

# VEHICLE AIR CONDITIONING

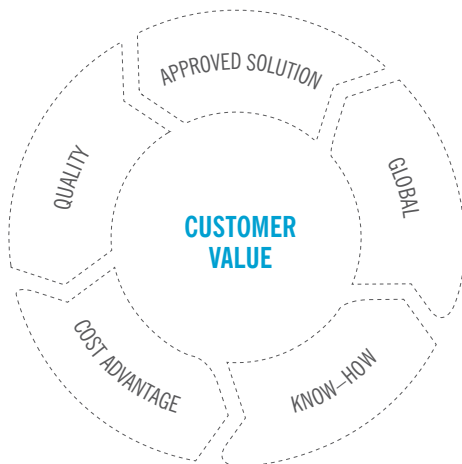
FIND THE LEAK! – REPAIR THE LEAK!



## FOR THE LAST 36 YEARS, VULKAN LOKRING HAS DEVELOPED, MANUFACTURED AND MARKETED 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 with its head office in Germany. As a developer of the LOKRING technology, VULKAN Lokring is a market leader in the field of solder-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

**1,500,000,000** LOKRING® CONNECTIONS

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

### GLOBAL

**470,000** LOKRINGS PER DAY

are produced in the 5 international manufacturing 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.

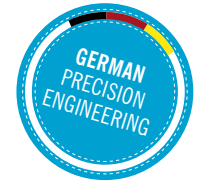
### QUALITY

**100%** QUALITY INSPECTION

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

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# 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 36 years, experienced engineers have built new solutions for customers' applications in the development centre in Germany.



**PRODUCTION.** Approximately 500,000 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 solder-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.



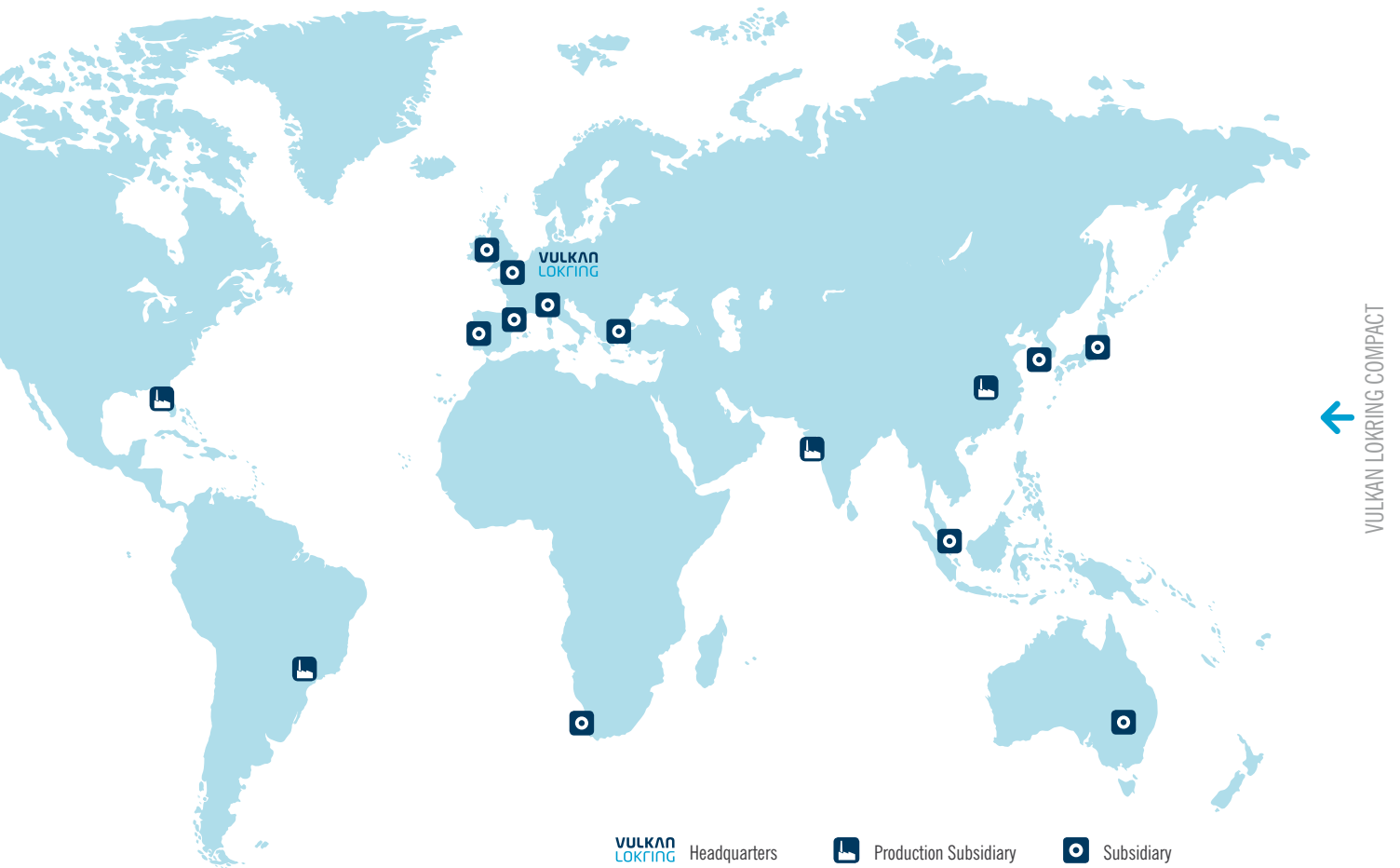
**PRODUCT AND MANAGEMENT CERTIFICATION.** TÜV and UL product certification. ISO 9001 certification of the quality management system. ISO 14001 certification of the environment management system. AEO certification. Leak-proof tests. Expert survey reports.



**ENVIRONMENTAL ENGAGEMENT.** 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 locations, with 16 subsidiary companies 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.



