

# VEHICLE AIR CONDITIONING

REPAIR THE LEAK!





# CONTENTS

04	VULKAN LOKRING
08	LOKRING® & LOKCLIP
14	STARTER KIT
16	ASSEMBLY TOOLS
18	LOKPREP
20	LOKRING® TUBE CONNECTIONS
24	LOKCLIP HOSE CONNECTIONS
28	O-RING REPAIR FITTINGS
30	TUBES AND ELBOWS
32	ACCESSORIES
34	LOKRING® ASSEMBLY
35	LOKCLIP ASSEMBLY
38	ONLINE-SERVICE
39	IMPRINT



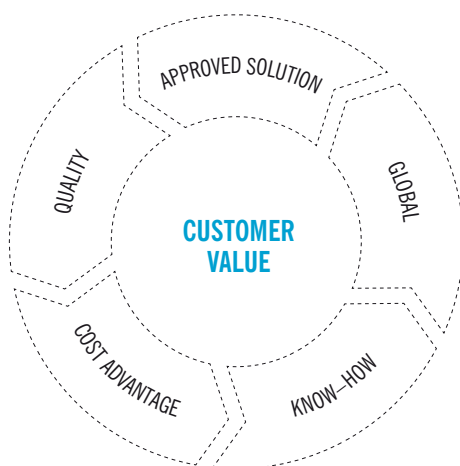




## SINCE 1979 VULKAN LOKRING HAS DEVELOPED, MANUFACTURED AND MARKETING MECHANICAL TUBE JOINING SYSTEMS FOR REFRIGERANT LINES.

**VULKAN Lokring** is a company that belongs to the VULKAN Group, which is a medium-sized family-owned enterprise for technical industrial applications. As a developer of the LOKRING technology, VULKAN Lokring is a market leader in the field of braze-free and non-detachable tube joints.

Developed originally for the most extreme conditions encountered in manned space travel, the LOKRING tube joining technique has undergone constant advanced development for applications in commercial refrigeration and air conditioning technology.



Therefore, VULKAN Lokring nowadays provides customised solutions for tube connections in the fields of the manufacturing, installation and servicing of refrigeration and air conditioning technology.

All from a single source – from separate development for customers to their own production range and right up to sales & service by local subsidiaries or authorised business partners.

### APPROVED SOLUTION

**2,500,000,000** LOKRING® CONNECTIONS

have been successfully used in the industrial volume production of refrigerators, freezers and air conditioning systems.

### GLOBAL

**1,000,000** LOKRINGS PER DAY

are produced in the 5 international production facilities of VULKAN Lokring on modern multi-spindle automatic lathe machines and shipped to 83 destination countries.

### COST ADVANTAGE

**7,000** CUSTOMERS

optimise their international competitive edge by using LOKRING tube connections as cost and quality benefit compared to brazed ones.

### KNOW-HOW

**650** UNIQUE TYPES OF LOKRING

are used at present by customers in order to optimally join tubes made of different materials and combinations of diameters.

### QUALITY

**100%** QUALITY INSPECTION

of LOKRING based on automated industrial image processing as part of the certified VULKAN Lokring quality management system.

# VULKAN LOKRING

**VULKAN LOKRING.** LOKRING tube connections and tools are made by VULKAN Lokring in-house: Development, construction, manufacture as well as sales & service. For the customers, this means “all from a single source” and directly from the manufacturer: customised planning and consultancy, supervision at the time of introduction, and support and service locally wherever required.



**RESEARCH AND DEVELOPMENT.** VULKAN Lokring is the inventor and developer of the patented LOKRING tube joint. For the last decades, experienced engineers have built new solutions for customers' applications in the development centre in Germany.



**PRODUCTION.** Approximately 1,000,000 LOKRINGS per day are produced on modern multi-spindle automatic machines in Germany, Brazil, India, USA and China. Therefore, for customers, LOKRING is the optimal partner when it comes to safety, flexibility and logistics.



**QUALITY.** The German standard of quality management is the benchmark for the international production of LOKRING. The certified quality management and the deployment of highly advanced industrial image processing systems facilitate 100% quality control.



**SERVICE.** Whether you are seeking planning and consultancy for optimising the refrigeration cycle system by using braze-free tube connections, support with the introduction of the LOKRING technology in production or after-sales service – everything is available locally with competent VULKAN Lokring technicians.



**PRODUCT AND MANAGEMENT CERTIFICATION.** TÜV and UL product certification. ISO 9001 certification of the quality management system. ISO 14001 certification of the environment management system. AEO certification. Leak-proof tests. Expert survey reports.



**CLIMATE PROTECTION.** Since our tube connections are hermetically sealed, we can ensure that no climate damaging refrigerants leak into the environment. Furthermore, LOKRING makes the use of environmental friendly but flammable refrigerants (HC) safer and allows the use of CO<sub>2</sub> (R744). Thus, by using LOKRING tube connections you make a contribution to the active protection of the environment.

**THE BEST CONNECTION – WORLDWIDE.** Operating with five international production facilities, with 17 VULKAN subsidiaries and an additional 13 agencies worldwide, we ensure that VULKAN Lokring expertise is available on site throughout the world. This means that our customers have rapid access to our specialists and that the necessary solutions are quickly available exactly where they are needed.



**CUSTOMER REFERENCES.** A small selection from more than 7,000 satisfied customers:

 **BOSCH**

 **Electrolux**



*Godrej*

**gorenje**

**GRAM**

**HITACHI**

**Haier**

 **INDESIT**

**IVECO**

**LIEBHERR**

 **LG**

**MAHLE**

**Miele**

 **mitsubishi  
ELECTRIC**

**PORSCHE**

**SAMSUNG**

**SIEMENS**

**Valeo**

**Whirlpool**

# LOKRING® & LOKCLIP

**THE PATENTED LOKRING® TUBE CONNECTION SYSTEM PROVIDES AN INNOVATIVE SYSTEM OF BRAZE-FREE TUBE CONNECTIONS FOR EVERY REPAIR SITUATION IN VEHICLE AIR CONDITIONING SYSTEMS.**

LOKRING tube connections can be made without a great deal of force being necessary, using simple hand assembly tools. LOKRING ensures an absolutely clean, permanent and purely mechanical tube connection with long-term hermetic

air-tightness. This is confirmed by the special TÜV test and approval. All this makes LOKRING tube connections one of the most economical and reliable methods of connecting refrigerant tubes.

