## Contents

1. Essential Safety Notices........................................................................................................... 12
   1.1 Safety notices and warnings .................................................................................................. 12
   1.2 Personal protective equipment ............................................................................................. 12
   1.3 Intended use ......................................................................................................................... 13
   1.4 Safe and proper use .............................................................................................................. 13
   1.5 Work environment ................................................................................................................. 13
   1.6 Appropriate users .................................................................................................................. 13

2. Product Description.................................................................................................................... 14
   2.1 KL-0186-14 K Injector Nozzle Puller Set Universal with accessories ........................................ 14
   2.2 Technical data ....................................................................................................................... 14

3. Preparatory Work......................................................................................................................... 14
   3.1 Checking delivery (fig. 1) .................................................................................................... 14
   3.2 Preparing the vehicle .......................................................................................................... 14

4. Removing the Injector Nozzle................................................................................................... 15

5. Care and Storage .......................................................................................................................... 16

6. Maintenance and Repair by the KLANN Service Centre............................................................ 17

7. Spare Part List KL-0186-14 K.................................................................................................. 17

8. Upgrade Kits............................................................................................................................... 17

9. Environmentally Safe Disposal.................................................................................................. 18
1. Essential Safety Notices

Before using the injector nozzle puller set, it is imperative to read and understand the instruction manual. Misuse can lead to SERIOUS or FATAL INJURIES.
This instruction manual is part of the injector nozzle puller set. Store the instruction manual in a safe place for any further use and give it to subsequent users of the injector nozzle puller set.
All specific vehicle data stated herein are supplied under reserve and without commitment.

1.1 Safety notices and warnings

For better differentiation, the warning notices in this instruction manual are classified as follows:

<table>
<thead>
<tr>
<th>Warning sign</th>
<th>Sign reads</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>!DANGER</td>
<td></td>
<td>Indicates a hazardous situation which, if not avoided, may result in serious or fatal injuries.</td>
</tr>
<tr>
<td>!CAUTION</td>
<td></td>
<td>Indicates a hazardous situation which, if not avoided, may result in moderate or minor injuries.</td>
</tr>
<tr>
<td>!ATTENTION</td>
<td></td>
<td>Indicates a situation which, if not avoided, may result in damage to the injector nozzle puller set or its functioning, or to objects in its vicinity.</td>
</tr>
</tbody>
</table>

**DANGER**
When removing an injector nozzle, there is a risk that the pull spindle will break and fall into pieces. This will lead to parts or the pull spindle becoming projectiles.
- Do not use an impact wrench or any extensions!
- Only use genuine KLANN spare parts.
- Always keep all parts of your body away from the axial extension of the pull spindle.

**CAUTION**
A falling tool can cause injuries.
- Always wear safety shoes / boots.

**ATTENTION**
There is a risk of damage to the vehicle and tool.
- Lubricate the pull spindle with molybdenum disulphide paste KL-0014-0030.
- Always perform any work on vehicles in strict compliance with the directions, provisions, and safety regulations issued by the vehicle manufacturer.
- Only the vehicle manufacturer’s data apply to all work done on the vehicle.

1.2 Personal protective equipment

ALWAYS wear personal protective equipment when using the injector nozzle puller set. The injection nozzle puller set can cause mechanical hazards leading to injuries such as contusions, cuts or concussions.

**EYE PROTECTION** (see OSHA 29 CFR 1910.133 and ANSI Z87) designed to protect you from flying objects must be worn when using the injector nozzle puller set.
- Particles may fly upward while working with the injector nozzle puller set and could cause serious injuries to your eyes.

**SAFETY GLOVES** must be worn when using the injector nozzle puller set.
- Working with the injector nozzle puller can cause skin abrasions and contusions.

**SAFETY SHOES/BOOTS** with slip resistant soles and steel-toe caps (see OSHA 29 CFR 1910.136 and ANSI 241) must be worn when using the injector nozzle puller.
- Falling parts can cause serious injuries to feet and toes.
1.3 Intended use

⚠ The injector nozzle puller set must only be used to remove injection nozzles featuring a injector nozzle connecting thread M14 x 1.5 (external thread) or M17 x 1 (internal thread).

The injector nozzle puller set may only be used according to the directions and provisions specified in the instruction manual.

- Any other use can result in moderate or minor injuries.

1.4 Safe and proper use

Take the following safety precautions to prevent injuries and damage that could be caused by improper handling or unsafe use of the injector nozzle puller set.

⚠ Misuse can result in moderate or minor injuries.