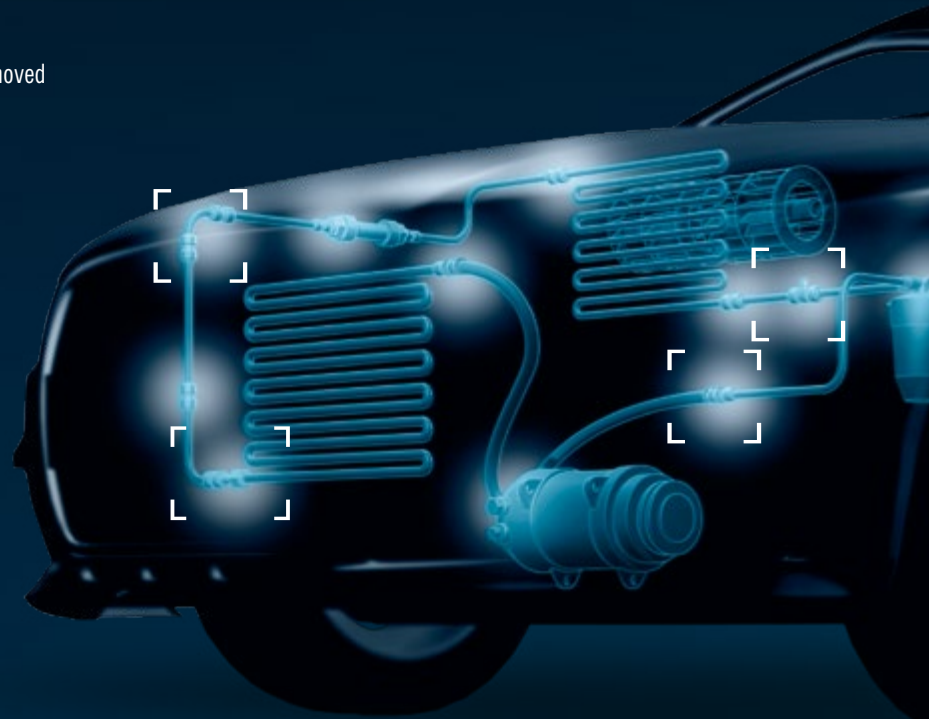
**CUSTOMER REFERENCES.** A small selection from more than 6,600 satisfied customers:



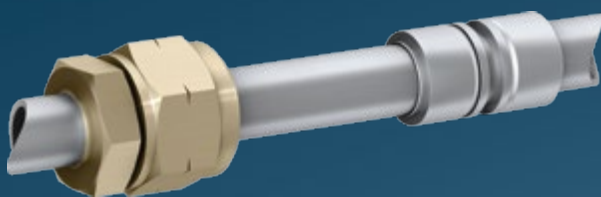
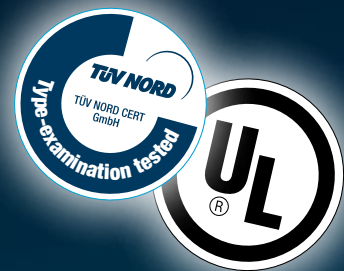
# LOKRING® & LOKCLIP

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

- ⊕ for universal use, independent of the vehicle type and model year
- ⊕ no waiting for expensive original spare parts
- ⊕ no welding, soldering or thread cutting necessary
- ⊕ in many cases, the faulty line may not even have to be removed
- ⊕ for more than 30 years tried-and-trusted by OEMs
- ⊕ in compliance with EU directive 2006/40/EG



# REPAIR THE LEAK!



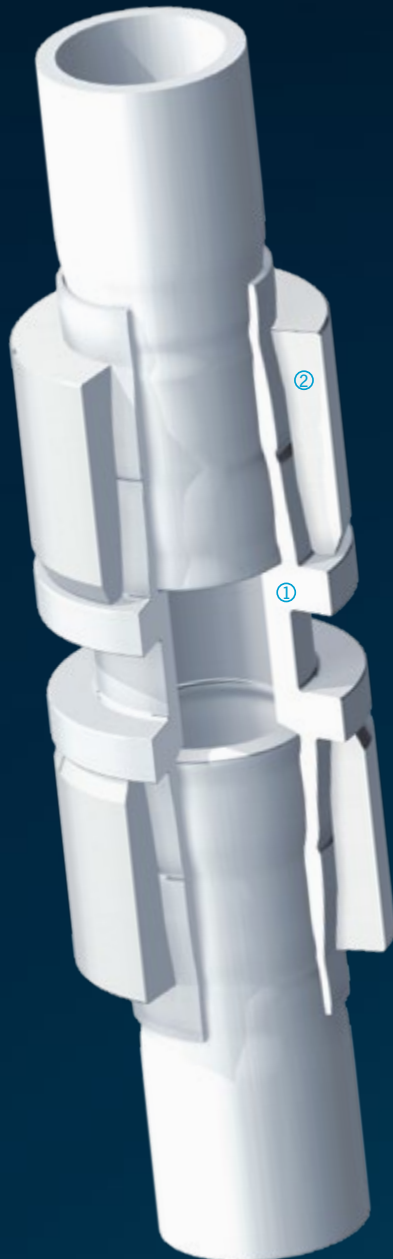
## WITH LOKRING® & LOKCLIP YOU CAN REPAIR:

- ⊕ 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

### Admissible refrigerants:

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

### Material combinations:

For joining aluminium tubes.  
Other tube materials on request.

### Max. operating pressure:

25 bar (360 psi)

### Temperature range:

-50°C up to 150°C (-58°F up to 302°F)

## COMPONENTS



## MATERIAL COMBINATIONS





# 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

**Admissible refrigerants:**

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

**Material combinations:**

For joining LOKCLIP RH refrigerant hose and aluminium tube. Other tube materials on request.