## THE BENEFITS

- ⊕ For universal use, independent of the vehicle type and model year
- ⊕ No waiting for expensive original spare parts
- ⊕ No welding, brazing or thread cutting necessary
- ⊕ In many cases, the faulty line may not even have to be removed
- ⊕ For more than 35 years tried-and-trusted by OEMs
- ⊕ In compliance with EU directive 2006/40/EG





# REPAIR THE LEAK!



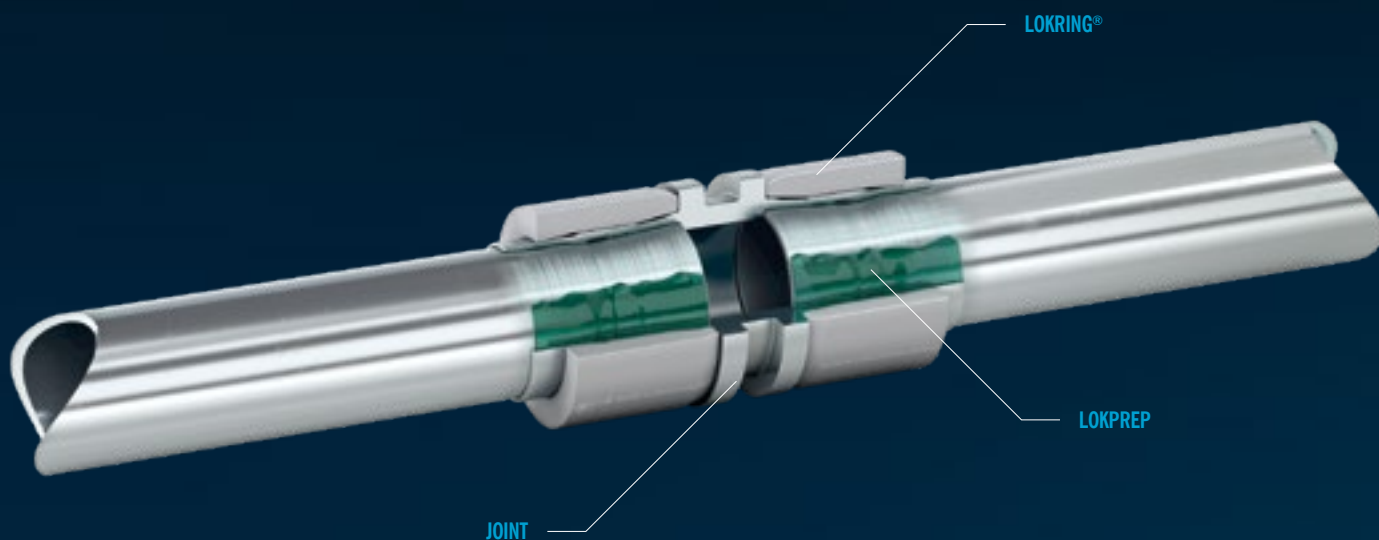
## WITH LOKRING & LOKCLIP YOU CAN REPAIR:

- ⌚ Straight tubes and elbows
- ⌚ Hoses
- ⌚ Hose-to-Tube connections
- ⌚ Pressure switch connections
- ⌚ Service ports
- ⌚ Threaded connections

# LOKRING®

**THE TYPICAL LOKRING** union joint consists of two LOKRINGS and one tubular joint for the acceptance of the two tube ends. Thanks to the conical inner contour of the LOKRING and the special outer contour of the joint, the diameter of the connection is reduced during assembly to such an extent that the joint and the tube

create a hermetically sealed metal-to-metal connection. The lifetime gas-tightness of the fitted connection is ensured by the state of permanent elastic pre-tension, which is produced by the radial forces of the LOKRINGS acting in the opposite direction to the tube-joint connection.



## TECHNICAL SPECIFICATIONS

**Reference standards:**

EN 378-2 and ISO 14903.

**Max. operating pressure:**

25 bar (360 psi).

**Admissible refrigerants:**

Suitable for R134a and HFO-1234y.  
Other refrigerants on request.

**Temperature range:**

-50 °C up to 150 °C  
(-58 °F up to 302 °F).

**Tube diameter range:**

8 to 19 mm (5/16" to 3/4").

**Material combinations:**

For joining aluminium tubes.  
Other tube materials on request.

**Approvals:**

TÜV, UL (File SA12004).

## MATERIAL COMBINATIONS

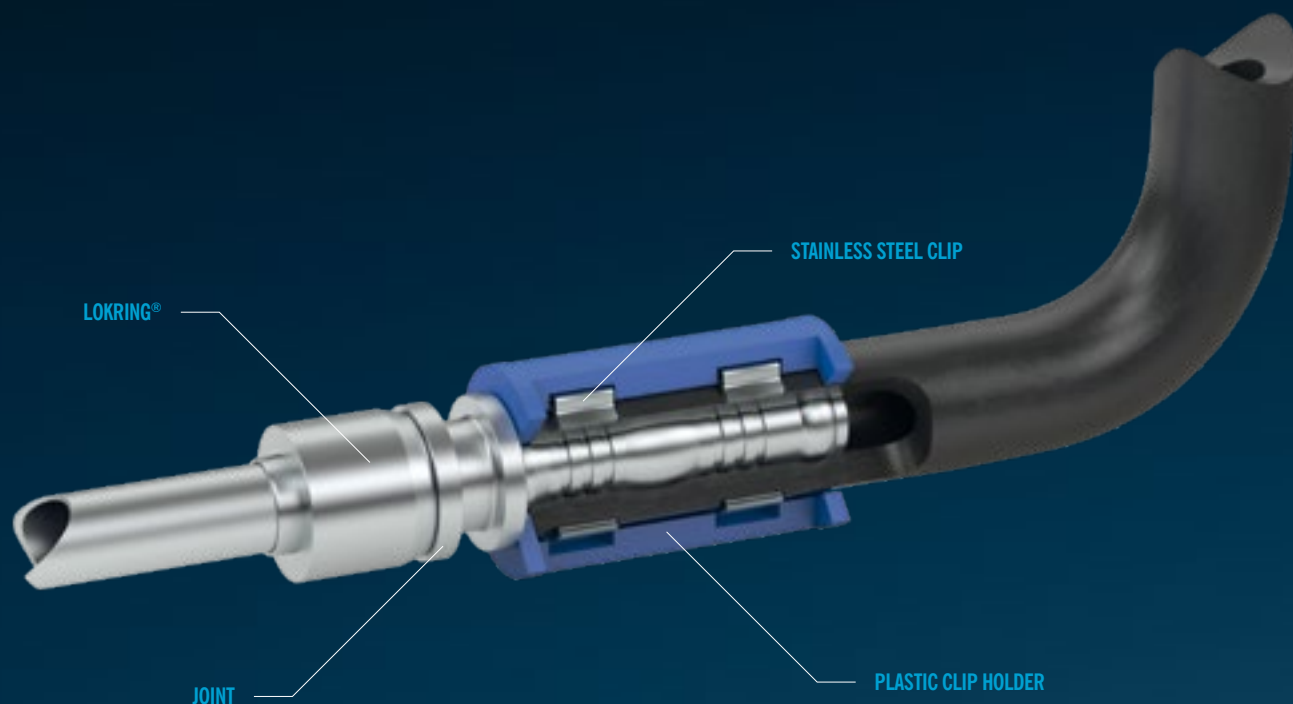


 Aluminium

# LOKCLIP

**LOKCLIP TECHNOLOGY** provides you with a simple and low-cost alternative to pressed and screwed connections for hoses. LOKCLIPS can be used to set up both hose-to-hose and hose-to-tube connections for all conceivable repair situations. The system,

comprising stainless steel clips, clip position holder and contoured joint practically excludes application mistakes during assembly. Alongside the important SAE J2064, LOKCLIPS meet all the required standards.