- NEVER exceed the admissible load capacity of the injector nozzle puller set.
- Do not use an impact wrench or any extensions!
- Always check the injector nozzle puller set prior to EACH use to ensure that it is in good order and condition.
- Damaged or worn parts MUST be replaced prior to use.
- ONLY use Original KLANN spare parts and accessories for the injector nozzle puller set.

1.5 Work environment

Safe working with the injector nozzle puller set is only possible if the work environment is safe:

- The workplace must always be clean and tidy.
- The workplace must be sufficiently large and secured.

1.6 Appropriate users

This instruction manual is designed for technicians in workshops.
DO NOT allow children to use the injector nozzle puller set.
Purchasers / employers purchasing the injector nozzle puller set MUST ensure that any person / employee using the injector nozzle puller set have read and understood this instruction manual prior to using the set. This instruction manual MUST be made available to the users of the injector nozzle puller set / employees for reference at all times.
2. Product Description

2.1 KL-0186-14 K Injector Nozzle Puller Set

Universally suitable for diesel engines with injector nozzle connecting thread M 14x1.5 (external thread) or M 17x1 (internal thread), for example, on:

- Mercedes: OM611, OM612, OM613, OM 628*, OM 629*; OM 642*, OM646, OM647, OM648
- Peugeot, Citroen, Fiat, Lancia, Suzuki: DV6, DW10, DW12
- Ford: 1.6 TDCi (G8DA, G8DB, HHDA, HJA, HHJB)
- VW-Audi: 2.5 / 2.7 / 3.0 V6 Tdi
- Volvo: 1.6 D (D4164T), 2.2 D
- Mazda: Y6 (DV6)

*NOTE: V-engines might require the removal of the engine due to space constraints.

The injector nozzle puller KL-0186-14 K enables the removal of very tight-fitting injector nozzles to be performed directly on the vehicle without having to dismount the cylinder head.

The special extraction bridge and the pull spindle allow the user to extract the injector nozzle quickly and easily.

The extraction bridge is supported either by the support bolts that are screwed into the supporting bores holes of the valve cover screws (M6) or by the support bars that are positioned on an even surface on the cylinder head. The spacer nuts allow the supporting surfaces to be levelled out, as well as the support bolts in holes with insufficient depth to be adjusted.

A Extraction bridge without spindle
A1 Base plate
A2 Support bar (2 pieces)
A3 Support bolt M6 (4 pieces)
A4 T-slot screw M8 (2 pieces)
A5 Shoulder nut M8 (6 pieces)
A6 Adaptor with axial bearing
B Shoulder nut M16 x 1.5
C Pull spindle M17 x 1, 200 mm long
D Pull spindle M14 x 1.5, 127 mm long
E Special bit insert (waf) 10 mm
F Special socket (waf) 29 mm ½" drive
G Set of spacer nuts 5 mm (4 pieces)
H Set of spacer nuts 10 mm (4 pieces)
J Set of spacer nuts 15 mm (4 pieces)
K Molybdenum disulphide paste 50 g
L Set of support bars (2 pieces)

2.2 Technical data

Injector nozzle connecting thread featuring internal thread: ......M17x1
Injector nozzle connecting thread featuring external thread:.......M14x1.5
Maximum load capacity of the extraction bridge:..........................12 t

3. Preparatory Work

Before using the injector nozzle puller set for the first time, check and confirm you have all parts listed in the scope of delivery. Then, follow the mounting instructions.

3.1 Checking delivery (Fig. 1)

3.2 Preparing the vehicle

1. Loosen and/or remove all necessary components.
2. Unscrew the injector nozzle fixing parts.
3. Disconnect wires.
4. Unscrew injection lines.
4. Removing the Injector Nozzle

These instructions describe how to remove a tight-fitting injector nozzle from the cylinder head.

1. Choose the appropriate pull spindle:
   Use pull spindle “C” (M17 x 1) or pull spindle “D” (M14 x 1.5) depending on which type of injector nozzle (Fig. 2) has been installed.

1.1 Pull spindle “C” (M17 x 1): Injector nozzle with lateral fuel line connection.
   NOTE:
   If the special socket “F” does not fit the lock nut, the wire connection will have to be twisted by means of the special socket “F” until the latter can be slid onto the lock nut.

   Using special socket “F”, unscrew the injector nozzle lock nut (Fig. 4 A) and remove the upper part.
   Remove all inner parts of the injector nozzle and unscrew the threaded ring using the special bit insert “E”.
   (Fig. 4 B)

   ATTENTION
   Risk of damage to the pull spindle and injector nozzle.
   • Lubricate pull spindle with molybdenum disulphide paste KL-0014-0030.
   • Always, completely screw the pull spindle into the injector nozzle.

