

## KL-0186-8.. /-9 A..

Injector Extractor Series..



**ENGLISH****EN**

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## 1. READ AND UNDERSTAND FOR YOUR SAFETY



These operating instructions are intended to familiarise you with the operation of the injector extractor (pneumatic injector extractor). Therefore read and understand these operating instructions **before using** the injector extractor and observe all safety and warning instructions for safe use! Misuse can result in **DEATH** or **SEVERE INJURIES**! The operating instructions are a part of the injector extractor. Therefore keep them in a safe place so that you can access them at any time, and always pass them on to subsequent users of the injector extractor! The injector extractor complies with the recognised rules of technology as well as the relevant safety regulations.

### 1.1 Target group

These operating instructions are **exclusively** intended for skilled personnel in specialised motor vehicle workshops!

The injector puller **may only be** used by skilled personnel in specialised motor vehicle workshops who are familiar with the basic regulations on work safety and accident prevention.

✔ **Never** allow unauthorised, inexperienced persons, minors and children or persons with limited physical, sensory, and mental abilities to use the injector puller!

### 1.2 Obligations of the owner

Pursuant to the German Ordinance on Industrial Safety and Health (*BetrSichV*), employers are obliged to provide their employees with safe work equipment in accordance with the recognised rules of technology and the relevant safety regulations!

- ✔ The owner of the injector extractor **must** ensure that **only** trained personnel in specialised vehicle workshops use the injector extractor.
- ✔ The owner of the injector extractor **must** ensure that the instructions for use are available to the user and that the user has completely read and understood the operating instructions for use **before** using the injector extractor.
- ✔ The owner of the injector extractor **must** ensure that the user is familiar with the basic regulations on work safety and accident prevention and that the personal protective equipment is available to him.

### 1.3 Intended use

The injector extractor ...

- ✔ **may only** be used for pulling stuck injectors on carried diesel engines.
- ✔ **may only** be operated with clean and non-toxic compressed air with a **max. operating pressure of 6.2 bar (90 psi)**!
- ✔ **may only** be operated by using the hand switch!
- ✔ **may only** be used with GEDORE Automotive genuine spare parts and accessories!
- ✔ **may only** be used in the way described in these operating instructions!
- ⚠ Any other use can result in **DEATH** or **SEVERE INJURIES**!

### 1.4 Reasonably foreseeable misuse

The injector extractor ...

- ✔ **must never** be used for pulling other parts or in any other way than intended!
- ✔ **must never** be used for batch processing with many pulling processes within a few minutes!
- ✔ **must never** be used with a bridged, modified, or removed safety device!
- ✔ **must never** be modified, converted, or used for other purposes without authorisation!
- ⚠ **Always** use the injector extractor on as intended. Any other use can result in **DEATH** or **SEVERE INJURIES**!



## 1.5 Personal protective equipment

For your safety **always** wear personal protective equipment when using the injector extractor! The injector extractor can bring about mechanical hazards such as crushing, cutting and shock injuries.



Always wear **HEARING PROTECTORS** (for example to EN ISO 352, OSHA 29 CFR 1910.95, ANSI S3.19) when using the injector extractor to protect yourself against falling parts!

When working with the injector extractor, falling parts can cause **SEVERE INJURIES** to your **ears**!



Always wear **EYE PROTECTION** (for example to DIN EN 166, OSHA 29 CFR 1910.133, ANSI Z87) when using the injector puller to protect yourself against flinging parts or particles!

When using the injector extractor, flying parts or particles can cause **SEVERE INJURIES** to your **eyes**!



Always wear **PROTECTIVE GLOVES** (for example to DIN EN 388, OSHA 29 CFR 1910.138, ANSI 105) when using the injector extractor to protect yourself against sharp edges and crushing between parts!

When working with the injector extractor, sharp edges and crushing between parts can cause **SEVERE INJURIES** to your **hands**!







Always wear **SAFETY SHOES** (for example to DIN EN ISO 20345, OSHA 29 CFR 1910.136, ANSI Z41) when using the injector extractor to protect yourself against falling parts!

When working with the injector extractor, falling parts can cause **SEVERE INJURIES** to your **feet and toes**!

## 1.6 Labelling of the warnings

**Warnings** warn of potential **hazards**. **Always** observe these warnings to avoid **DEATH** or **INJURIES**!

For better differentiation, warnings in these operating instructions are classified as follows:

Warning sign	Meaning
 <b>WARNING</b>	<b>Indicates</b> a hazardous situation, which, if not avoided, could cause <b>DEATH</b> or <b>SERIOUS INJURIES</b> .
 <b>CAUTION</b>	<b>Indicates</b> a hazardous situation which, if not avoided, could cause <b>MODERATE</b> or <b>MINOR INJURIES</b> .
 <b>ATTENTION</b>	<b>Indicates</b> a situation which, if not avoided, could cause damage to the tool or an object in its vicinity.
 <b>i</b>	<b>Note</b> on important information and useful tips.

## 1.7 Work environment

**Only** use the injector extractor in a safe working environment and **do not** expose it to extreme temperatures, direct sunlight or extreme humidity and moisture!

When working with the injector extractor, the workplace **must** be clean and tidy.

When working with the injector extractor, the workplace **must** be sufficiently large and illuminated.

When working with the injector extractor, the workplace **must** be on a solid and non-skidding floor.

When working with the injector extractor, the workplace **must** be safeguarded against access of unauthorised persons.

When working with the injector extractor, the workplace **must** have a room temperature between -10 °C and +40 °C.

## 1.8 Emissions

Molybdenum disulphide paste and pneumatic oil can drip or escape when using the injector puller and thus pose a hazard to the environment.

- ✔ **Immediately** remove excess pneumatic oil as well as molybdenum disulphide paste, for example with the help a cleaning rag.
- ✔ In case of skin contact with hydraulic oil, clean the affected area **immediately** with degreasing soap and water.
- ✔ Dispose of pollutants such as pneumatic oil and molybdenum disulphide paste **always in an environmentally friendly** manner.
- ✔ Safety data sheets *in accordance with Regulation (EC) No. 1907/2006* for pneumatic oil molybdenum disulphide paste (**MOLYKOTE® G-N PLUS PASTE**) can be pneumatic found on the manufacturer's site on the Internet (**World Wide Web**) or, if required, contact **GEDORE Automotive**.

## 1.9 Basic safety instructions and warnings

### ⚠ CAUTION - There is a risk of accident and injury if this is not observed.

When using the wheel injector extractor, **always** observe the following safety and warning instructions as well as measures to avoid **DEATH** or **SERIOUS INJURY** as well as property damage due to hazards, misuse, abuse and unsafe handling!