## TECHNICAL SPECIFICATIONS

**Max. operating pressure:**  
25 bar (360 psi).

**Admissible refrigerants:**  
Suitable for R134a and HFO-1234y.  
Other refrigerants on request.

**Temperature range:**  
-40 °C up to 135 °C  
(-40 °F up to 275 °F).

**Tube diameter range:**  
8 to 19 mm (5/16" to 3/4").

**Material combinations:**  
For joining LOKCLIP RH refrigerant  
hose and aluminium tube. Other tube  
materials on request.

## MATERIAL COMBINATIONS



Aluminium



Hose







LOKRING® & LOKCLIP



# STARTER KIT

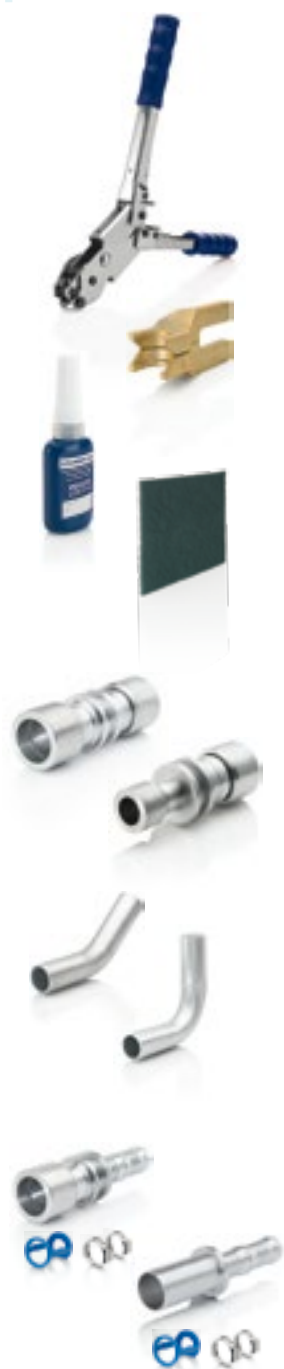


HAND ASSEMBLY TOOL  
ASSEMBLY JAWS  
LOKPREP  
ABRASIVE MAT  
STRAIGHT CONNECTORS



STRAIGHT REDUCING CONNECTORS  
45° ALUMINIUM ELBOWS  
90° ALUMINIUM ELBOWS  
HOSE-TO-TUBE CONNECTORS  
HOSE-TO-LOKRING CONNECTORS

## LOKRING® & LOKCLIP STARTER KIT



For a perfect start in the world of quick, easy and, above all, low-cost repairs to tubes and hoses in vehicle air conditioning systems.

### Article no. Article name

L13005830 LOKBOX SK-VAC-01

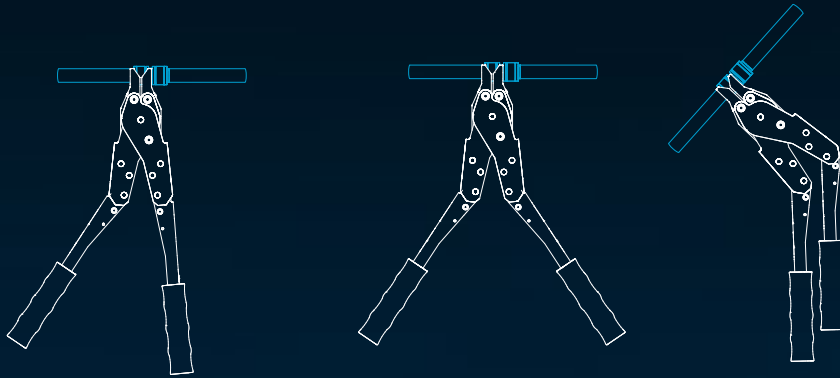
### Scope of supply

Article no.	Article name	Description	Quantity
L13002811	LOKTOOL MZ-V	Hand assembly tool	1
L20000304	LOKTOOL MB 8 EVP	Assembly jaws	2
L20000305	LOKTOOL MB 10 EVP	Assembly jaws	2
L20000306	LOKTOOL MB 12 EVP	Assembly jaws	2
L20000307	LOKTOOL MB 16 EVP	Assembly jaws	2
L20000308	LOKTOOL MB 19 EVP	Assembly jaws	2
L14000878	LOKPREP 65G	Anaerobic sealant	1
L14002211	AM-SV	Abrasive mat	1
L13005445	LOKRING 8 NK AI 50	Straight connectors	4
L13005446	LOKRING 9,53 NK AI 50	Straight connectors	4
L13005502	LOKRING 10 NK AI 50	Straight connectors	2
L13005616	LOKRING 12 NK AI 50	Straight connectors	2
L13005447	LOKRING 12,7 NK AI 50	Straight connectors	2
L13005448	LOKRING 16 NK AI 50	Straight connectors	2
L13005501	LOKRING 18 NK AI 50	Straight connectors	2
L13005449	LOKRING 19 NK AI 50	Straight connectors	2
L13005664	LOKRING 9,53/8 NR AI 50	Straight reducing connectors	2
L13005668	LOKRING 10/9,53 NR AI 50	Straight reducing connectors	2
L13005670	LOKRING 12,7/12 NR AI 50	Straight reducing connectors	2
L13005671	LOKRING 19/18 NR AI 50	Straight reducing connectors	2
L14002234	LOKRING AI 90-EB 9,53	90° aluminium elbows	1
L14002235	LOKRING AI 90-EB 12,7	90° aluminium elbows	1
L14002236	LOKRING AI 90-EB 16	90° aluminium elbows	1
L14002231	LOKRING AI 45-EB 9,53	45° aluminium elbows	1
L14002232	LOKRING AI 45-EB 12,7	45° aluminium elbows	1
L14002233	LOKRING AI 45-EB 16	45° aluminium elbows	1
L13003869	LOKCLIP AI NK9,53-06	Hose-to-LOKRING connectors	2
L13003870	LOKCLIP AI NK12,7-08	Hose-to-LOKRING connectors	2
L13003871	LOKCLIP AI NK16-10	Hose-to-LOKRING connectors	2
L13003872	LOKCLIP AI NK19-12	Hose-to-LOKRING connectors	2
L13004400	LOKCLIP AI 9,53-06	Hose-to-tube connectors	2
L13004401	LOKCLIP AI 12,7-08	Hose-to-tube connectors	2
L13004402	LOKCLIP AI 16-10	Hose-to-tube connectors	2
L13004403	LOKCLIP AI 19-12	Hose-to-tube connectors	2

# ASSEMBLY TOOLS

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## LOKTOOL MZ-V



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Our patented hand assembly tools were developed especially for LOKRING assembly. You only need one tool, because the assembly jaws can be exchanged quickly and easily. Since the handles are offset on both sides, the MZ-V is also suitable for flexible use during work in the engine compartment.