   Completely screw the pull spindle “C” into the injector nozzle. (Fig. 5 A)

1.2 Pull spindle “D” (M14 x 1.5): Injector nozzle with fuel line connection at the top.

   ATTENTION
   Risk of damage to the pull spindle and injector nozzle.
   • Lubricate pull spindle with molybdenum disulphide paste KL-0014-0030.
   • Always, completely screw the pull spindle onto the injector nozzle.

   Completely screw the pull spindle “D” onto the injector nozzle. (Fig. 5 B)
2. **ATTENTION**

Risk of damage to the cylinder head.
- The supporting holes have to be chosen so that, if possible, they are positioned on the solid material of the cylinder head and arranged with the supporting surfaces almost symmetric relative to the injector nozzle.
- The support bolts have to be screwed in so that the supporting surfaces for the support bars are on the same level and that the support in the holes is given by both the thread and the surface, and not only by the thread. (Fig. 6)

Use spacer nuts “G”, “H” or “J” if necessary.
- If the support via the valve cover supporting holes is not possible but the cylinder head has an even surface, the support bars “L” can be used. (Fig. 8 B)

Unscrew the valve cover screws (4 pieces) out of the relative supporting holes. Then, screw the support bolts “A3” into these holes. (Fig. 6)

3. **ATTENTION**

Risk of damage to the tool.
- The support bars “A2” must rest level, straight-lined and in true alignment on the support bolts; only then will an optimal support be ensured.

Place the support bars “A2” onto the support bolts. Tighten shoulder nuts M8 “A5” to approx. 10 Nm. (Fig. 7)

4. Mount the extraction bridge as shown in Fig. 8 A. To do this, place base plate “A1” onto pull spindle “C” and onto support bars “A2”. Screw shoulder nut “B” onto pull spindle “C” until the nut rests on the base plate or on the adaptor with axial bearing “A6”.

Tighten shoulder nuts M8 “A5” on the T-slot screws “A4” to a torque of approx. 10 Nm.

5. **DANGER**

When removing an injector nozzle, there is a risk that the pull spindle could break and fall into pieces. This will lead to parts or the pull spindle becoming projectiles.
- Do not use an impact wrench or any extensions!
- Only use genuine KLANN spare parts.
- Always keep all parts of your body away from the axial extension of the pull spindle.

**ATTENTION**

Risk of damage to the pull spindles and injector nozzle.
- Prevent pull spindle “C” or pull spindle “D” from turning while screwing in the shoulder nut “B”.

Extracting injector nozzle. For this, screw in the shoulder nut “B” until the injector nozzle can be removed from its bore hole. (Fig. 9)

5. **Care and Storage**

**ATTENTION:** Petroleum ether and chemical solvents can damage plastic parts. Always clean all parts after their use with a clean cloth.

In order to protect against corrosion, lightly lubricate all metal parts after their use and store them in a clean and dry place.
6. Maintenance and Repair by the KLANN Service Centre

For safety reasons, as soon as damage is noticed on the injector nozzle puller set, immediate steps must be taken to prevent it from being used. For professional checking and repair of the tool, please contact the KLANN Service Centre.

Address:
KLANN Spezial-Werkzeugbau-GmbH
Breslauerstr. 41
D-78166 Donaueschingen
Tel.: 0771 83 22 371
E-Mail: service.de@klann-online.de

For additional information concerning the use of our injector nozzle puller set, please contact the KLANN Service Centre.