- ✔ Read and understand these operating instructions **before using** the injector extractor, and observe all safety and warning instructions for **safe use!**
- ✔ **Always** work with the injector extractor in accordance with the basic regulations on work safety, accident prevention and environmental protection!
- ✔ **Always** use the injector extractor on as intended. **GEDORE Automotive** does not accept any liability or warranty or guarantee claims for injuries and damage resulting from improper use or disregard of the safety regulations.
- ✔ **Before each use**, check the injector extractor **carefully** for damage, loose parts, or unauthorised modifications. **Never** use it, if you notice any such deficiencies! Professional inspection and repair may only be carried out by specially trained personnel from **GEDORE Automotive**
- ✔ **Only** use original spare parts - and accessories from **GEDORE Automotive** for the injector extractor!
- ✔ **Always** observe the vehicle-specific manufacturer's specifications when working with the injector extractor!
- ✔ **Never** use the injector extractor for batch processing with many pulling processes within a few minutes!
- ✔ **Never** use the wheel injector extractor when you are tired or under the influence of alcohol, drugs, or medication!
- ✔ **Before using** the injector extractor, make sure that **no** unauthorised persons are in the immediate environment!
- ✔ **Always** observe the **max. operating pressure capacity** when using the injector extractor, and **never** exceed it!
- ✔ **Never** breathe in the exhaust air directly from the injector extractor, as it may contain oil, water, metal particles and other impurities!
- ✔ **Never** hold the base body of the injector extractor with your hands while pulling out the injector! If this is necessary, **never** hold it for a long time! This is because the effect of vibrations can cause damage to the nerves and disrupt blood circulation in the hands and arms.
- ✔ **Never** operate the injector extractor if it is not connected to a fixed injector.
- ✔ **Never** stand in the axial extension of the injector extractor, especially when it is being operated!
- ✔ Wear personal protective equipment such as hearing protection, safety goggles, protective gloves and safety shoes when working!
- ✔ **Always** make sure that the injector puller is securely attached to the injector!
- ✔ Never leave the injector extractor unattended on the injector when it is operational!
- ✔ **Never** hit the injector extractor with a hammer or other objects and **never** clamp it in a vice!
- ✔ It is **essential** to avoid dropping, hitting or knocking the injector extractor! **Always** place it securely on a clean shelf or workbench or in the corresponding insert to prevent it from falling!
- ✔ Interrupt your work **immediately** if you are unsure about using the wheel injector extractor and contact **GEDORE Automotive**, if necessary!
- ✔ **For safety reasons**, ensure that a damaged wheel injector extractor is no longer used! Professional inspection and repair may only be carried out by specially trained personnel from **GEDORE Automotive GmbH**!

## 1.10 Maintenance

Perform maintenance on the wheel hub injector extractor **regular** intervals and **only** when the tool is depressurised! Poor and improper maintenance can damage the injector extractor, thus causing **DEATH** or **SEVERE INJURIES**!

### Prior to each use:

- ✔ **Prior to each use**, check the injector puller **carefully** for damage, loose parts, or unauthorised modifications!
- ✔ **Before** and **after each use**, pour about 1 ml of pneumatic oil into the air connection of the pneumatic injector extractor. Subsequently connect it to compressed air and briefly press the hand switch so that the pneumatic oil enters the interior of the injector extractor.

### Recommended: Every 24 months:

- ✔ Have the injector puller professionally checked **every 24 months** by authorised **GEDORE Automotive** specialists!

## 1.11 Troubleshooting

**Only** perform troubleshooting on the injector extractor when it is depressurised!

**Problem:** The injector extractor shows no reaction when the manual switch is actuated, even though it is correctly connected to compressed air.

**Reason:** The piston inside the injector extractor is jammed, e.g. due to lack of oil, rust or dirt.

**Remedy:** Pour approx. 1 ml of pneumatic oil into the air connection of the injector extractor. Then connect it to compressed air and repeatedly press the hand switch briefly and intermittently. If the injector extractor does not come loose, it must be returned to **GEDORE Automotive** for repair.

## 1.12 Care / Storage

### **ATTENTION**

Improper care and storage can damage the injector puller.

- ✔ Therefore, **never** immerse the injector extractor in water, solvents, or other cleaning liquids.
- ✔ After use, clean all parts of the injector extractor when with a dry and clean cleaning cloth.
- ✔ Store the injector puller and the operating instructions at a dry and clean place.

## 1.13 Repair

### **CAUTION**

Improper repair of the injector extractor can lead to INJURY.

- ✔ If damage, loose parts or unauthorised modifications have been found on the injector extractor, it must no longer be used for safety reasons!
  - ✔ Repair may only be carried out by specially trained personnel from **GEDORE Automotive** !
  - ✔ **Only** use original spare parts and accessories from **GEDORE Automotive** for the injector extractor!
- If necessary, contact us, the **GEDORE Automotive** for a professional inspection and repair of the injector extractor.

## 1.14 Environmentally friendly disposal

Dispose of the injector extractor and the packaging material in an environmentally compatible way in accordance with the legal requirements. If necessary, ask your local authorities about environmentally friendly disposal options.

## 2. PRODUCT DESCRIPTION

### 2.1 Injector extractor base unit..

#### KL-0186-80 K- Pneumatic injector extractor kit

Suitable for BOSCH injectors with M17x1 internal thread as well as BOSCH and DELPHI injectors with M14x1.5 external thread, on cars and vans.

Used e.g. on Mercedes: OM611, OM612, OM613, OM628\*\*, OM629\*\*, OM639, OM640, OM642\*\*, OM646, OM646 EVO, OM647, OM648 (\*\*lower V-engines if necessary for space reasons); Peugeot, Citroën, Fiat, Lancia, Suzuki: DV6 16V (not on Euro 5 [8V] engines); Ford: 1.6 TDCi (G8DA, G8DB, HHDA, HHJA, HHJB); VW-Audi: 2.0, 2.5, 2.7, 3.0 Common Rail TDI; Volvo: 1.6 D (D4164T), 2.2 D; Mazda: Y6 DV6 16V (not on Euro 5 [8V] engines)

In combination with the supplements - KL-0186-128.. and KL-0186-9.. that are available as an accessory, the injector extractor is also suitable for other diesel injectors on passenger cars, commercial vehicles, vans, buses, construction machinery, agricultural machinery and municipal vehicles.

The pneumatic injector extractor enables fast and particularly comfortable extraction of stuck injectors. Coking and rust deposits are easily and effectively removed by the extremely high impact frequency in this case.

Where conventional hand-operated impact extractors usually come to an end, the compact design means that injectors can also be pulled out easily in confined spaces.

#### CE certified SAFETY:

Especially due to the internal impact weight (*no exposed moving parts*) and the hand switch for controlled operation (*immediate operating stop by releasing the hand switch*), the injector extractor offers a very high degree of safety compared to conventional devices.

#### Scope of delivery

See maintenance instructions, **chapter 2.3** ...

#### Specifications

Compressed air supply: ..... max. 6.2 bar (90psi)  
 Impact rate at 6.2 bar: ..... 480bpm  
 Impact weight: ..... 1.4kg  
 Total weight of basic tool: ..... 2.8kg  
 Dimensions basic tool (L x W x H): ..... 690 x 83.5 x 218.6mm  
 Length hand switch with hose: ..... 500mm  
 Recommended lubricant: ..... Commercially available pneumatic oil

#### Recommended accessories

KL-0186-1281 A - Supplementary kit, Continental/Siemens/VDO injector with M25x1 internal thread  
 KL-0186-1282 A - Supplementary kit, Continental/Siemens/VDO injector with M27x1 internal thread  
 KL-0186-1283 A - Supplementary kit, Denso injector with M16x1 internal thread  
 KL-0186-1284 A - Supplementary kit, Denso injector with M20x1 internal thread  
 KL-0186-1285 A - Supplementary kit, Delphi + Bosch injector  
 KL-0186-903 - Nozzle puller kit Bosch and Continental/Siemens/VDO, M12x1.5 / 45°  
 KL-0186-9000 A - Nozzle puller base plate M18x2.5  
 KL-0186-9101 A - Supplementary kit Bosch M14x1.5 / 45°  
 KL-0186-9201 A - Supplementary kit Denso M14x1.5 / 30°  
 KL-0186-9301 - Supplementary kit Denso M14x1.5 / 30°  
 KL-0186-9401 - Supplementary kit M12x1 / 20°

See also **chapter 2.2** ...



## 2.2 Supplements..

① This overview shows all supplements to the **injector extractor series**.

Please note that a basic distinction is made between two types of supplements:

**“Supplements.. suitable for defective injectors”** and **“supplements.. suitable for functional injectors”**

### Supplements..suitable for defective injectors

In combination with an impact extractor, for quick and professional extraction of stuck injectors.

Since the injector has to be opened for this purpose, the following supplements are particularly **suitable for defective injectors which are no longer to be used**.