# ASSEMBLY TOOLS

## LOKRING HAND ASSEMBLY TOOL



- Specially developed for the LOKRING assembly.
- Patented lever mechanism for assembly with minimum effort.
- Assembly jaws are easy to change for different tube diameters.
- Both handles bend for use in hard-to-reach areas.
- Made in Germany.

IMPORTANT: Assembly jaws not included.

Article no.	Article name
L13002811	LOKTOOL MZ-V

## LOKRING ASSEMBLY JAWS



Suitable for the LOKTOOL MZ-V hand assembly tool.

Article no.	Article name	For tube outer-ø	
		[ mm ]	[ " ]
L20000304	LOKTOOL MB 8 EVP	6 - 8	1/4 - 5/16
L20000305	LOKTOOL MB 10 EVP	9 - 11	3/8
L20000306	LOKTOOL MB 12 EVP	12 - 13	1/2
L20000307	LOKTOOL MB 16 EVP	14 - 17	5/8
L20000308	LOKTOOL MB 19 EVP	18 - 20	3/4

## LOKCLIP HAND ASSEMBLY TOOL

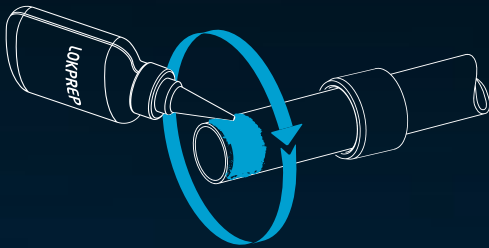


- For crimping the stainless steel clips of a LOKCLIP hose connection.
- Suitable for all LOKCLIP hose connections.
- Compact design makes it easy to access even in hard-to-reach areas.

Article no.	Article name
L14003352	LOKTOOL LC flex

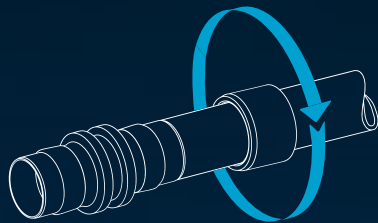
# LOKPREP APPLICATION

## LOKPREP 65G



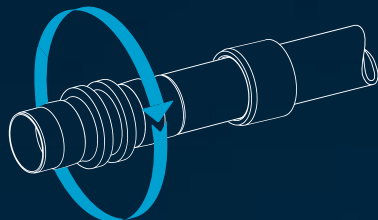
### POSSIBILITY A

Move the nozzle 360° around the tube to distribute the LOKPREP evenly.



### POSSIBILITY B

Rotate the moistened tube through 360° inside the joint.



### POSSIBILITY C

Rotate the joint through 360° around the end of the tube.



Metal tubes can have longitudinal grooves on the surface from production. These production-related faults can be compensated quite easily by moistening the tube ends to be connected with LOKPREP fluid before assembly. Thanks to its capillary characteristic, it can even flow into microscopic cavities and fill these out completely. LOKPREP is not an adhesive, rather an anaerobic sealant which hardens under oxygen exclusion and in contact with free metal ions.



# LOKPREP



## ANAEROBIC SEALANT



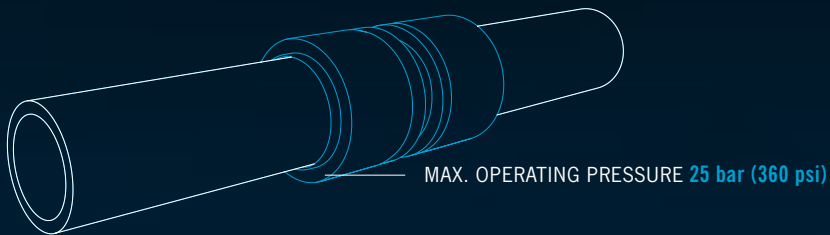
- ⌚ Specially developed for the LOKRING assembly.
- ⌚ Must be used for all LOKRING assemblies.
- ⌚ Compensates for any unevenness in the tube surface.
- ⌚ Ensures that every LOKRING connection is hermetically sealed.

IMPORTANT: LOKPREP 65G is suitable for aluminium tubes. Other tube materials on request.

Article no.	Article name	Content [ml]
L14000878	LOKPREP 65G	15

# LOKRING®

## LOKRING STRAIGHT CONNECTORS



- ⊕ CORROSION TEST ACCORDING TO **ISO 9227 NSS**
- ⊕ TEMPERATURE CHANGE **CYCLE TEST**
- ⊕ TENSILE TEST ACCORDING TO **DIN EN 10 002**
- ⊕ TESTED ACCORDING TO EU DIRECTIVE **2006/40/EG**
- ⊕ ALTERNATING PRESSURE TEST WITH **250,000 CYCLES**
- ⊕ BURST PRESSURE TEST UP TO **200 bar (2,900 psi)**
- ⊕ REFERENCE STANDARDS **EN 378-2 AND ISO 14903**

# STRAIGHT CONNECTORS



## STRAIGHT CONNECTORS



For connecting aluminium tubes with identical outer diameters.

Article no.	Article name	For tube outer-ø	
		[ mm ]	[ " ]
L13005445	LOKRING 8 NK AI 50	8	5/16
L13005446	LOKRING 9,53 NK AI 50	9.53	3/8
L13005502	LOKRING 10 NK AI 50	10	-
L13005616	LOKRING 12 NK AI 50	12	-
L13005447	LOKRING 12,7 NK AI 50	12.7	1/2
L13005564	LOKRING 15 NK AI 50	15	-
L13005448	LOKRING 16 NK AI 50	16	5/8
L13005501	LOKRING 18 NK AI 50	18	-
L13005449	LOKRING 19 NK AI 50	19	3/4

# LOKRING® TUBE CONNECTIONS

## STRAIGHT REDUCING CONNECTORS



For connecting aluminium tubes with different outer diameters.

Article no.	Article name	Outer-ø tube 1		Outer-ø tube 2	
		[ mm   " ]		[ mm   " ]	
L13005664	LOKRING 9,53/8 NR Al 50	9.53	3/8 → 8	-	
L13005668	LOKRING 10/9,53 NR Al 50	10	- → 9.53	3/8	
L13005452	LOKRING 12,7/9,53 NR Al 50	12.7	1/2 → 9.53	3/8	
L13005670	LOKRING 12,7/12 NR Al 50	12.7	1/2 → 12	-	
L13005453	LOKRING 16/12,7 NR Al 50	16	5/8 → 12.7	1/2	
L13005663	LOKRING 16/15 NR Al 50	16	5/8 → 15	-	
L13005454	LOKRING 19/16 NR Al 50	19	3/4 → 16	5/8	
L13005671	LOKRING 19/18 NR Al 50	19	3/4 → 18	-	

## CONNECTORS WITH PRESSURE SWITCH CONNECTIONS



- ⊕ For replacing defective pressure switch connections.
- ⊕ Thread: M7/16"-20
- ⊕ End cap included.