7. Spare Part List KL-0186-14 K

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Part No.</th>
<th>Description</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>KL-0186-14 K</td>
<td>Injector nozzle puller set universal</td>
<td>1</td>
</tr>
<tr>
<td>A</td>
<td>1</td>
<td>Extraction bridge without spindle</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>KL-0186-1215</td>
<td>Shoulder nut M16 x 1.5</td>
<td>1</td>
</tr>
<tr>
<td>C</td>
<td>KL-0563-1005</td>
<td>Pull spindle M17 x 1, 200 mm long</td>
<td>1</td>
</tr>
<tr>
<td>D</td>
<td>KL-1383-1113</td>
<td>Pull spindle M18 x 1.5, 277 mm long</td>
<td>1</td>
</tr>
<tr>
<td>E</td>
<td>KL-0369-4505 A</td>
<td>Special bit insert (waf/10 mm)</td>
<td>1</td>
</tr>
<tr>
<td>F</td>
<td>KL-0369-461 A</td>
<td>Special socket (waf) 29 mm 1/2” drive</td>
<td>1</td>
</tr>
<tr>
<td>G</td>
<td>KL-0186-1251</td>
<td>Set of spacer nuts 5 mm (4 pieces)</td>
<td>1</td>
</tr>
<tr>
<td>H</td>
<td>KL-0186-1252</td>
<td>Set of spacer nuts 10 mm (4 pieces)</td>
<td>1</td>
</tr>
<tr>
<td>J</td>
<td>KL-0186-1253</td>
<td>Set of spacer nuts 15 mm (4 pieces)</td>
<td>1</td>
</tr>
<tr>
<td>K</td>
<td>KL-0014-0030</td>
<td>Molybdenum disulphide paste 50 g</td>
<td>1</td>
</tr>
<tr>
<td>L</td>
<td>KL-0186-1251</td>
<td>Set of support bars (2 pieces)</td>
<td>1</td>
</tr>
<tr>
<td>L</td>
<td>KL-0186-1290</td>
<td>Plastic storage case</td>
<td>1</td>
</tr>
</tbody>
</table>

8. Upgrade Kits

KL-0186-1232  Set of Support Bolts M8
Suitable for Fiat Ducato and Iveco 2.3; 2.4 and 3.0 JTD Common-Rail Diesel engines.
The support bolt set KL-0186-1232 enables the injector nozzle puller set KL-0186-14 K also to be used for the above mentioned engines. consists of:

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>KL-0186-1211</td>
<td>1</td>
</tr>
<tr>
<td>A2</td>
<td>KL-0186-1212</td>
<td>2</td>
</tr>
<tr>
<td>A3</td>
<td>KL-0186-1231-1</td>
<td>4</td>
</tr>
<tr>
<td>A4</td>
<td>KL-0186-1213</td>
<td>2</td>
</tr>
<tr>
<td>A5</td>
<td>KL-0206-1011</td>
<td>6</td>
</tr>
<tr>
<td>A6</td>
<td>KL-0186-1214</td>
<td>1</td>
</tr>
</tbody>
</table>

KL-0186-1233  Set of Support Bolts M6
Suitable for Vauxhall / Opel Antara 2.0 CDTI. (engine code: Z 20 DM, Z 20 DMH)
The support bolt set KL-0186-1233 enables the injector nozzle puller set KL-0186-14 K also to be used for the above mentioned engines.
consists of:

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>KL-0186-1233-1</td>
<td>Support bolt with set screw M6</td>
<td>4</td>
</tr>
</tbody>
</table>

KL-0186-1234  Set of Support Bolts M6
Suitable for Renault, Nissan, Vauxhall/Opel 2.2 L and 2.5 L dCi Diesel engines (engine code: G9T and G9U) e.g. Renault: Avantime, Espace III, Espace IV, Laguna II, Master II, Master III, Traffic II, Vel Satis; Nissan: Interstar, Primastar and Vauxhall/Opel Movano, Vivaro.
The support bolt set KL-0186-1234 enables the injector nozzle puller set KL-0186-14 K also to be used for the above mentioned engines.
consists of:

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>KL-0186-1234-1</td>
<td>Support bolt with set screw, 113.5mm</td>
<td>2</td>
</tr>
<tr>
<td>KL-0186-1234-2</td>
<td>Support bolt with set screw, 150 mm</td>
<td>2</td>
</tr>
</tbody>
</table>
### Instruction Manual

**KL-0186-150 Upgrade Kit (HDI)**

Suitable for PSA 2.7 Hdi engines.

The upgrade kit *KL-0186-150* enables the injector nozzle puller set *KL-0186-14 K* also to be used for the above mentioned engines.

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>KL-0186-1254</td>
<td>Set of spacer nuts 20 mm</td>
<td>1</td>
</tr>
<tr>
<td>KL-1383-1021</td>
<td>Pull spindle M25 x 1, 240 mm long</td>
<td>1</td>
</tr>
<tr>
<td>KL-1383-1022</td>
<td>Special socket (wall) 25 mm, 1/2” drive</td>
<td>1</td>
</tr>
</tbody>
</table>

### KL-0186-1610 Upgrade Kit

Suitable for Toyota 2.2 L Common-Rail Diesel engines (engine code: 2AD-FHV, 2AD-FTV)

The upgrade kit *KL-0186-1610* enables the injector nozzle puller set *KL-0186-14 K* also to be used for the above mentioned engines.