#### KL-0186-1281 A - Supplementary kit (Continental/Siemens/VDO injector with M25x1 internal thread)

Universal fit for Continental/Siemens/VDO injectors with an internal thread of M25x1 and a spanner size of 25mm.

Installed in e.g. VW, Audi, Seat, Škoda 1.6 TDI (CAYA, CAYB, CAYC, CAYD, CLNA) and PSA 2.0 HDI (DW10), etc.

**Scope of delivery:** See maintenance instructions, **chapter 2.3** ...

#### KL-0186-1282 A - Supplementary kit (Continental/Siemens/VDO injector with M27x1 internal thread)

Universal fit for Continental/Siemens/VDO injectors with an internal thread of M27x1 and a spanner size of 27mm.

Installed e.g. for PSA 2.0 HDI 90 HP (DW10 TD), etc.

**Scope of delivery:** See maintenance instructions, **chapter 2.3** ...

#### KL-0186-1283 A - Supplementary kit (Denso injector with M16x1 internal thread)

Universal fit for Denso injectors with an internal thread of M16x1 and a spanner size of 17mm.

Installed in e.g. Toyota and Lexus 2.2, 2.5 and 3.0 common rail diesel engines (1KD-FTV, 2AD-FHV, 2AD-FTV, 2KD-FTV H, 2KD-FTV L), etc.

**Scope of delivery:** See maintenance instructions, **chapter 2.3** ...

#### KL-0186-1284 A - Supplementary kit (Denso injector with M20x1 internal thread)

Universal fit for Denso injectors with an internal thread of M20x1 and an external thread of M25x0.5 / M25x0.75 and a spanner size of 27mm.

Installed in e.g. Toyota and Lexus 2.2, 2.5 and 3.0 common rail diesel engines (1KD-FTV, 2AD-FHV, 2AD-FTV, 2KD-FTV H, 2KD-FTV L), etc.

**Scope of delivery:** See maintenance instructions, **chapter 2.3** ...

#### KL-0186-1286 - Supplementary kit (Bosch and Delphi injectors with M14x1.5 external thread)

Especially for hand-operated impact extractors only!

Consisting of adapter for impact extractor - **KL-0369-4111** and pull adapter M14x1.5mm - **KL-0583-1032 A**.

Universally suitable for Bosch and Delphi injectors with an external thread of M14x1.5mm.



## Supplements.. suitable for functional injectors

In combination with an impact extractor, for quick and professional extraction of stuck injectors.

Since the injector must **not** be opened for this purpose, the following supplements are particularly **suitable for functional injectors which are no longer to be used**.

### KL-0186-1285 A - Supplementary- kit ( Delphi + Bosch injector)

Universal fit for Delphi / Bosch injectors with lateral fuel connection (90° angle to the injector).

Installed e.g. in Mercedes-Benz 1.8 and 2.1 Common Rail diesel engines (OM651), etc.

**Scope of delivery:** See maintenance instructions, **chapter 2.3** ...

### KL-0186-9000 A - Nozzle puller (base plate ) M18x2.5

For quick and professional pulling of tight-fitting injectors in combination with an conventional impact puller with M18x2.5 mounting thread, e.g. **KL-0369-4100 (1.5 kg)** or **KL-0049-300 (4.8 kg)** (*accessories*), and a corresponding supplementary kit (e.g. **KL-0186-9001 A**, **KL-0186-9101 A**, **KL-0186-9201 A**, **KL-0186-9301**, **KL-0186-9401**).

**Scope of delivery:** See maintenance instructions, **chapter 2.3** ...

### KL-0186-9001 A - Supplementary kit, Bosch + Continental/Siemens/VDO, M12x1 / 45°

Universally fits Bosch and Continental/Siemens/VDO injectors , with a removable fuel connection with M12x1 internal thread (45° angled).

For example, installed on BMW, Mercedes, Chrysler, Citroen, Fiat, Hyundai, Iveco, Lancia, Opel/Vauxhall, PSA, Peugeot, Renault, Suzuki. Especially suitable for VW-Audi, Seat, Škoda (CFHA, CFJA, CFFB, CAYC); BMW (M47 / M57); Mercedes (OM611, OM612, OM613, OM646, OM647, OM648), and PSA (DW10).

**Scope of delivery:** See maintenance instructions, **chapter 2.3** ...

### KL-0186-9101 A - Supplementary kit , Bosch M14x1.5 / 45°

Universally fits Bosch injectors with a detachable fuel connection with M14x1 and M14x1.5 internal thread (45° angled).

Installed e.g. in VW-Audi, Seat, Škoda, Citroën, Fiat, Iveco, PSA, Peugeot. Especially suitable for Fiat Ducato, IVECO Daily 2.8 JTD; VW Golf 6, Tiguan, Touran 2.0 TDI (engine code CFFB); HATZ diesel H-series 3H50 TIC, 4H50 TIC industrial engines.

**Scope of delivery:** See maintenance instructions, **chapter 2.3** ...

### KL-0186-9201 A - Supplementary kit , Denso M12x1.5 / 30°

Universally suitable for Denso injectors with a fuel connection with external thread M12x1.5 (30° angled).

Installed, for example, on Chevrolet, Opel, Renault, Saab, Toyota.

**Scope of delivery:** See maintenance instructions, **chapter 2.3** ...

### KL-0186-9301 - Supplementary kit, Denso M14x1.5 / 30°

Universal fit for Denso injectors with a fuel connection with an external thread M14x1.5 (30° angle).

Installed on Opel and engines by VM-Motori R754 (Euro 5 + Euro 6), R756 (Euro 6).

**Scope of delivery:** See maintenance instructions, **chapter 2.3** ...

### KL-0186-9401 - Supplementary kit, Bosch + Continental/Siemens/VDO M12x1 / 20°

Universally fits Bosch and Continental/Siemens/VDO injectors with a removable fuel connection with M12x1 internal thread (20° angled).

Installed, for example, on Citroën, Ford, Jaguar, PSA, Peugeot.

**Scope of delivery:** See maintenance instructions, **chapter 2.3** ...

### KL-0186-901 A - Nozzle extractor M12x1 with slide hammer

Consisting of **KL-0186-9001 A** and the hand-operated 1.5kg impact extractor - **KL-0369-4100**.

### KL-0186-903 - Nozzle puller kit with base plate, Bosch+ Continental/Siemens/VDO, M12x1 / 45°

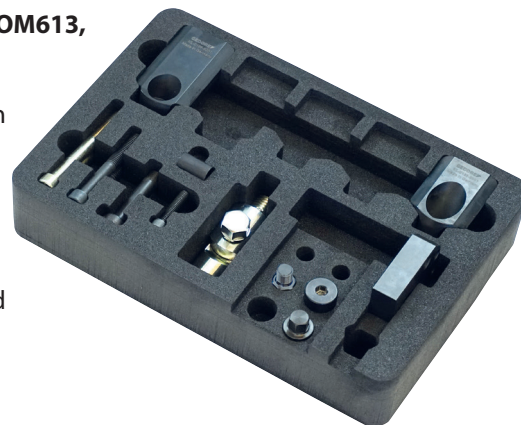
Consisting of **KL-0186-9000 A** and **KL-0186-9001 A**.

**Scope of delivery:** See maintenance instructions, **chapter 2.3** ...

## KL-0186-91 EA - Injector puller kit, in foam insert

Fits universally for Denso injectors with a fuel connection with external thread M12x1.5 / 30° as well as for Bosch and Continental/Siemens/VDO injectors with a removable fuel connection with an internal thread M12x1 / 45°. For example, installed on VW-Audi, Seat, Škoda, BMW, Mercedes, Chrysler, Chevrolet, Citroën, Fiat, Hyundai, Iveco, Lancia, Opel, PSA, Peugeot, Renault, Saab, Suzuki, Toyota. Especially suitable for VW-Audi, Seat, Škoda (CFHA, CFJA, CFFB, CAYC); BMW (M47 / M57); Mercedes (OM611, OM612, OM613, OM646, OM647, OM648), and PSA (DW10).