Article no.	Article name	For tube outer-ø	
		[ mm   " ]	
L14003301	LOKRING Al SP M1/4-NK9,53	9.53	3/8

CONNECTORS WITH R134a LOW PRESSURE PORT CONNECTIONS



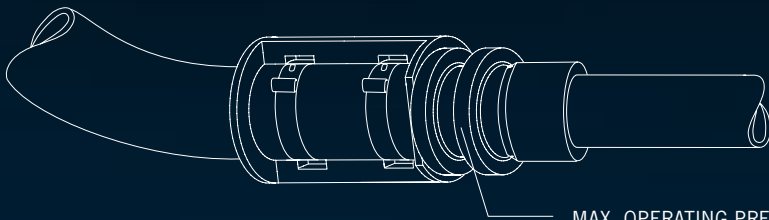
- ⊕ For replacing defective R134a low pressure port connections.
- ⊕ Also suitable for converting an air conditioning system from R12 to R134a.
- ⊕ End cap included.

Article no.	Article name	For tube outer-ø	
		[ mm ]	[ " ]
L13001428	LOKRING AI LP-NK12,7	12.7	1/2
L13001377	LOKRING AI LP-NK16	16	5/8



# LOKCLIP

## LOKCLIP STRAIGHT CONNECTORS



MAX. OPERATING PRESSURE 25 bar (360 psi)

- ⊕ TESTED ACCORDING TO EU DIRECTIVE 2006/40/EG
- ⊕ TEMPERATURE RANGE -40 °C UP TO 135 °C (-40 °F UP TO 275 °F)
- ⊕ BURST PRESSURE TEST UP TO 121 bar (1755 psi)

# HOSE-TO-LOKRING® CONNECTORS



## HOSE-TO-LOKRING® CONNECTORS



- ⊕ For assembling hose-to-tube connections.
- ⊕ Plastic clip holder and two stainless steel clips included.

**IMPORTANT:** The LOKCLIP hose connections have been specially designed for the LOKCLIP RH refrigerant hose. We cannot accept any liability for use with other refrigerant hoses.

Article no.	Article name	For tube outer-ø		For hose size
		[ mm ]	[ " ]	
L13003869	LOKCLIP AI NK9,53-06	9.53	3/8	06
L13003870	LOKCLIP AI NK12,7-08	12.7	1/2	08
L13003871	LOKCLIP AI NK16-10	16	5/8	10
L13003872	LOKCLIP AI NK19-12	19	3/4	12

# LOKCLIP HOSE CONNECTIONS

## HOSE-TO-TUBE CONNECTORS



- ⊕ For assembling hose-to-tube connections.
- ⊕ Can be used with LOKRING aluminium connectors and reducing connectors.
- ⊕ Plastic clip holder and two stainless steel clips included.

IMPORTANT: The LOKCLIP hose connections have been specially designed for the LOKCLIP RH refrigerant hose. We cannot accept any liability for use with other refrigerant hoses.

Article no.	Article name	Tube outer-ø			For hose size
		[ mm ]	[ " ]		
L13004400	LOKCLIP AI 9,53-06	9.53	3/8	→	06
L13004401	LOKCLIP AI 12,7-08	12.7	1/2	→	08
L13004402	LOKCLIP AI 16-10	16	5/8	→	10
L13004403	LOKCLIP AI 19-12	19	3/4	→	12

## HOSE CONNECTORS (SPLICER)



- ⊕ For connecting hoses with identical inner diameters.
- ⊕ Two plastic clip holders and four stainless steel clips included.

IMPORTANT: The LOKCLIP hose connections have been specially designed for the LOKCLIP RH refrigerant hose. We cannot accept any liability for use with other refrigerant hoses.

Article no.	Article name	For hose size
L13004219	LOKCLIP Splicer 06-06	06
L13004220	LOKCLIP Splicer 08-08	08
L13004221	LOKCLIP Splicer 10-10	10
L13004222	LOKCLIP Splicer 12-12	12

## HOSE-TO-TUBE CONNECTORS FOR STANDARD BARRIER HOSE



- ⊕ For assembling hose-to-tube connections.
- ⊕ Can be used with LOKRING aluminium connectors and reducing connectors.
- ⊕ Suitable for refrigerant hoses with standard wall thickness.
- ⊕ Not suitable for film tubes.
- ⊕ A special clamping tool is required for assembling the hose connection.

Article no.	Article name	Tube outer-ø			For hose size
		[ mm ]	[ " ]		
L14000751	HOSELOK AI 9,53-06	9.53	3/8	→	06
L14000872	HOSELOK AI 12,7-08	12.7	1/2	→	08
L14000879	HOSELOK AI 16-10	16	5/8	→	10
L14000873	HOSELOK AI 19-12	19	3/4	→	12

## STAINLESS STEEL CLIPS FOR LOKCLIP HOSE CONNECTIONS



For crimping the LOKCLIP RH refrigerant hose with the joint of a LOKCLIP hose connection.

Article no.	Article name	For hose size
L14002804	LOKCLIP SSC 06	06
L14002805	LOKCLIP SSC 08	08
L14002806	LOKCLIP SSC 10	10
L14002807	LOKCLIP SSC 12	12

## PLASTIC CLIP HOLDERS FOR LOKCLIP HOSE CONNECTIONS



Ensures the stainless steel clips of a LOKCLIP hose connection are in the right place.

Article no.	Article name	For hose size
L14002808	LOKCLIP PCH 06	06
L14002809	LOKCLIP PCH 08	08
L14002810	LOKCLIP PCH 10	10
L14002811	LOKCLIP PCH 12	12

## REFRIGERANT HOSE SET FOR LOKCLIP HOSE CONNECTIONS



Two-metre length of hose in each of the four sizes: 06, 08, 10 and 12.

Article no.	Article name
L13004937	LOKCLIP GA LCS

## REFRIGERANT HOSE FOR LOKCLIP HOSE CONNECTIONS



- ⊕ Refrigerant hose in OEM quality specially designed for the LOKCLIP hose connections. ⊕ Material sold by the metre.
- ⊕ Temperature range -40 °C up to 135 °C (-40 °F up to 275 °F) ⊕ Operating pressure 34.50 bar (500 psi)

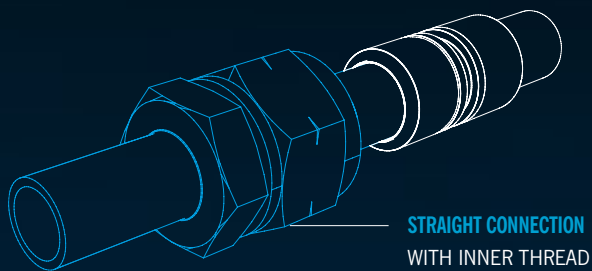
IMPORTANT: If this refrigerant hose is used correctly in conjunction with the LOKCLIP hose connections, we guarantee 100 percent quality and tightness. We cannot accept any liability for products from other manufacturers.