**Max. operating pressure:**

25 bar (360 psi)

**Temperature range:**

-40°C up to 135°C (-40°F up to 275°F)

## COMPONENTS



## MATERIAL COMBINATIONS







**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

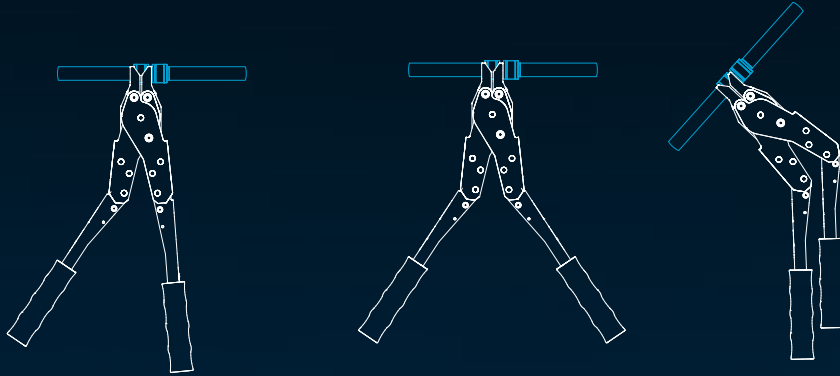
L13005830 LOKBOX SK-VAC-01

Scope of supply:

Article name	Description	Quantity
LOKTOOL MZ-V	Hand assembly tool	1
LOKTOOL MB 8 EVP	Assembly jaws	2
LOKTOOL MB 10 EVP	Assembly jaws	2
LOKTOOL MB 12 EVP	Assembly jaws	2
LOKTOOL MB 16 EVP	Assembly jaws	2
LOKTOOL MB 19 EVP	Assembly jaws	2
LOKPREP 65G	Anaerobic sealant	1
SV.3	Abrasive mat	1
LOKRING 8 NK AL 50	Straight connectors	4
LOKRING 9,53 NK AL 50	Straight connectors	4
LOKRING 10 NK AL 50	Straight connectors	2
LOKRING 12 NK AL 50	Straight connectors	2
LOKRING 12,7 NK AL 50	Straight connectors	2
LOKRING 16 NK AL 50	Straight connectors	2
LOKRING 18 NK AL 50	Straight connectors	2
LOKRING 19 NK AL 50	Straight connectors	2
LOKRING 9,53/8 NR AL 50	Straight reducing connectors	2
LOKRING 10/9,53 NR AL 50	Straight reducing connectors	2
LOKRING 13/12 NR AL 50	Straight reducing connectors	2
LOKRING 19/18 NR AL 50	Straight reducing connectors	2
LOKRING AL EB45° 9,53	45° aluminium elbows	1
LOKRING AL EB45° 12,7	45° aluminium elbows	1
LOKRING AL EB45° 16	45° aluminium elbows	1
LOKRING AL EB90° 9,53	90° aluminium elbows	1
LOKRING AL EB90° 12,7	90° aluminium elbows	1
LOKRING AL EB90° 16	90° aluminium elbows	1
LOKCLIP AL NK9,53-06	Hose-to-LOKRING connectors	2
LOKCLIP AL NK12,7-08	Hose-to-LOKRING connectors	2
LOKCLIP AL NK16-10	Hose-to-LOKRING connectors	2
LOKCLIP AL NK19-12	Hose-to-LOKRING connectors	2
LOKCLIP AL 9,53-06	Hose-to-tube connectors	2
LOKCLIP AL 12,7-08	Hose-to-tube connectors	2
LOKCLIP AL 16-10	Hose-to-tube connectors	2
LOKCLIP AL 19-12	Hose-to-tube connectors	2

# LOKTOOL MZ-V

## MZ-V



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- $\phi$ [ mm   " ]	PU
L13005506	LOKTOOL MB 8 EVP	6 - 8   1/4 - 5/16	2
L13005507	LOKTOOL MB 10 EVP	9 - 11   3/8	2
L13005508	LOKTOOL MB 12 EVP	12 - 13   1/2	2
L13005509	LOKTOOL MB 16 EVP	14 - 17   5/8	2
L13005510	LOKTOOL MB 19 EVP	18 - 20   3/4	2

## LOKCLIP HAND ASSEMBLY TOOL

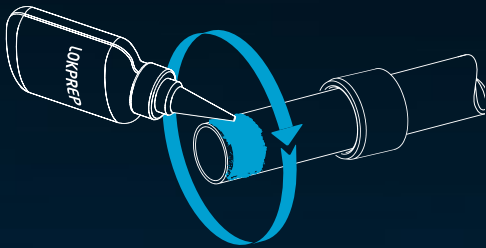


- ⊕ For crimping the stainless steel clips of a LOKCLIP hose connection.
- ⊕ Suitable for all LOKCLIP hose connections.
- ⊕ Compact design makes it easy to access even in hard-to-reach areas.