In combination with an impact extractor, for quick and professional extraction of stuck injectors. Required, for example, when replacing the injectors or removing the valve cover. Opening the injector is not necessary for this purpose as the injector puller is fastened with the fuel connection by means of the special screws included in the kit. The special design of the adapters and the joint piece included in the scope of delivery ensure damage-free and straight-line power transmission to the injector.



### Scope of delivery

See maintenance instructions, **chapter 2.3** ...

### Recommended accessories

KL-0186-53 K / -50 B - Cleaning tool

## KL-0186-95 K - Injector puller kit (VM-Motori / HATZ-Diesel / Iveco)

Universally fits agricultural machines, construction machines, and municipal vehicles with engines from VM-Motori as well as HATZ-Diesel and Iveco. For example, the motor series: VM-Motori R754 (Euro 5 + Euro 6), R756 (Euro 6); HATZ-diesel H-Series 3H50 TIC, 4H50 TIC; Iveco F1CE3 (Euro 5), 8140.43 (Euro 3). For example, installed on Aebi, Boki, Boschung, Bulmor, Bucher, Hako, Hansa, Kärcher, Ladog, Lindner, Meili, MFH, Reform, Schell, Schmidt, Trilety.

In combination with an impact extractor, for quick and professional extraction of stuck injectors. Required, for example, when replacing the injectors or removing the valve cover. Opening the injector is not necessary for this purpose as the injector extractor is fastened with the fuel connection by means of the special screws included in the kit. The special design of the adapters and the joint piece included in the scope of delivery ensure damage-free and straight-line power transmission to the injector.



### Scope of delivery

See maintenance instructions, **chapter 2.3** ...

### Recommended accessories

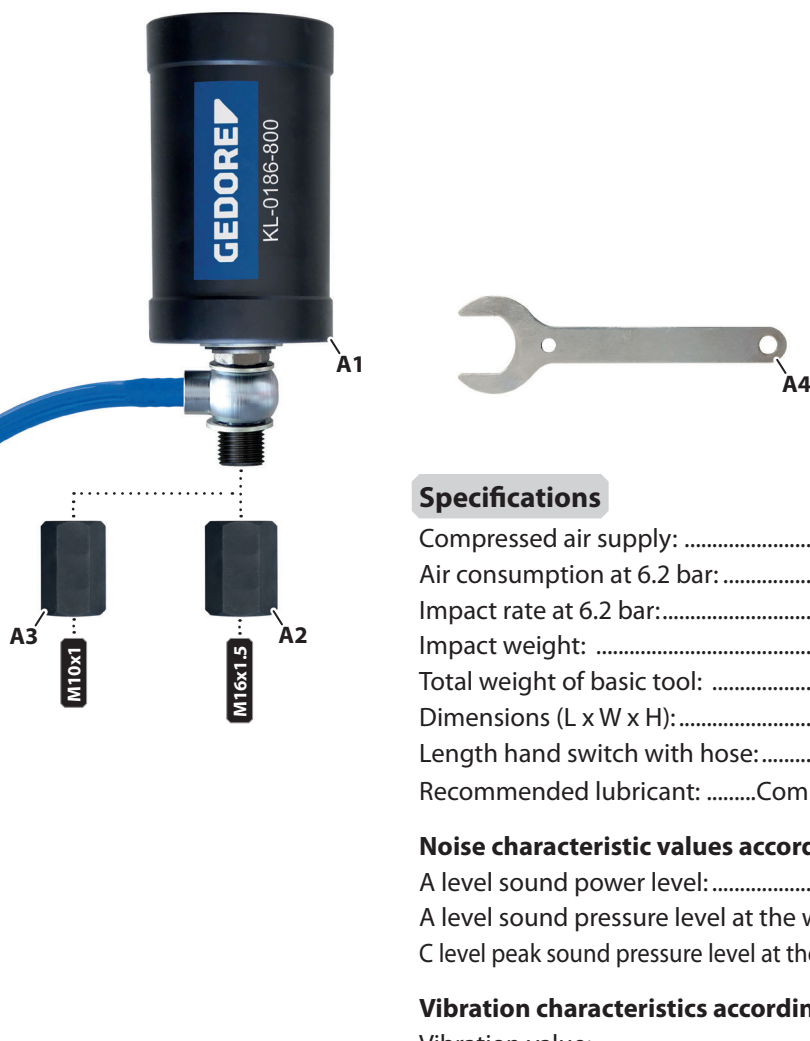
KL-0186-53 K / -50 B - Cleaning tool

## 2.3 Scope of delivery / Overview of the single parts

① This overview shows all parts to the **injector extractor series**.

Before use, check that all parts included in the scope of delivery are present!

Pneumatic injector extractor <b>A..</b>		KL-0186-80 K	KL-0186-800	KL-0186-8001	Supplements...												
					KL-0186-1281 A	KL-0186-1282 A	KL-0186-1283 A	KL-0186-1284 A	KL-0186-1285 A	KL-0186-91 EA	KL-0186-95 K	KL-0186-9000 A	KL-0186-9001 A	KL-0186-9101 A	KL-0186-9201 A	KL-0186-9301	KL-0186-9401
Individual parts..		Item	Scope of delivery..														
KL-0186-8001-1 - Basic tool		<b>A1</b>	•	•	•												
KL-0186-8001-2 - Adapter M16x1.5		<b>A2</b>	•	•	•												
KL-0186-8001-3 - Adapter M10x1		<b>A3</b>	•	•	•												
KL-0186-8001-4 - Open-end spanner, size (waf) 23mm		<b>A4</b>	•	•	•												
KL-0186-8001-9 - Foam insert		-	•	•	•												
KL-0080-1090-4 - Lid insert hard foam		-	•														
UV 1100 L - GEDORE L-BOXX		-	•														



### Specifications

Compressed air supply: ..... max. 6.2 bar (90 psi)  
 Air consumption at 6.2 bar: ..... 90 l/min  
 Impact rate at 6.2 bar: ..... 480bpm  
 Impact weight: ..... 1.4kg  
 Total weight of basic tool: ..... 2.8kg  
 Dimensions (L x W x H): ..... 690 x 83.5 x 218.6mm  
 Length hand switch with hose: ..... 500mm  
 Recommended lubricant: ..... Commercially available pneumatic oil

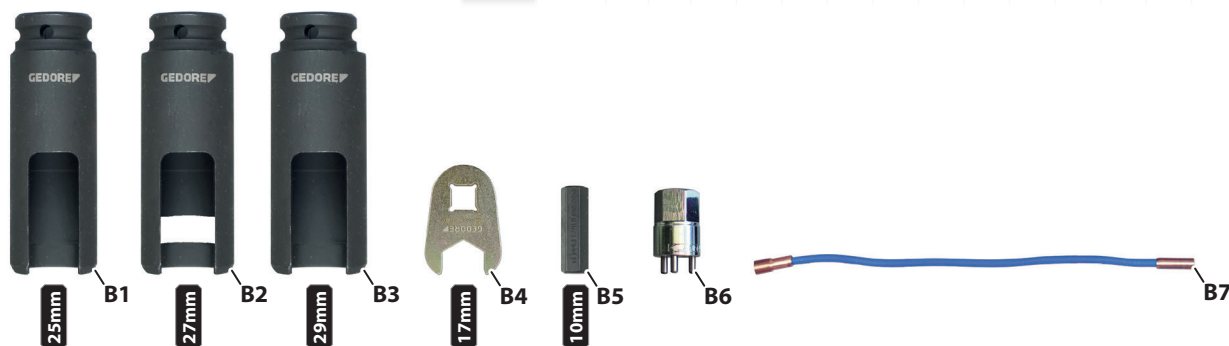
### Noise characteristic values according to EN 15744:

A level sound power level: ..... 117,9dB(A)  
 A level sound pressure level at the workplace: ..... 106,9dB(A)  
 C level peak sound pressure level at the workplace: ..... < 130dB(C)

### Vibration characteristics according to EN ISO 28927-10:

Vibration value: ..... 0.29m/s<sup>2</sup>  
 Measurement uncertainty (standard): ..... 0.53m/s<sup>2</sup>

Tools <b>B..</b>  ① The tool is used to open and disassemble the injector. This is particularly necessary before screwing in a pull adapter <b>[C..]</b> .		KL-0186-80 K	KL-0186-800	KL-0186-8001	Supplements...													
					KL-0186-1281 A	KL-0186-1282 A	KL-0186-1283 A	KL-0186-1284 A	KL-0186-1285 A	KL-0186-91 EA	KL-0186-95 K	KL-0186-9000 A	KL-0186-9001 A	KL-0186-9101 A	KL-0186-9201 A	KL-0186-9301	KL-0186-9401	
Individual parts..		Item	Scope of delivery..															
KL-1383-1022 - Specialspanner, size (waf) 25mm		<b>B1</b>				•												
KL-1383-1222 A - Specialspanner, size (waf) 27mm		<b>B2</b>					•		•									
KL-0369-461 A - Specialspanner, size (waf) 29mm		<b>B3</b>																
KL-4417-17 A - Specialspanner, size (waf) 17mm		<b>B4</b>						•										
KL-0369-4505 A - Special insert size 10mm		<b>B5</b>																
KL-0186-2201 - Special insert 3 journals		<b>B6</b>							•									
KL-0126-221 - Magnetic lifter, flexible		<b>B7</b>																



Pull adapter <b>C..</b> + union nuts <b>D..</b>		KL-0186-80 K	KL-0186-800	KL-0186-8001	Supplements...												
❶ The pull adapters and union nuts are used to connect the injector extractor [A] to the injector. Depending on the injector, it may have to be opened and disassembled beforehand with the tool [B].					KL-0186-1281 A	KL-0186-1282 A	KL-0186-1283 A	KL-0186-1284 A	KL-0186-1285 A	KL-0186-91 EA	KL-0186-95 K	KL-0186-9000 A	KL-0186-9001 A	KL-0186-9101 A	KL-0186-9201 A	KL-0186-9301	KL-0186-9401
					Scope of delivery..												
Individual parts..	Item																
KL-0583-1032 A - Pull adapter M14x1.5mm	<b>C1</b>	•	•														
KL-0186-1612 A - Pull adapter M16x1mm	<b>C2</b>						•										
KL-0583-1005-1 A - Pull adapter M17x1mm	<b>C3</b>	•	•														
KL-0186-1711 A - Pull adapter M18x2.5mm	<b>C4</b>								•								
KL-0186-1611-1 A - Pull adapter M20x1mm	<b>C5</b>							•									
KL-1383-1021 A - Pull adapter M25x1mm	<b>C6</b>				•												
KL-1383-1221 A - Pull adapter M27x1mm	<b>C7</b>					•											
KL-0186-1611-2 - Union nut M25x0.5mm	<b>D1</b>							•									
KL-0186-1611-3 - Union nut M25x0.75mm	<b>D2</b>							•									
KL-0369-4606-2 - Union nut M27x1mm	<b>D3</b>	•	•														





Base plate <b>E..</b> + pull adapter plate <b>F..</b> + special screws <b>G..</b>  Special pull adapter <b>H</b>  ① The base plate with the pull adapter plates and the special screws as well as the special pull adapter are used to connect the injector extractor [A] with the injector.		KL-0186-80 K	KL-0186-800	KL-0186-8001	Supplements...												
					KL-0186-1281 A	KL-0186-1282 A	KL-0186-1283 A	KL-0186-1284 A	KL-0186-1285 A	KL-0186-91 EA	KL-0186-95 K	KL-0186-9000 A	KL-0186-9001 A	KL-0186-9101 A	KL-0186-9201 A	KL-0186-9301	KL-0186-9401
Individual parts..		Item	Scope of delivery..														
KL-0186-950 - Draw joint M18x2.5		<b>E1</b>								•							
KL-0186-9000-1 - Base plate M18x2.5		<b>E2</b>								•	•	•					
KL-0186-9000-2 - Cap screw M8x35		<b>E3</b>								•2x	•2x	•2x					
KL-0186-9000-3 - Cap screw M10 x 75mm		<b>E4</b>								•2x	•2x		•2x				
KL-0186-9000-4 - Cap screw M10x90		<b>E5</b>								•2x	•2x				•2x		
KL-0186-9001-1 - Adapter plate M12x1 / 45°		<b>F1</b>								•			•				
KL-0186-9101-1 - Adapter plate M14x1.5 / 45°		<b>F2</b>									•			•			
KL-0186-9201-1 - Adapter plate Denso M12x1.5 / 30°		<b>F3</b>								•					•		
KL-0186-9301-1 - Adapter plate Denso M14x1.5 / 30°		<b>F4</b>									•					•	
KL-0186-9401-1 - Adapter plate M12x1 / 20°		<b>F5</b>															•
KL-0186-9001-2 - Special screw M12x1		<b>G1</b>								•			•				•
KL-0186-9001-3 - Special screw M12x1 long		<b>G2</b>								•			•				•
KL-0186-9001-4 - Sleeve		<b>G3</b>								•			•				•
KL-0186-9101-2 - Special screw M14x1.5		<b>G4</b>												•			
KL-0186-9101-3 - Special screw M14x1		<b>G5</b>									•			•			
KL-0186-9001-5 - Adapter M12x1 to M12x1.5		<b>G6</b>								•	•		•				
KL-0186-9201-2 - Threaded sleeve M12x1.5		<b>G7</b>								•	•		•		•		
KL-0186-9301-2 - Threaded sleeve M14x1.5		<b>G8</b>														•	
KL-0369-420 - Special pull adapter		<b>H</b>							•								
KL-0186-9090-2 A - Foam insert		-								•							
KL-4990-9324 - Plastic case		-															
KL-0186-9090 - Plastic case		-									•						