Article no.	Article name	Hose inner-ø [mm]	Hose outer-ø [mm]	Burst pressure [ bar   psi ]	Bending radius [mm]	Hose size
L14002664	LOKCLIP RH R134a R06	7.90 - 8.60	14.20 - 15.20	172   2495	25	06
L14002665	LOKCLIP RH R134a R08	10.20 - 11.20	16.80 - 17.80	172   2495	38	08
L14002666	LOKCLIP RH R134a R10	12.50 - 13.50	18.90 - 19.90	121   1755	51	10
L14002667	LOKCLIP RH R134a R12	15.60 - 16.50	23.10 - 24.10	121   1755	76	12

# REPLACEMENT OF FAULTY THREADS

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## O-RING REPAIR FITTING



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You can use these connections together with LOKRING or LOKCLIP connectors to replace faulty threads. If you should damage a thread during servicing (e.g. while replacing a condenser), it is no longer necessary to replace the whole tube. You can simply repair this again with the O-ring repair connections.



# O-RING REPAIR FITTINGS

## STRAIGHT CONNECTIONS WITH INNER THREAD



LOKRING aluminium O-ring repair connections with union nut (female thread).

Article no.	Article name	Tube outer-ø		Thread
		[ mm ]	[ " ]	
L14002599	LOKRING AI OR 5/8-F-9,53	9.53	3/8	5/8" - 18
L14004083	LOKRING AI OR M20x1,5-F-12.7	12.7	1/2	M20 - 1.5
L14002601	LOKRING AI OR 7/8-F-16	16	5/8	7/8" - 14
L14002602	LOKRING AI OR 1 1/16-F-19	19	3/4	1 1/16" - 14

## STRAIGHT CONNECTIONS WITH OUTER THREAD (MALE INSERT)



LOKRING aluminium O-ring repair connections "male insert" with union nut (male thread).

Article no.	Article name	Tube outer-ø		Thread
		[ mm ]	[ " ]	
L14002595	LOKRING AI OR 5/8-MI-9,53	9.53	3/8	5/8" - 18
L14002596	LOKRING AI OR 3/4-MI-12.7	12.7	1/2	3/4" - 16
L14002597	LOKRING AI OR 7/8-MI-16	16	5/8	7/8" - 14
L14002598	LOKRING AI OR 1 1/16-MI-19	19	3/4	1 1/16" - 14

## 90° ELBOWS WITH INNER THREAD



LOKRING aluminium O-ring repair connections with 90° elbow and union nut (female thread).

Article no.	Article name	Tube outer-ø		Thread
		[ mm ]	[ " ]	
L14003335	LOKRING AI OR 90° 5/8-F-9,53	9.53	3/8	5/8" - 18
L14003336	LOKRING AI OR 90° 3/4-F-12,7	12.7	1/2	3/4" - 16
L14003337	LOKRING AI OR 90° 7/8-F-16	16	5/8	7/8" - 14

## O-RINGS FOR O-RING REPAIR FITTINGS



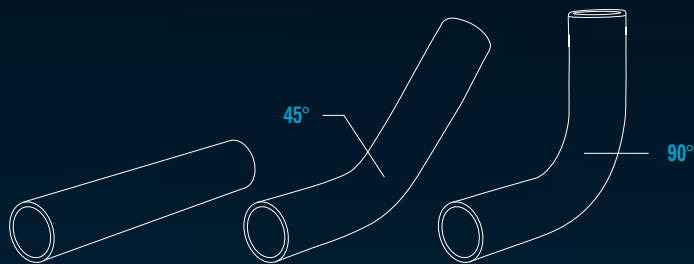
- ⊕ Suitable for LOKRING aluminium O-ring repair fittings.
- ⊕ Cross section: 1.78 mm

Article no.	Article name	Outer-ø [ mm ]
L14003399	O-Ring 06	7.65
L14003400	O-Ring 08	10.82
L14003401	O-Ring 10	14.00
L14003402	O-Ring 12	17.17

# TUBES AND ELBOWS

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## TUBES AND ELBOWS



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Aluminium tubes in OEM quality. For replacing aluminium tubes. Can be used with all LOKRING aluminium connectors as well as LOKCLIP connectors.

# TUBES AND ELBOWS

## ALUMINIUM TUBE SET



One-metre length of aluminium tube in each of the eight most popular diameters: 8 mm (5/16"); 9.53 mm (3/8"); 10 mm; 12 mm; 12.7 mm (1/2"); 16 mm (5/8"); 18 mm and 19 mm (3/4").

Article no.	Article name
L13004936	LOKRING GA LRR

## ALUMINIUM TUBES



- ➔ Aluminium tubes in OEM quality.
- ➔ Length: 1 metre.

Article no.	Article name	Tube outer-ø [ mm   " ]	Article no.	Article name	Tube outer-ø [ mm   " ]
L14000898	LOKRING AI TU 8	8   5/16	L14000767	LOKRING AI TU 12,7	12.7   1/2
L14000766	LOKRING AI TU 9,53	9.53   3/8	L14000765	LOKRING AI TU 16	16   5/8
L14003343	LOKRING AI TU 10	10   -	L14003780	LOKRING AI TU 18	18   -
L14000716	LOKRING AI TU 12	12   -	L14000768	LOKRING AI TU 19	19   3/4

## 90° ALUMINIUM ELBOWS



- ➔ For replacing aluminium tubes with a 90° elbow.
- ➔ Can be used with all LOKRING aluminium connectors as well as LOKCLIP connectors.

Article no.	Article name	Tube outer-ø [ mm   " ]
L14002234	LOKRING AI 90-EB 9,53	9.53   3/8
L14002235	LOKRING AI 90-EB 12,7	12.7   1/2
L14002236	LOKRING AI 90-EB 16	16   5/8
L14002654	LOKRING AI 90-EB 19	19   3/4

## 45° ALUMINIUM ELBOWS



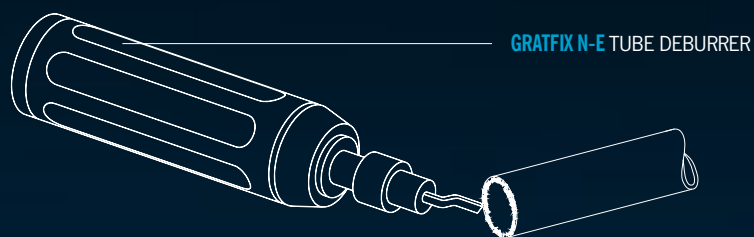
- ➔ For replacing aluminium tubes with a 45° elbow.
- ➔ Can be used with all LOKRING aluminium connectors as well as LOKCLIP connectors.

Article no.	Article name	Tube outer-ø [ mm   " ]
L14002231	LOKRING AI 45-EB 9,53	9.53   3/8
L14002232	LOKRING AI 45-EB 12,7	12.7   1/2
L14002233	LOKRING AI 45-EB 16	16   5/8

# ACCESSORIES

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## TUBE DEBURRER



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For quick and clean deburring of tubes, edges and steel plates.

# ACCESSORIES

## ABRASIVE MAT



- ➔ For cleaning tube ends without scratching.
- ➔ Suitable for all surfaces.
- ➔ Solvent-resistant.
- ➔ Dimensions: 158 mm x 224 mm.
- ➔ Highest quality from 3M.