Article no.	Article name
L14003352	LOKTOOL LC flex

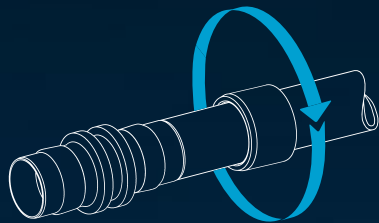
# LOKPREP APPLICATION

## LOKPREP 65G



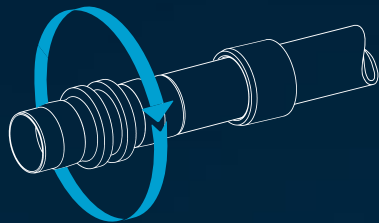
### POSSIBILITY A

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



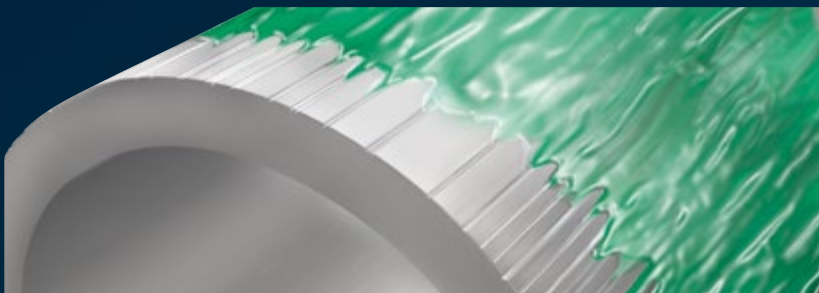
### POSSIBILITY B

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



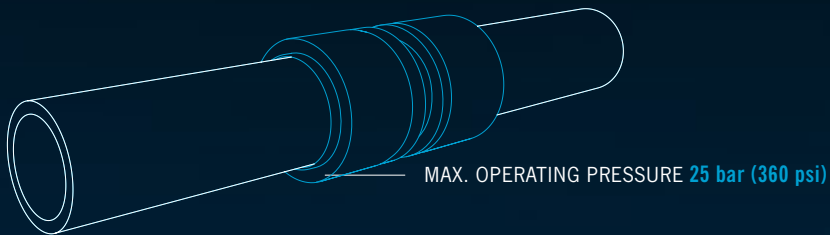
- ⊕ Specially developed for the LOKRING assembly.
- ⊕ Must be used for all LOKRING assemblies.
- ⊕ Compensates for any unevenness in the tube surface.
- ⊕ Ensures that every LOKRING connection is hermetically sealed.

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

Article no.	Article name	Content [ml]
L14000878	LOKPREP 65G 15 ml	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 EN 16084**

# STRAIGHT CONNECTORS



## STRAIGHT CONNECTORS



For connecting aluminium tubes with identical outer diameters.

**IMPORTANT:** For further packing units, please see our official price list.

Article no.	Article name	For tube outer-ø		PU
		[ mm ]	[ " ]	
L13005514	LOKRING 8 NK Al 50	8	5/16	10
L13005515	LOKRING 9,53 NK Al 50	9.53	3/8	10
L13005560	LOKRING 10 NK Al 50	10	-	10
L13005617	LOKRING 12 NK Al 50	12	-	8
L13005516	LOKRING 12,7 NK Al 50	12.7	1/2	8
L13005566	LOKRING 15 NK Al 50	15	-	2
L13005517	LOKRING 16 NK Al 50	16	5/8	2
L13005581	LOKRING 18 NK Al 50	18	-	2
L13005518	LOKRING 19 NK Al 50	19	3/4	2

# LOKRING® TUBE CONNECTIONS

## STRAIGHT REDUCING CONNECTORS



For connecting aluminium tubes with different outer diameters.

IMPORTANT: For further packing units, please see our official price list.

Article no.	Article name	Outer-ø tube 1		Outer-ø tube 2		PU
		[ mm   " ]		[ mm   " ]		
L13005802	LOKRING 9,53/8 NR Al 50	9.53	3/8 → 8	-	-	10
L13005803	LOKRING 10/9,53 NR Al 50	10	- → 9.53	3/8	-	10
L13005521	LOKRING 12,7/9,53 NR Al 50	12.7	1/2 → 9.53	3/8	-	8
L13005804	LOKRING 12,7/12 NR Al 50	12.7	1/2 → 12	-	-	8
L13005522	LOKRING 16/12,7 NR Al 50	16	5/8 → 12.7	1/2	-	2
L13005805	LOKRING 16/15 NR Al 50	16	5/8 → 15	-	-	2
L13005523	LOKRING 19/16 NR Al 50	19	3/4 → 16	5/8	-	2
L13005807	LOKRING 19/18 NR Al 50	19	3/4 → 18	-	-	2

## 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 HIGH PRESSURE PORT CONNECTIONS



- ⊕ For replacing defective R134a high 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   " ]
L13001373	LOKRING AI HP-NK9,53	9.53   3/8
L13001374	LOKRING AI HP-NK10	10   -

### CONNECTORS WITH R134a LOW PRESSURE PORT CONNECTIONS

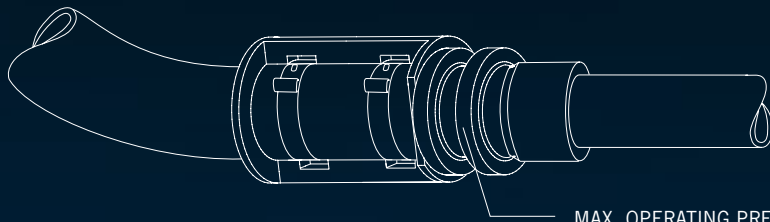


- ⊕ For replacing defective R134a low pressure port connections.
- ⊕ Also suitable for converting an air conditioning system from R12 to R134a.
- ⊕ End cap included.

Article no.	Article name	For tube outer-ø [ mm   " ]
L13001733	LOKRING AI LP-NK10	10   -
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<sup>®</sup> CONNECTORS



## HOSE-TO-LOKRING<sup>®</sup> 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 [ mm   " ]	For hose size
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 [ mm   " ]	For hose size	PU
L13005837	HOSELOK AI 9,53-06	9,53   3/8 →	06	10
L13005838	HOSELOK AI 12,7-08	12,7   1/2 →	08	8
L13005839	HOSELOK AI 16-10	16   5/8 →	10	2
L13005840	HOSELOK AI 19-12	19   3/4 →	12	2



## 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



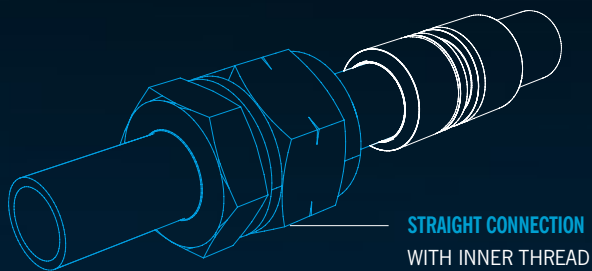
- ⊕ Refrigerant hose in OEM quality specially designed for the LOKCLIP hose connections.
- ⊕ Temperature range -40°C up to 135°C (-40°F up to 275°F) ⊕ Operating pressure 34.50 bar (500 psi) ⊕ Material sold by the metre.