### 3. PREPARATION

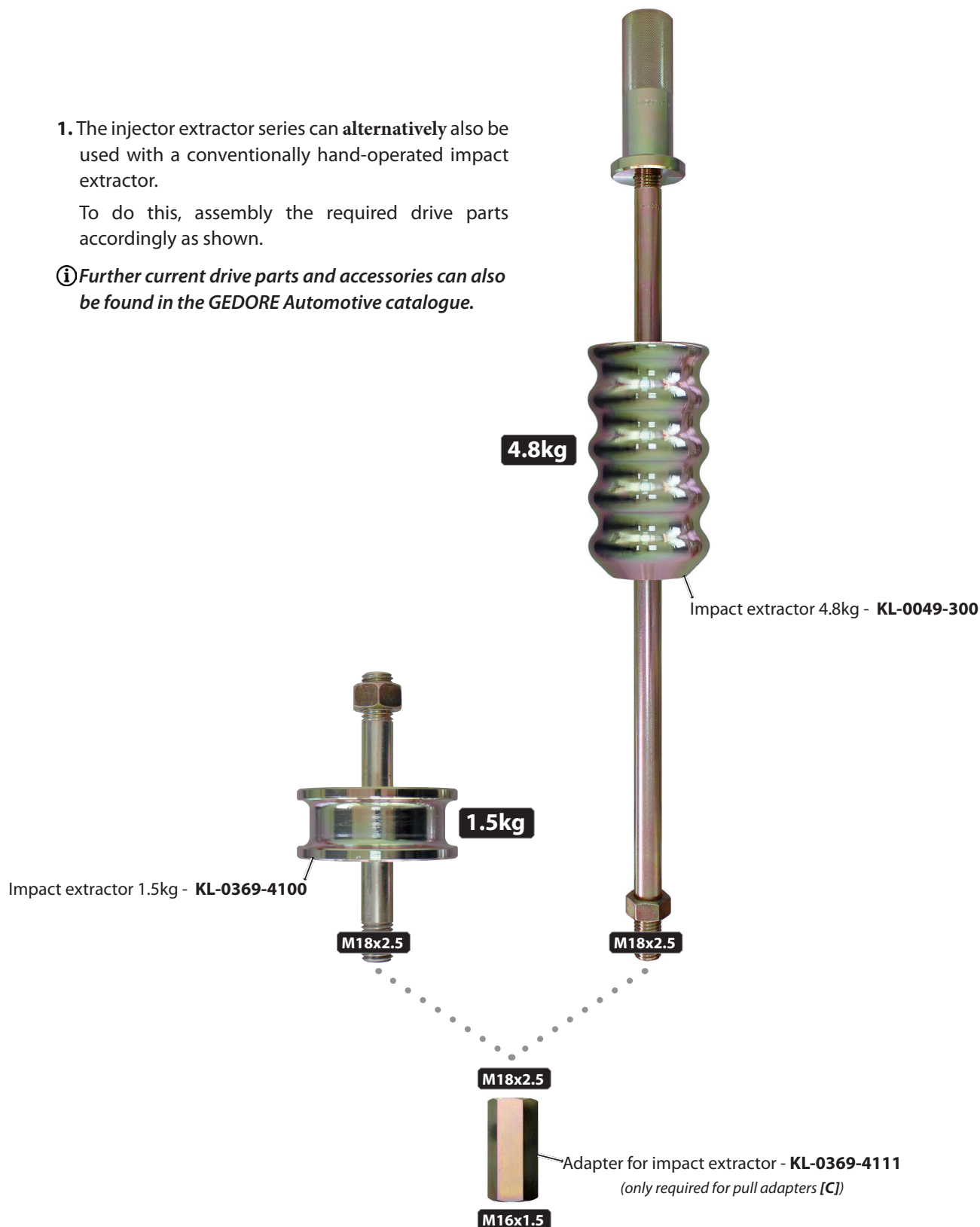
#### 3.1 Using alternative drive parts..

**A:** If necessary, assemble alternative drive parts...

1. The injector extractor series can **alternatively** also be used with a conventionally hand-operated impact extractor.

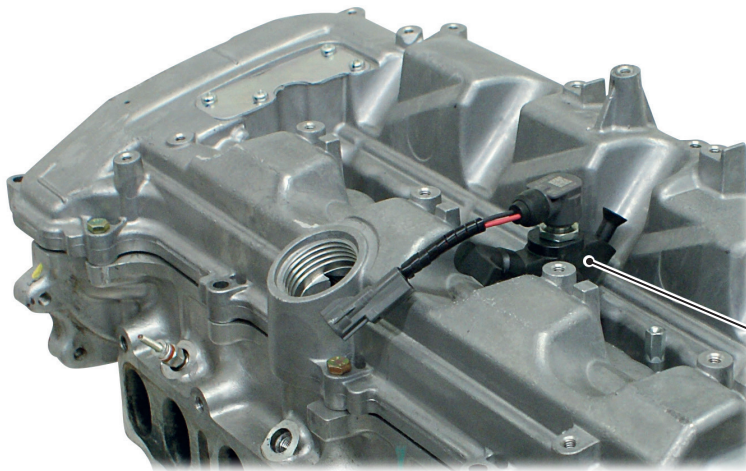
To do this, assemble the required drive parts accordingly as shown.

**i** Further current drive parts and accessories can also be found in the GEDORE Automotive catalogue.



## 3.2 Preparing the injector..

**A:** Preparing in accordance with the manufacturer's specifications...



1. Prepare all required parts for the removal of the injector in accordance with the manufacturer's specifications.

**For example:**

- Depressurise the fuel system...
- Remove the fuel line from the injector...
- Disconnect the cable plug connection...
- Loosen the fastening to the cylinder head...

Injector

## 3.3 Prepare the pneumatic injector extractor..

**A:** Grease the pneumatic injector extractor and screw on the appropriate adapter [A2] or [A3]...

### CAUTION

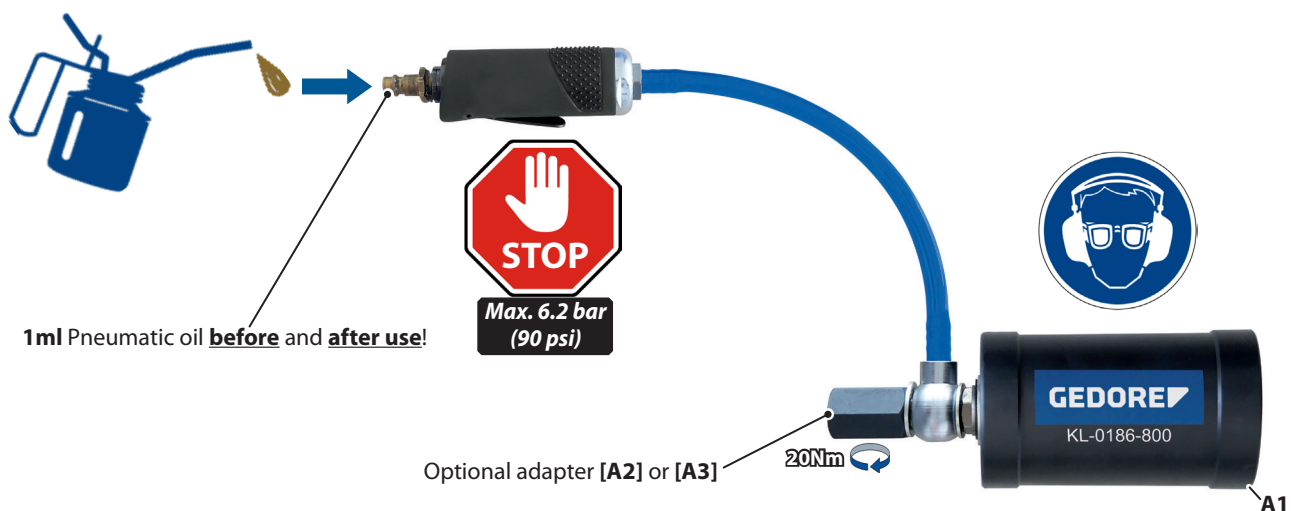
The pneumatic injector extractor can be damaged by moisture, lack of oil and overpressure.

► Only use clean compressed air that is free of moisture and other harmful substances!

► Regularly add pneumatic oil to the pneumatic injector extractor **before** and **after** use.

1. **Before** and **after use**, pour about **1 ml** of pneumatic oil into the air connection of the pneumatic injector extractor. Connect it to compressed air and briefly press the hand switch so that the pneumatic oil enters the interior of the injector extractor.

- The injector extractor [A1] is always used with the **M16x1** adapter [A2]. Alternatively, this can also be used with various other extractor series with **M10x1** mounting thread. To do this, exchange the adapter [A2] for the adapter [A3] and tighten it with **20Nm**. Use the open-end spanner [A4] to hold the screw connection on the injector extractor [A1].



