
<td>n/a</td>
<td>MB 19 EVPM</td>
</tr>
<tr>
<td>20 - 22mm</td>
<td>n/a</td>
<td>MB 19 EVP</td>
</tr>
<tr>
<td>25 - 25.4mm</td>
<td>n/a</td>
<td>MB 25 EVP</td>
</tr>
<tr>
<td>25 - 28.6mm</td>
<td>n/a</td>
<td>MB 28 EVP</td>
</tr>
<tr>
<td>31.8 - 32mm</td>
<td>n/a</td>
<td>MB 32 EVP</td>
</tr>
<tr>
<td>35mm</td>
<td>n/a</td>
<td>MB 35 EVP</td>
</tr>
</tbody>
</table>

LOKPREP 65G for Service Applications
Available in 15ml bottles. 1 year shelf-life.

LOKPREP is an anaerobic sealant that fills longitudinal groves to ensure the integrity of the tube connection. LOKPREP must be used with every connection.

Tube Cleaning Pad (SBPADS)
2” x 3” pad is used to prep tubing before applying LOKPREP.

ASSEMBLY TOOLS
The Manual Assembly Tool – HMRK-L, MZ, or MZ-V

Use these tools to assemble LOKRING union couplings, reducer couplings, tees and stoppers on tubes with a maximum diameter of 22mm (7/8"). Assembly jaws can be changed to fit the tube diameter by pressing the retaining pin out, changing the jaws to match the coupling size and pushing the pin back in place. As shown in the illustration, the handles of the Assembly Tool can be preset with one arm bent, to facilitate changing the jaws or placing the coupling in the jaws.

After assembly, clean the jaws to remove any traces of LOKPREP. All moving parts on the manual assembly tool must be oiled regularly.
HOW TO READ LOKRING PART NUMBERS
“6 – NK – Ms – 50”

Tube Size  Fitting Style  Material  Single or Double Sided
This is the part number for a brass (Ms) connector to join 6mm (1/4”) tubes. The “50” indicates that each side of tube connection is crimped separately.

Brass Connectors
for tube materials:
Cu/Cu, Cu/St, St/St

Conversion Chart
LOKRING fittings are manufactured to metric standards. They have been thoroughly tested for compatibility with inch-sized tubing. Please use the table below for ordering the correct size LOKRING Connectors to match your tubing requirements.

<table>
<thead>
<tr>
<th>Inch *</th>
<th>Actual Conversion LOKRING Size</th>
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<th>Inch *</th>
<th>Actual Conversion LOKRING Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/16</td>
<td>1.59</td>
<td>1/4</td>
<td>6.35</td>
<td>5/8</td>
<td>15.88</td>
</tr>
<tr>
<td>0.064</td>
<td>1.6</td>
<td>NS**</td>
<td>6.5</td>
<td>5/32</td>
<td>2.2</td>
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<tr>
<td>0.087</td>
<td>2.2</td>
<td>NS**</td>
<td>7.5</td>
<td>0.087</td>
<td>2.2</td>
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<tr>
<td>0.098</td>
<td>2.49</td>
<td>5/16</td>
<td>8.94</td>
<td>3/32</td>
<td>0.98</td>
</tr>
<tr>
<td>0.118</td>
<td>3.00</td>
<td>NS**</td>
<td>8.5</td>
<td>0.118</td>
<td>3.00</td>
</tr>
<tr>
<td>0.138</td>
<td>3.51</td>
<td>NS**</td>
<td>10</td>
<td>0.138</td>
<td>3.51</td>
</tr>
<tr>
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<tr>
<td>0.168</td>
<td>4.76</td>
<td>1/2</td>
<td>12.7</td>
<td>0.168</td>
<td>4.76</td>
</tr>
</tbody>
</table>

* Decimal number or common fraction
** NS - No Standard Inch Equivalent

Aluminum Connectors
for tube material:
Al/Al, Al/Cu, Al/St

Conversion Chart
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** NS - No Standard Inch Equivalent

LOKRING 13 NK MS 50
Part number for a Single-sided brass connector for joining 13mm (1/2”).