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

## O-RING REPAIR FITTING



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
L14002600	LOKRING AI OR 3/4-F-12,7	12.7	1/2	3/4" - 16
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
L14004105	LOKRING AI OR M27x1,5-F-19	19	3/4	M27 - 1.5

## 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

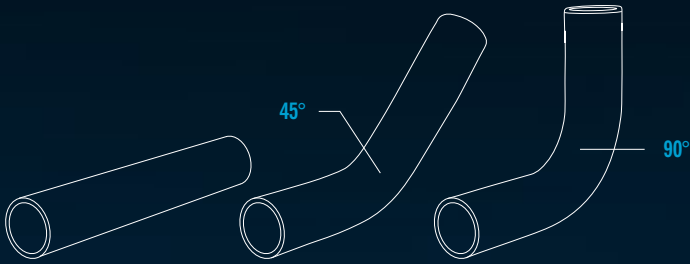


- ☉ Suitable for LOKRING aluminium O-ring repair fittings.
- ☉ Cross section: 1.78 mm

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

## TUBES AND ELBOWS



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 EB90° 9,53	9.53   3/8
L14002235	LOKRING AI EB90° 12,7	12.7   1/2
L14002236	LOKRING AI EB90° 16	16   5/8
L14002654	LOKRING AI EB90° 19	19   3/4

## 45° ALUMINIUM ELBOWS

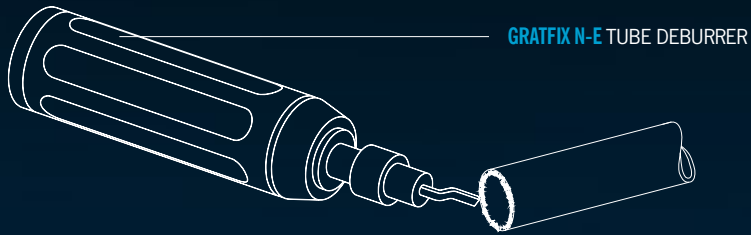


- ⊕ For replacing aluminium tubes with a 45° elbow.
- ⊕ Can be used with all LOKRING aluminium connectors as well as LOKCLIP connectors.

Article no.	Article name	Tube outer-ø [ mm   " ]
L14002231	LOKRING AI EB45° 9,53	9.53   3/8
L14002232	LOKRING AI EB45° 12,7	12.7   1/2
L14002233	LOKRING AI EB45° 16	16   5/8

# ACCESSORIES

## TUBE DEBURRER



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
L13004251	SV.3

## 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: 6 to 12.7 mm (1/4" to 1/2")

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



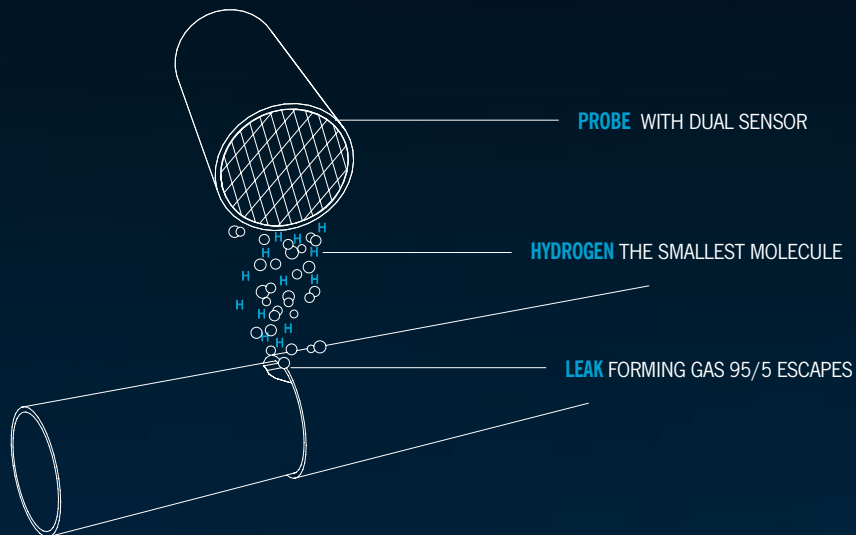




**LOKTRACE**

# LOKTRACE

## TRACER GAS LEAK DETECTION



Hydrogen is lighter than air. The air conditioning tubes and hoses can be checked conveniently from above.

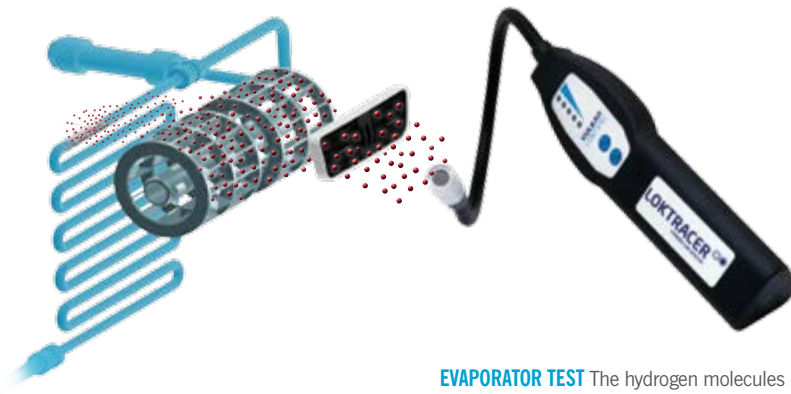
# FIND THE LEAK!