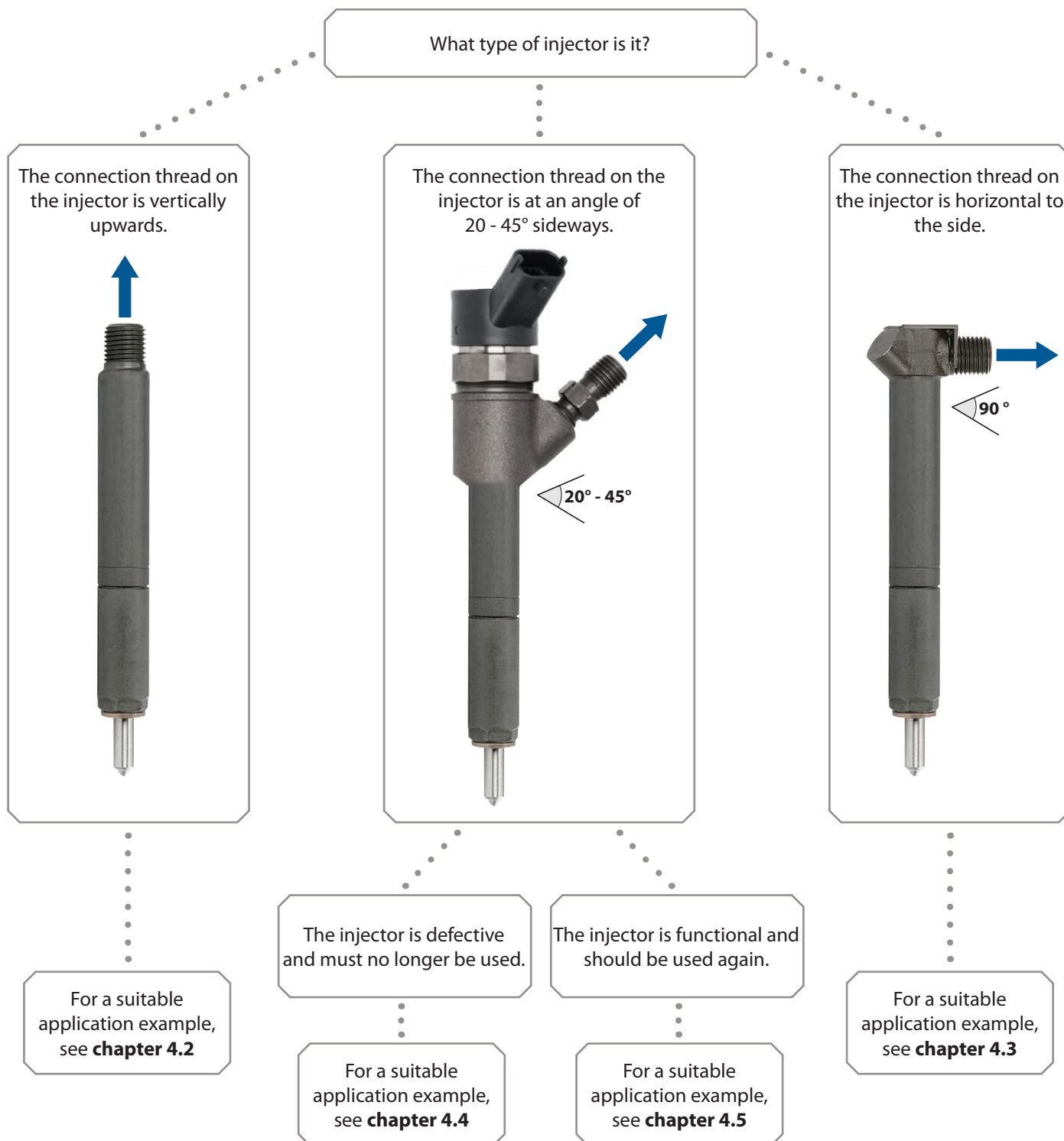
## 4. TYPICAL APPLICATIONS

The following application examples describe the extraction of stuck injectors, in combination with the pneumatic injector extractor - **KL-0186-80...**

① When using a conventional manually operated impact extractor, e.g. **KL-0049-300** or **KL-0369-4100**, this procedure is basically also carried out according to the same principle.

### 4.1 Determine a suitable application example..

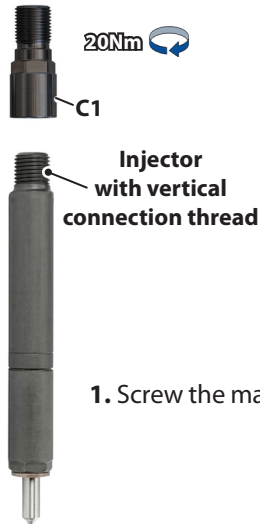
1. First of all, use this overview to determine a suitable application example for the injector.



## 4.2 Removing the injector (vertical connection thread)..

This application example describes how to pull out a stuck injector with the connection thread pointing vertically upwards.

### 📷 A: Screw on the matching pull adapter [C..] on the injector...



#### CAUTION

The connection thread on the injector can be damaged by the high impact frequency of the injector extractor [A..].

▼ The injector extractor [A..] and all parts in between must always be completely screwed onto the injector and tightened to the prescribed torque!



1. Screw the matching pull adapter [C1] onto the injector as shown and tighten it to **20Nm**.

### 📷 B: Screw on the injector extractor [A..] and pull out the injector in a controlled manner...

#### CAUTION

The injector extractor [A..] may be damaged!

▼ Regularly add pneumatic oil to the injector extractor [A..] (see **chapter 3.3**).

▼ Only use clean compressed air with a pressure of up to **max. 6.2 bar (90 psi)**!

2. Screw the injector extractor [A..] completely onto the injector with 20 Nm as shown and then connect it with compressed air.

#### ⚠ CAUTION

The injector extractor can cause **INJURY**.

▼ **Always** operate the injector extractor in a controlled manner using the manual switch!

▼ **Never** inhale the exhaust air of the injector extractor directly!

▼ Wear personal protective equipment, especially ear protection and safety goggles!

▼ Do **not** hold the base of the injector extractor with your hands, if necessary **never** for a longer period of time!

3. Operate the hand switch and pull out the injector from the cylinder head in a controlled manner.

If the injector comes loose, reduce the compressed air supply and stop it at the latest when its loose.



## 4.3 Removing the injector (horizontal connection thread)..

This application example describes how to pull out a stuck injector with the connection thread pointing horizontally to the side.

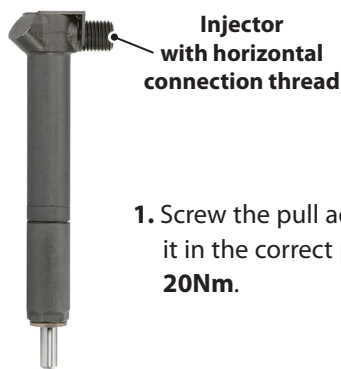
### ⓐ: Screw on the matching pull adapter [C..] on the injector...



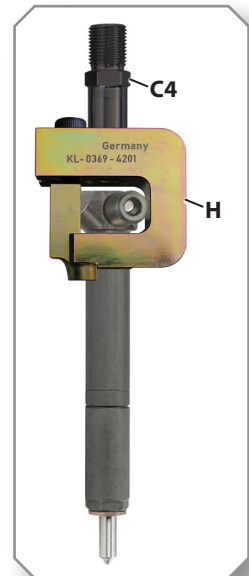
#### CAUTION

The connection thread on the injector can be damaged by the high impact frequency of the injector extractor [A..].

► The injector extractor [A..] and all parts in between must always be completely screwed onto the injector and tightened to the prescribed torque!



1. Screw the pull adapter [C4] onto the special pull adapter [H] and place it in the correct position on the injector as shown. Tighten all screws to **20Nm**.



### ⓑ: Screw on the injector extractor [A..] and pull out the injector in a controlled manner...

#### CAUTION

The injector extractor [A..] may be damaged!