LOKRING 13 NK AL 50
Part number for a Single-sided aluminum connector for joining 13mm (1/2”).
### LOKRING Reducing Connectors - Brass

**LOKRING 16/13 NR MS 50**
Single-sided Brass reducing connectors for joining 16mm (5/8”) to 13mm (1/2”) tubes.

<table>
<thead>
<tr>
<th>Diameter (mm)</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>7.5</th>
<th>8</th>
<th>8.5</th>
<th>9</th>
<th>9.5</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>15</th>
<th>16</th>
<th>18</th>
<th>19</th>
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<tr>
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**120 DEGREE TUBE CUTTER**
For All Ref/AC Tubing 3/16” – 5/8” Diameter. Cuts Tubes in Confined Spaces Cuts Close to Flanges & Joints. Replacement Cutting Wheels Available

### LOKRING Reducing Connectors - Aluminum

**LOKRING 13/9.53 NR AL 50**
Single-sided aluminum reducing connector for joining 13mm (1/2”) to 9.53mm (3/8”) tubes.

<table>
<thead>
<tr>
<th>Diameter (mm)</th>
<th>1.6</th>
<th>2</th>
<th>2.5</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>7.5</th>
<th>8</th>
<th>9</th>
<th>9.53</th>
<th>10</th>
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<td>Single</td>
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</table>

**RC-1125**
Cuts 5/16” to 1/1/8

**RC-375**
Cuts 1/8” to 3/8”

**LOKRING RATCHET-CUTTER**
It ratchets, It’s small,
It cuts in tight places
Cuts aluminum, copper, plastic, PVC & soft steel tubing.
Auto A/C Hose Repair

Repair Liquid-Lines and Evaporators! Install a new, SERVICEABLE orifice tube* between Evaporator and Condenser with LOKRING Connectors.

Never replace line or evaporator again due to stuck or plugged orifice.

O-RING Repair Fittings #6 thru #12

Completed Fitting

- O-ring repair fitting
- Lokring Coupling
- Alum Tubing

These fittings ends can be used in conjunction with the LOKRING repair coupling to repair damaged connections.

Part #'s: #6MO3/8ST  #8MO1/2ST  #10MO5/8ST  #12MO3/4ST
   #6MIO3/8ST  #8MIO1/2ST  #10MIO5/8ST  #12MIO3/4ST
   #6FMO3/8ST  #8FMO1/ST  #10FMO5/8ST #12FMO3/4ST

MIO Tube Splice Tee Adaptors

Part #'s
- 19NKAL#10MIO
- 16NKAL#10MIO
- 13NKAL#8MIO
- 9.53NKAL#6MIO

These fittings can be used to tap lines for add-on units or rear air applications.

* Orifice Tube not included
Auto A/C Hose Repair

LOKRING Hose-Lok
Part #'s
HLFSS3/8
HLFSS1/2
HLFSS5/8
HLFSS3/4
HLFSS12MM

Reduced Barrier Hose-Lok
Part #'s
RBHLSS3/8
RBHLSS1/2
RBHLSS5/8
RBHLSS3/4
RBHLSS12MM

90° Hose-Lok
&
90° Reduced Barrier Hose-Lok
HLF90-3/8
HLF90-1/2
HLF90-5/8
HLF90-3/4

45° Hose-Lok
&
45° Reduced Barrier Hose-Lok
HLF45-3/8
HLF45-1/2
HLF45-5/8
HLF45-3/4

LOKRING Switch Ports
Comply with the overpressure cutout switch requirements by using a LOKRING High-Pressure Clutch Cutout Switch Port when retrofitting R-12 to R-134a. Available for 3/8" or 1/2" OD lines with ports to fit female 7/16-20 (1/4" flare) and male 3/8-24 thread switch configurations.

LOKRING Automotive

<table>
<thead>
<tr>
<th>Tube OD</th>
<th>Switch Threads</th>
<th>LOKRING Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2&quot;</td>
<td>Male 3/8 - 24 Thread</td>
<td>1/2 AL FMSP</td>
</tr>
<tr>
<td>1/2&quot;</td>
<td>Female MIO - 1.25 Thread</td>
<td>1/2 ACSV90MIO125</td>
</tr>
<tr>
<td>3/8&quot;</td>
<td>Female 7/16 - 20 Thread</td>
<td>13 NK AL SV 50</td>
</tr>
<tr>
<td>5/8&quot;</td>
<td>Female 7/16 - 20 Thread</td>
<td>13 NK AL SV 50</td>
</tr>
</tbody>
</table>

LOKRING Hose-LOK
For easily joining hose to aluminum tube, the HOSE-LOK fitting combines a LOKRING connector with the modified F"0 Barbed Beadlock configuration. Available for hose size #6, #8, #10 and #12.

LOKRING TUBE-LOK & REDUCED BARRIER TUBE-LOK
Similar to the LOKRING HOSE-LOK, TUBE-LOK allows for customized step-sizing with any of the LOKRING Reducing Connectors. TUBE-LOK combines the extremely reliable modified P90 Barbed Beadlock configuration on a straight tube that will accommodate a LOKRING connector. Available for #6, #8, #10 and #12 hoses.

LOKRING Service Tee
LOKRING Service Tees for recharging and servicing R134a A/C systems. Available for high or low pressure applications, LOKRING Service Tees install quickly with the standard LOKRING Assembly Tool.