**THE LEAK DETECTION SYSTEM, ORIGINALLY DEVELOPED FOR INDUSTRIAL APPLICATIONS, HAS BEEN PERFECTLY ADAPTED FOR USE IN SERVICE, AND GUARANTEES LEGALLY COMPLIANT, FAST, RELIABLE AND EASY LEAK DETECTION.**

**FORMING GAS 95/5**, which is a mixture of nitrogen and hydrogen, is filled into the air conditioning system for leak detection. Forming gas 95/5 is non-flammable, non-toxic, non-corrosive and not harmful to the environment. Hydrogen molecules are the smallest naturally occurring particles and escape from minimum leaks. With the help of the LOKTRACER TLD.500 the tiniest leaks can be detected. The leak detector reacts almost exclusively to hydrogen with nearly no cross-sensitivities to other gases.

- ⌚ In compliance with EU directive 2006/40/EG
- ⌚ Leak detectors with unique dual sensor
- ⌚ Detecting smaller leaks
- ⌚ Nearly no cross-sensitivity to other gases
- ⌚ Easy checking of the evaporator
- ⌚ Suitable for air conditioning systems using HFO-1234yf

**CONCLUSION:** LOKTRACE finds every single leak!



**EVAPORATOR TEST** The hydrogen molecules escape at the leak in the evaporator and get inside the passenger compartment through the ventilation slots.

## LOKTRACE COMPARED TO CONVENTIONAL LEAK DETECTION METHODS

	LOKTRACE	UV dye	Electronic refrigerant leak detectors	Nitrogen and bubble spray
Compliance with legal regulations	✓	✗	✗	✓
Direct implementation	✓	✗	✓	✓
Detecting smaller leaks	✓	✗	✓	✗
Reliability	✓	✓	✗	✓
Easy checking of the evaporator	✓	✗	✓	✗

# HYDROGEN LEAK DETECTOR AND TRACER GAS LEAK DETECTION SETS

## HYDROGEN LEAK DETECTOR



- ⊕ Specially developed for refrigeration and air conditioning technology.
- ⊕ Made in Germany!
- ⊕ Reliable hydrogen leak detector with unique dual sensor technology.
- ⊕ Very low cross-sensitivity to other gases.
- ⊕ Step-by-step convergence on large leaks (zero setting).
- ⊕ Automatic sensor cleaning.
- ⊕ Without pump or filter thanks to diffusion technology.
- ⊕ Integrated LED light.
- ⊕ Acoustic and visual alarm.

Article no.	Article name
L13005099	LOKTRACER TLD.500

Technical data	
Time until ready:	< 60 s
Response time:	1 to 2 s
Operating period:	approx. 5 h
Power supply:	Rechargeable batteries

Available separately		
Article no.	Article name	Description
L14004043	PA-TLD.500	Charging cable
L14003979	EP-TLD.500	Earphone

## CYLINDER TROLLEY SET FOR TRACER GAS LEAK DETECTION



- ⊕ Complete kit for tracer gas leak detection in vehicle air conditioning systems.
- ⊕ The cylinder trolley is suitable for conventional 10 l or 20 l gas cylinders.
- ⊕ Gas cylinder not included in the scope of supply
- ⊕ Pressure reducer connection: W21,8-14 left hand thread. (Kits with other pressure reducer are available on request.)

Article no.	Article name		
L13005004	LOKTRACE KA-500 W21,8-14		
Scope of supply			
Article no.	Article name	Description	Quantity
L13005099	LOKTRACER TLD.500	Hydrogen leak detector	1
L14003939	CT.10/20	Trolley	1
L14003951	PR-TG.10 W21,8-14	10 bar pressure reducer	1
L13005015	PA-1/LT.10	Manifold gauge 10 bar	1
L13004971	HDS-A-G+G-3000-Y	Charging hose	1
L13002909	HDS-J-G+G-3000-Y	Charging hose	1
L14002502	QC-134a-BM	Low pressure quick coupler	1
L14002503	QC-134a-RM	High pressure quick coupler	1
L14003969	LOKTRACE KA.DC	Dust cover	1

## CASE SET FOR TRACER GAS LEAK DETECTION



- ⊕ Complete kit for tracer gas leak detection in vehicle air conditioning systems in a robust plastic case.
- ⊕ Pressure reducer connection: W21,8-14 left hand thread. (Kits with other pressure reducer are available on request.)

Article no.	Article name
L13005139	LOKBOX TG-AUTO-500

### Scope of supply

Article no.	Article name	Description	Quantity
L13005099	LOKTRACER TLD.500	Hydrogen leak detector	1
L14003951	PR-TG.10 W21,8-14	10 bar pressure reducer	1
L13005015	PA-1/LT.10	Manifold gauge 10 bar	1
L13004971	HDS-A-G+G-3000-Y	Charging hose	1
L13002909	HDS-J-G+G-3000-Y	Charging hose	1
L14002502	QC-134a-BM	Low pressure quick coupler	1
L14002503	QC-134a-RM	High pressure quick coupler	1

## QUICK-COUPERS FOR HFO-1234YF



- ⊕ Allows the connection of LOKTRACE leak detection sets to HFO-1234yf vehicle air conditioning systems.
- ⊕ For connecting the charging hoses of the LOKTRACE leak detection sets the fitting A-1234 is required.
- ⊕ Tested in accordance with SAE J2888 (1234yf)
- ⊕ Connection: M12 x 1.5

Article no.	Article name	Description
L14004188	QC-1234YF-BF	Low pressure quick-coupler
L14004187	QC-1234YF-RF	High pressure quick-coupler

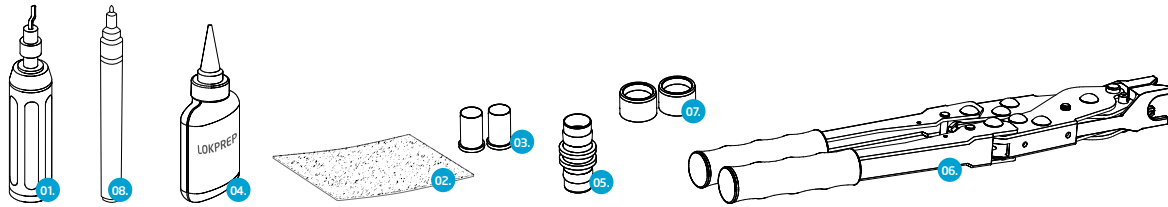
## FITTING M12X1,5 M - 1/4" SAE M



For connecting the charging hoses of the LOKTRACE leak detection sets to quick-couplers for HFO-1234yf.