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>KL-0186-1611</td>
<td>Pull spindle M20 x 1, 145 mm long</td>
<td>1</td>
</tr>
<tr>
<td>KL-0186-1612</td>
<td>Pull spindle M16 x 1, 145 mm long</td>
<td>1</td>
</tr>
<tr>
<td>KL-4417-17</td>
<td>Open-end spanner insert, size 17 mm</td>
<td>1</td>
</tr>
</tbody>
</table>

### KL-0186-170 Upgrade Kit

Suitable for Mercedes CDI engines OM651, for example C-Class (W203 2000 onwards), E-Class (W212 2009 onwards), E-Class Coupe / Cabriolet (W207 2009 onwards), GLK (X204 2008 onwards) and Sprinter (II 906 2006 onwards).

The upgrade kit *KL-0186-170* enables the injector nozzle puller set *KL-0186-14 K* also to be used for the above mentioned engines.

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>KL-0186-1233</td>
<td>Set of support bolts M6</td>
<td>1</td>
</tr>
<tr>
<td>KL-0186-1711</td>
<td>Pull spindle M18, 145 mm long</td>
<td>1</td>
</tr>
<tr>
<td>KL-0399-420</td>
<td>Injector nozzle puller</td>
<td>1</td>
</tr>
<tr>
<td>KL-0399-511</td>
<td>Thread tap M7 with drill-bit</td>
<td>1</td>
</tr>
</tbody>
</table>

### KL-0186-190 Upgrade Kit

Suitable for Renault, Nissan, Vauxhall / Opel 3.0 L Common Rail Diesel engines (engine code: ZD3) e.g. Renault: Master II, Master III, Master Maxi; Nissan: Cabstar III, Instar, Patrol III, Patrol GR II, Terano and Vauxhall/Opel Movano II.

The upgrade kit *KL-0186-190* enables the injector nozzle puller set *KL-0186-14 K* also to be used for the above mentioned engines.

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>KL-0186-1234</td>
<td>Set of support bolts M6</td>
<td>1</td>
</tr>
<tr>
<td>KL-0186-1234-2</td>
<td>Support bolt 145 mm</td>
<td>4</td>
</tr>
<tr>
<td>KL-0186-1235-2</td>
<td>Support bolt 145 mm</td>
<td>4</td>
</tr>
<tr>
<td>KL-0369-1032</td>
<td>Pull spindle M14 x 1.5, 200 mm long</td>
<td>1</td>
</tr>
</tbody>
</table>

### KL-0186-200 Upgrade Kit

Suitable for Renault, Nissan and Vauxhall / Opel 2.0 dci Diesel engines (engine code M9R)

The upgrade kit *KL-0186-200* enables the injector nozzle puller set *KL-0186-14 K* also to be used for the above mentioned engines.

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>KL-0186-1236-2</td>
<td>Support bolt 145 mm</td>
<td>4</td>
</tr>
<tr>
<td>KL-0186-1237</td>
<td>Set screw with spacer nut</td>
<td>4</td>
</tr>
<tr>
<td>KL-0583-1032</td>
<td>Pull spindle M14 x 1.5, 200 mm long</td>
<td>1</td>
</tr>
</tbody>
</table>

### KL-0186-210 Upgrade Kit

Suitable for Renault / Nissan / Opel/Vauxhall 2.0 dCi (M9R), 2.2 dCi (G9T), 2.5 dCi (G9U) and 3.0 dCi (P9X, ZD3) Diesel engines.

The upgrade kit *KL-0186-210* enables the injector nozzle puller set *KL-0186-14 K* also to be used for the above mentioned engines.

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>KL-0186-1234</td>
<td>Set of support bolts M6</td>
<td>1</td>
</tr>
<tr>
<td>KL-0186-1236-2</td>
<td>Support bolt 145 mm</td>
<td>4</td>
</tr>
<tr>
<td>KL-0186-1235-2</td>
<td>Support bolt 145 mm</td>
<td>4</td>
</tr>
<tr>
<td>KL-0186-1237</td>
<td>Set screw with spacer nut</td>
<td>4</td>
</tr>
<tr>
<td>KL-0186-1235-2</td>
<td>Support bolt 145 mm</td>
<td>4</td>
</tr>
<tr>
<td>KL-0583-1032</td>
<td>Pull spindle M14 x 1.5, 200 mm long</td>
<td>1</td>
</tr>
<tr>
<td>KL-0186-1611</td>
<td>Pull spindle M20 x 1, 240 mm long</td>
<td>1</td>
</tr>
</tbody>
</table>

### 9. Environmentally Safe Disposal

The injector nozzle puller set and the packaging material must be disposed of in compliance with the applicable national legal rules and regulations in force.