Article no.	Article name
L14002211	AM-SV

## TUBE DEBURRER



For quick and clean deburring of tubes, edges and steel plates.

Article no.	Article name	Description
L14001362	GRATFIX N-E	Tube deburrer
L14001363	N-E100	Replacement blade

## TUBE CUTTER



Diameter range: 3 to 16 mm (1/8" to 5/8").

Article no.	Article name	Description
L14001102	TC-1050	Tube cutter
L14001103	TCS-1050	Cutting blade

## TUBE CUTTER



Diameter range: 6 to 28 mm (1/4" to 1 1/8").

Article no.	Article name	Description
L14000022	TC-1000	Tube cutter
L13003601	TCS-1000	Cutting blade

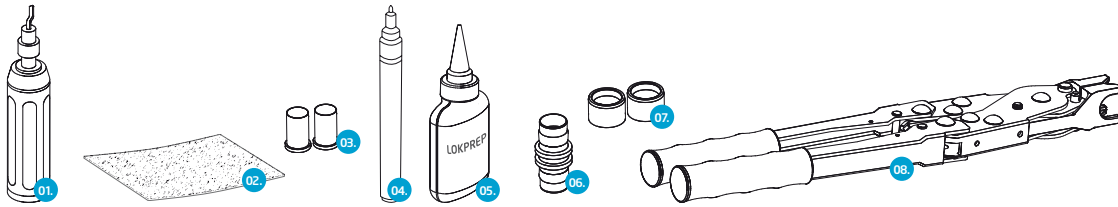
## HOSE CUTTER



- ➔ For cutting refrigerant hoses.
- ➔ Suitable for all common hose diameters in vehicle air conditioning systems.
- ➔ Not suitable for foil hoses.

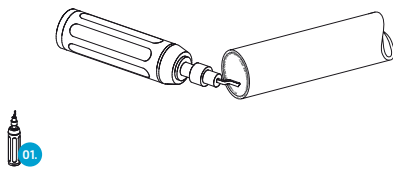
Article no.	Article name
L14000672	HC 6.12

# LOKRING® ASSEMBLY TYPE 50

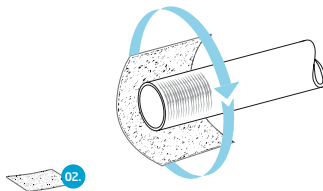


01. TUBE DEBURRER 02. ABRASIVE MAT 03. STABILISATION INSERTS 04. PERMANENT MARKER 05. LOKPREP 06. JOINT 07. LOKRINGS 08. HAND ASSEMBLY TOOL WITH ASSEMBLY JAWS MB EV

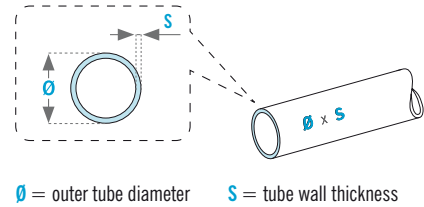
**!** Deburr the tube end all the way round using a tube deburrer (01). Use different deburring tools for different materials.



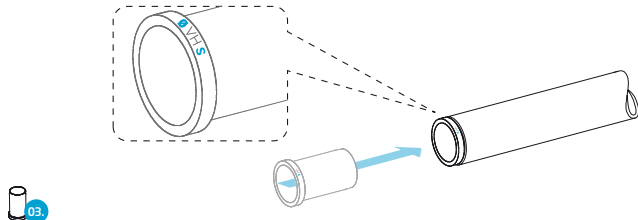
**!** Clean the tube end by rubbing it in rotary movements using the abrasive mat (02).



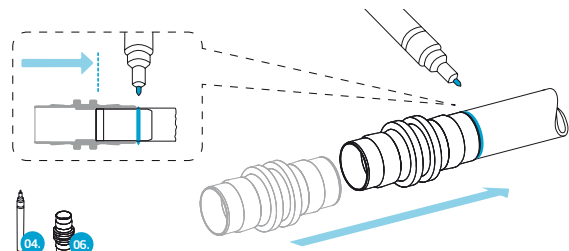
**!** Determine the tube wall thickness  $S$  and the outer tube diameter  $\varnothing$  on the basis of tube coding or using a slide gauge.



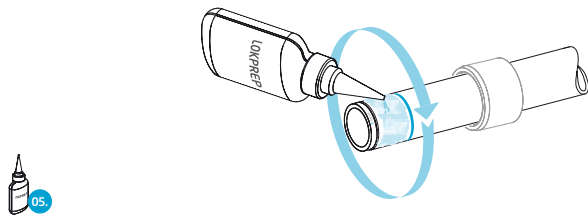
**1** Insert a stabilisation insert (03) suitable for the material, the outer tube diameter  $\varnothing$  and tube wall thickness  $S$ . Stabilisation inserts (03) may not be necessary in case of use with refrigerants with an operating pressure lower than 25 bar (e.g. R134a car A/C systems or refrigerator cabinets).



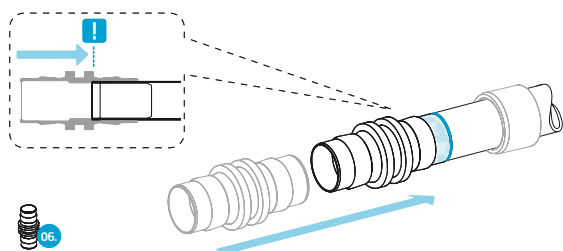
**2** Before applying the LOKPREP (05), push the joint (06) onto the tube until you can feel the inner stop. Mark (04) the correct insertion depth on the tube.



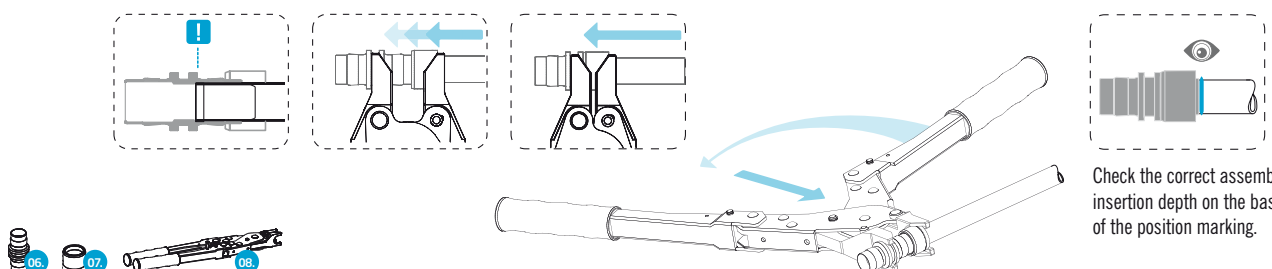
**3** Choose the correct LOKPREP (05) for the tube material and the ambient temperature. Apply LOKPREP (05) all the way round the sealing area of the tube end. Respect the correct curing time of the LOKPREP (05).