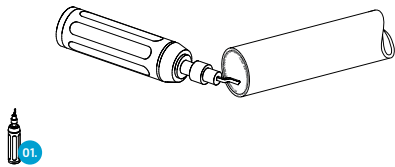
Article no.	Article name
L14004189	A-1234

# LOKRING® ASSEMBLY TYPE 50

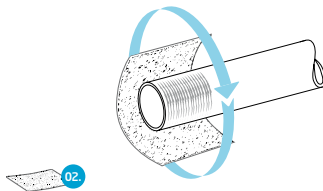


01. TUBE DEBURRER 02. ABRASIVE MAT 03. STABILISATION INSERTS 04. LOKPREP 05. JOINT 06. HAND ASSEMBLY TOOL WITH ASSEMBLY JAWS MB EVP 07. LOKRINGS 08. PERMANENT MARKER

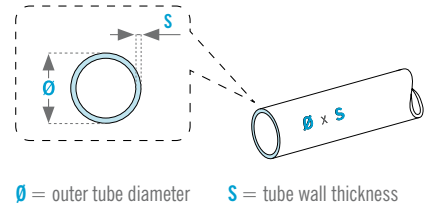
**!** Deburr the tube end all the way round using a tube deburrer (01). Use different deburring tools for different materials.



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

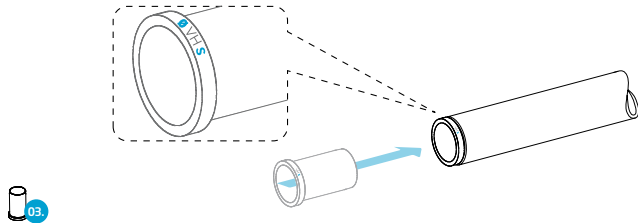


**!** Determine the tube wall thickness  $S$  and the outer tube diameter  $\emptyset$  on the basis of tube coding or using a slide gauge.

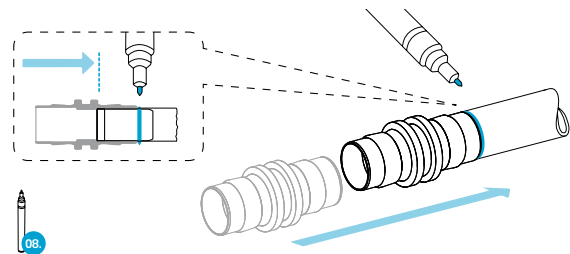


$\emptyset$  = outer tube diameter  $S$  = tube wall thickness

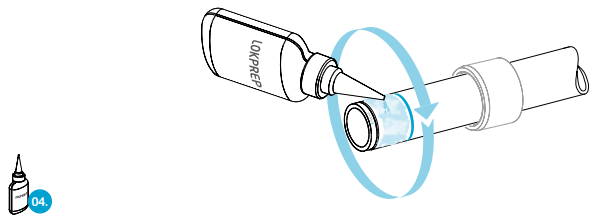
**1** Insert a stabilisation insert (03) suitable for the material, the outer tube diameter  $\emptyset$  and tube wall thickness  $S$ . Stabilisation inserts may not be necessary in case of use with refrigerants with an operating pressure lower than 25 bar (e.g. R134a car A/C systems or refrigerator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



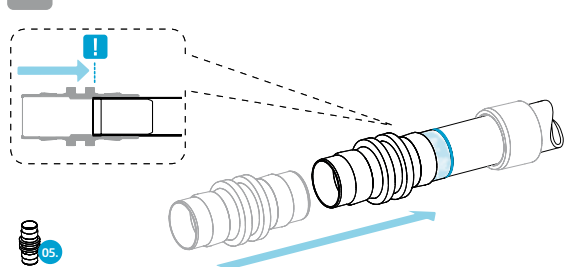
**2** Before applying the LOKPREP (04), push the connecting joint onto the tube until you can feel the inner stop. Mark (08) the correct insertion depth on the tube.



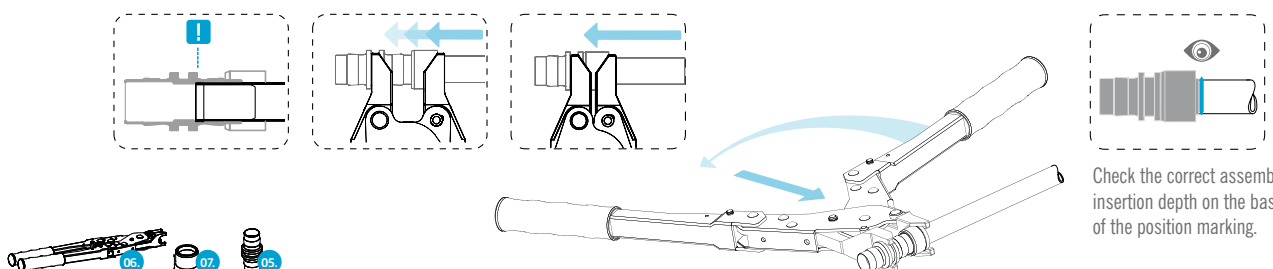
**3** Choose the correct LOKPREP for the tube material and the ambient temperature. Apply LOKPREP (04) all the way round the sealing area of the tube end. Respect the correct curing time of the LOKPREP.



**4** Push the connection joint (05) onto the tube until it reaches the inner stop **!**

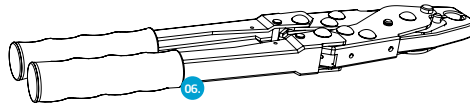
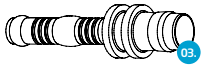
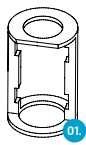


**5** Put the assembly jaws (06) in place behind the LOKRING (07) and the assembly stop of the joint (05). Press the tube connection together. **!** Do not change the insertion depth of the tube and connecting joint. Press the tube connection until the LOKRING (07) is flush to the assembly stop of the joint (05).



Check the correct assembly/insertion depth on the basis of the position marking.

# LOKCLIP ASSEMBLY



01. CLIP POSITION HOLDER

02. STAINLESS STEEL CLIPS

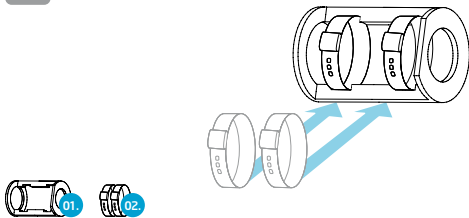
03. JOINT

04. LOKRING

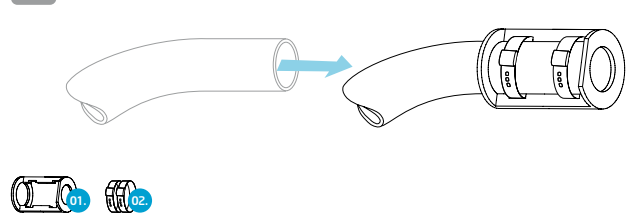
05. REFRIGERANT OIL

06. HAND ASSEMBLY TOOL

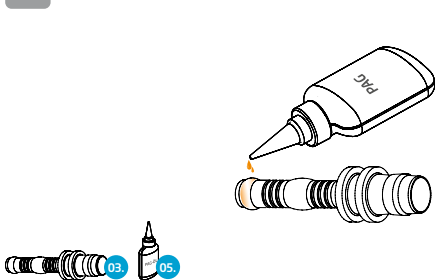
**1** Insert the two stainless steel clips (02) into the clip position holder (01).



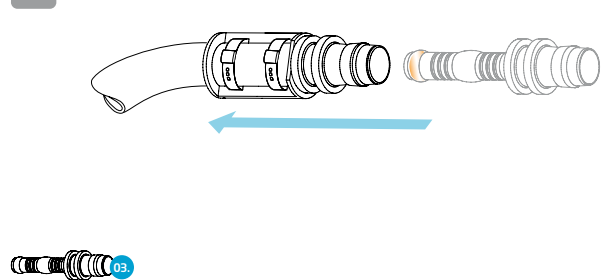
**2** Insert the hose into the clip position holder (01) as far as it will go.



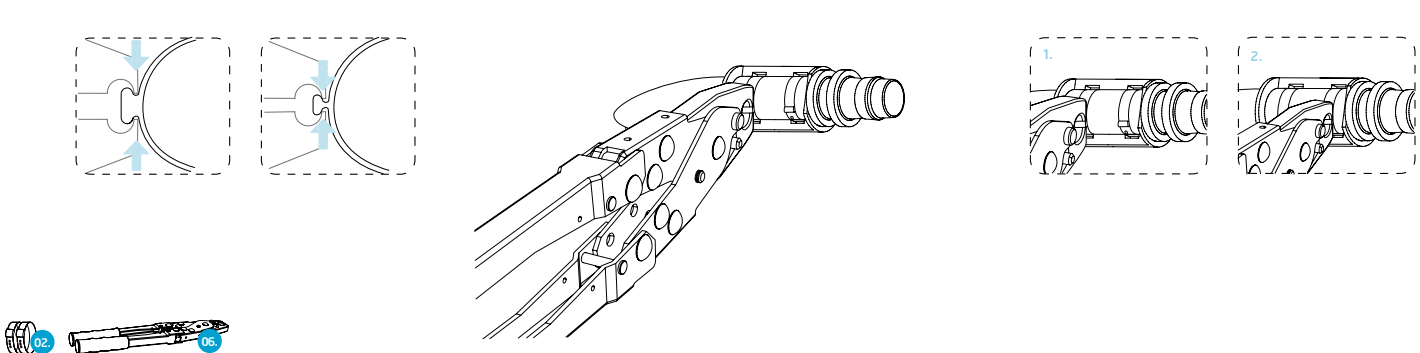
**3** Lubricate the joint (03) with a little refrigerant oil (05).



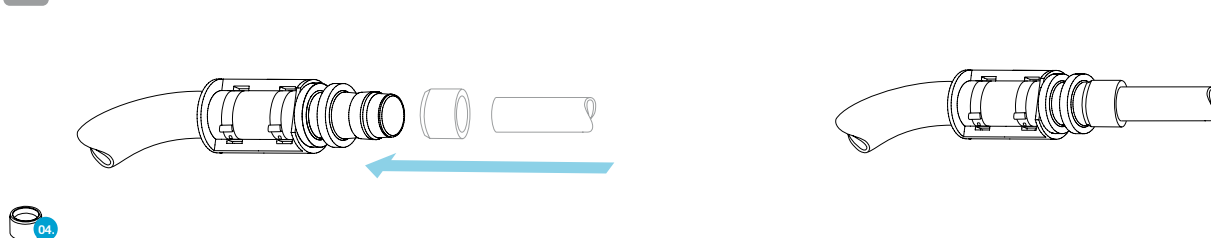
**4** Push the joint (03) into the hose as far as it will go.



**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).



# ONLINE-SERVICE

FOR FURTHER INFORMATION, PLEASE REFER TO OUR WEBSITE [WWW.VULKAN.COM](http://WWW.VULKAN.COM).



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# IMPRINT

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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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