**4** Push the joint (06) onto the tube until it reaches the inner stop **!**

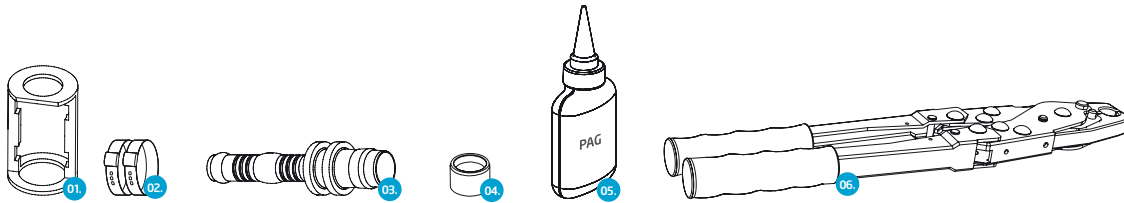


**5** Put the assembly jaws (08) in place behind the LOKRING (07) and the assembly stop of the joint (06). Press the tube connection together. **!** Do not change the insertion depth of the tube and joint (06). Press the tube connection until the LOKRING (07) is flush to the assembly stop of the joint (06). Respect the curing time of the LOKPREP (05) before applying forces to the connection.



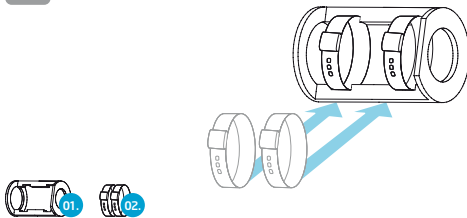


# LOKCLIP ASSEMBLY

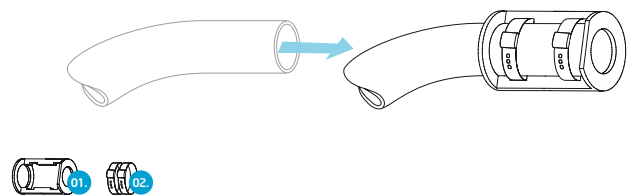


01. CLIP POSITION HOLDER 02. STAINLESS STEEL CLIPS 03. JOINT 04. LOKRING 05. REFRIGERANT OIL 06. HAND ASSEMBLY TOOL

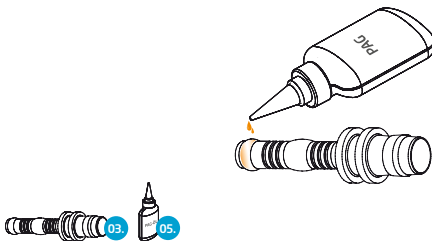
**1** Insert the two stainless steel clips (02) into the clip position holder (01).



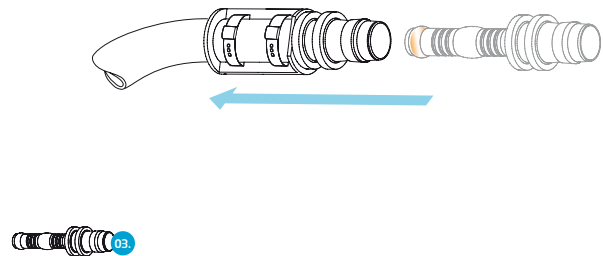
**2** Insert the hose into the clip position holder (01) as far as it will go.



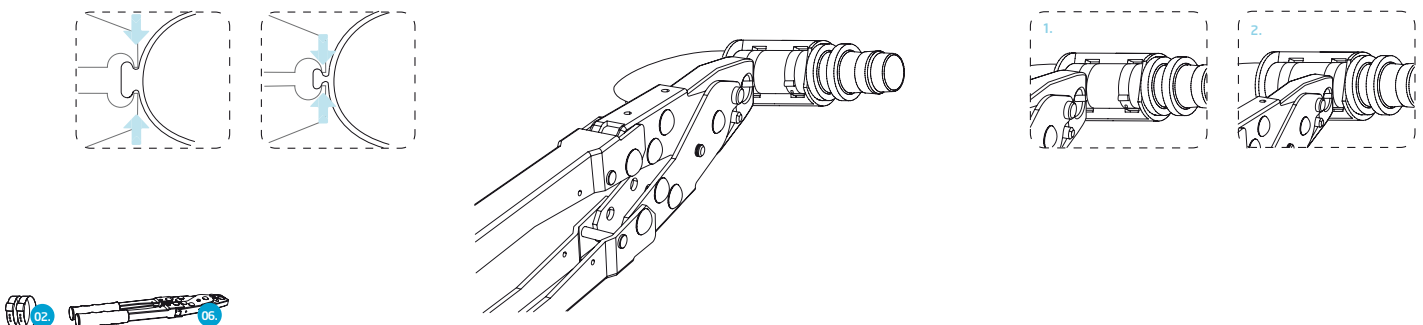
**3** Lubricate the joint (03) with a little refrigerant oil (05).



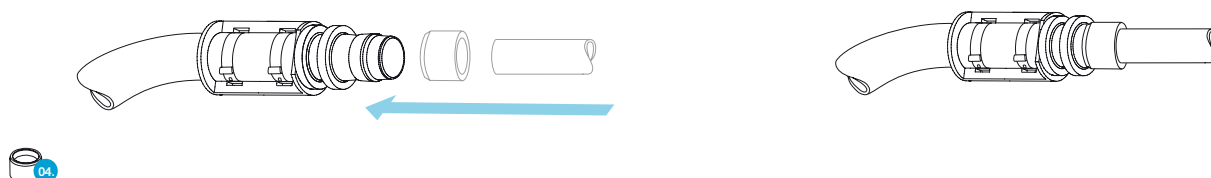
**4** Push the joint (03) into the hose as far as it will go.



**5** Press the stainless steel clips (02) using the hand assembly tool (06). Start with the clip positioned at the side of the hose. As an alternative to the hand assembly tool (06) LOKTOOL MZ-V you can also use the LOKTOOL LC flex (L14003352).



**6** Now you can make the LOKRING® connection. Respect the assembly instructions for LOKRING® tube connection assembly version 50 on [www.vulkan.com](http://www.vulkan.com).



# NOTES



# ONLINE-SERVICE

FOR FURTHER INFORMATION, PLEASE REFER  
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**VALIDITY CLAUSE**

The LOKRING® tube connection technology represents a proven method of producing hermetically sealed metal-to-metal tube connections. The LOKRING® tube connections are mainly used in the refrigeration and air conditioning industries. The use of LOKRING® tube connection technology in other fields is to be discussed with VULKAN Lokring. VULKAN Lokring as the supplier is responsible for the qualitative delivery of the tube connections and tools which are ordered from this catalogue.

The purchaser is responsible for the use of the LOKRING® tube connections and tools as directed. The assembly has to be done accordingly to the instructions and exclusively with original LOKRING® parts. The present Vehicle Air Conditioning catalogue shall replace all previous editions, any previous printings shall no longer be valid. The data contained in this catalogue refers to the valid state of affairs in time of the copy deadline. Any changes due to technical progress are reserved.

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