- Regularly add pneumatic oil to the injector extractor [A..] (see **chapter 3.3**).
- Only use clean compressed air with a pressure of up to **max. 6.2 bar (90 psi)**!

2. Screw the injector extractor [A..] completely onto the injector with 20Nm as shown and then connect it with compressed air.

#### ⚠ CAUTION

The injector extractor can cause **INJURY**.

- **Always** operate the injector extractor in a controlled manner using the manual switch!
  - **Never** inhale the exhaust air of the injector extractor directly!
  - Wear personal protective equipment, especially ear protection and safety goggles!
  - Do **not** hold the base of the injector extractor with your hands, if necessary **never** for a longer period of time!
3. Operate the hand switch and pull out the injector from the cylinder head in a controlled manner.  
If the injector comes loose, reduce the compressed air supply and stop it at the latest when its loose.

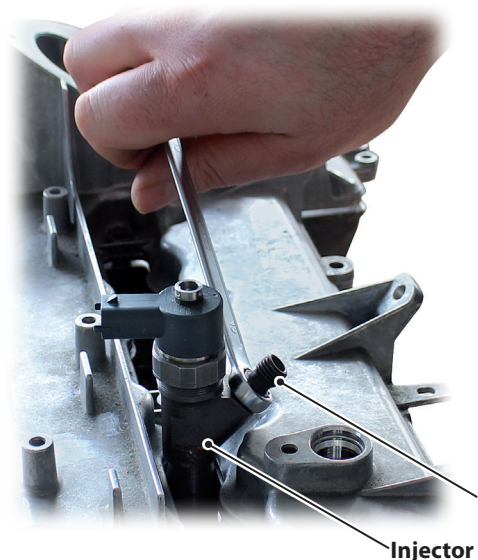




## 4.4 Removing the injector (connection thread at an angle)..

This application example describes how to pull out a stuck injector with the connection thread inclined to the side. It is particularly **suitable for functional injectors that are to be used again**, as they do not have to be opened for this purpose-

### 📷A: First prepare injectors with screwed connection thread...



#### CAUTION

The injector may be damaged.

- ✔ It is essential to keep the connection thread on the injector clean and avoid contamination!
  - ✔ When dismantling the connection thread, make sure that the sealing ring behind it is not lost!
1. For injectors with a screwed connection thread, first unscrew it and put it aside.

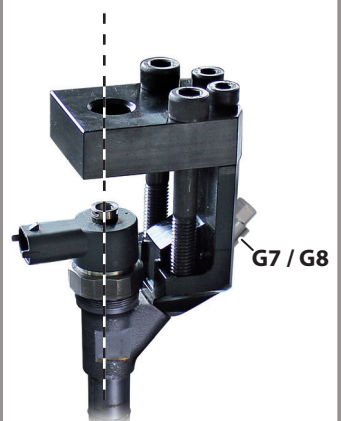
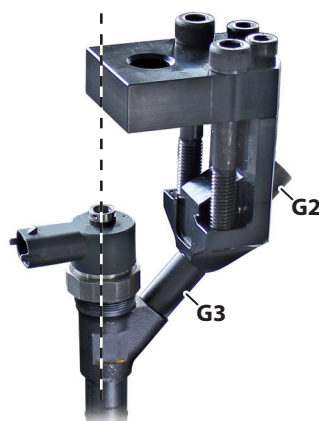
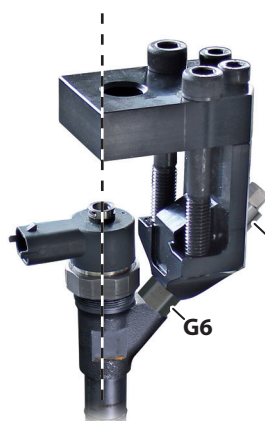
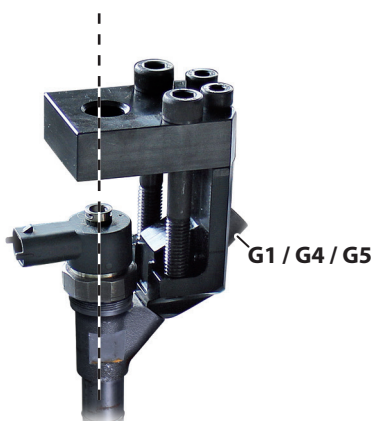
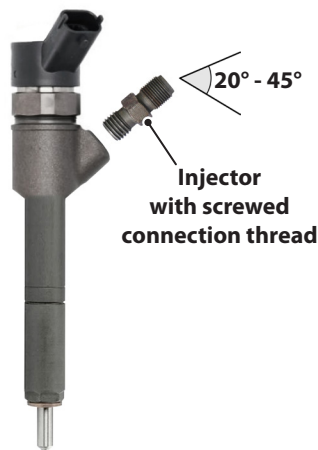


### 📷B: Overview of the different mounting options, depending on the connection thread on the injector...

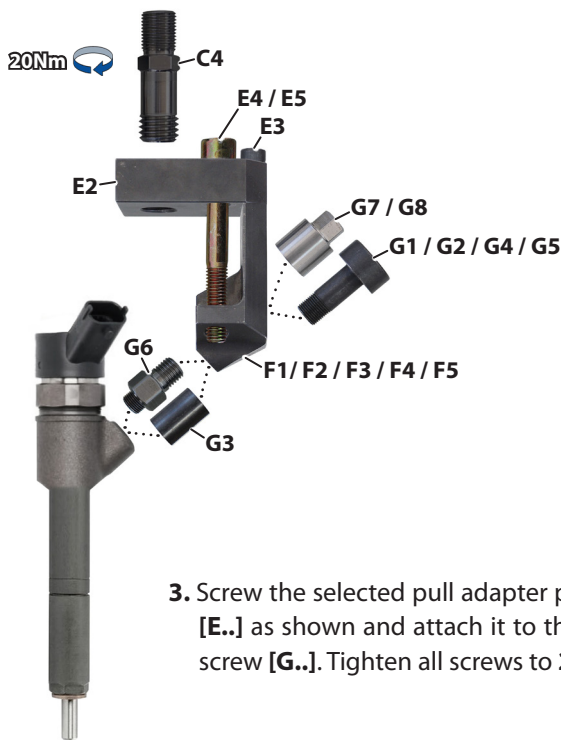
2. This overview shows you the different mounting options for the pull adapter plates [F..] with base plate [E..] using the special screws [G..].

Depending on the angle  $\angle$  on the injector, select a suitable pull adapter plate [F..] and a suitable special screw [G..] according to the connection thread.

Continue with the next step.



**C:** Screw on the matching traction adapter plate [F..] with base plate [E..] via the special screws [G..] on the injector...



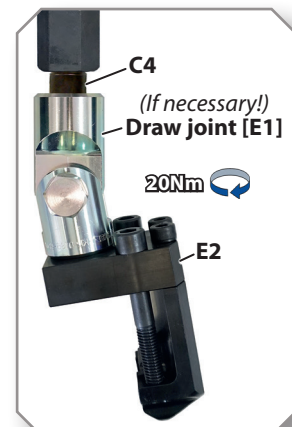
3. Screw the selected pull adapter plate [F..] together with the base plate [E..] as shown and attach it to the injector using the matching special screw [G..]. Tighten all screws to **20Nm**.

## CAUTION

The connection thread on the injector can be damaged by the high impact frequency of the injector extractor [A..].

► The injector extractor [A..] and all parts in between must be completely screwed onto the injector and tightened to the prescribed torque!

► The injector should be pulled out as straight as possible. If necessary, use the adjustable draw joint [E1] to compensate.



**D:** Screw on the injector extractor [A..] and pull out the injector in a controlled manner...

## CAUTION

The injector extractor [A..] may be damaged!

- Regularly add pneumatic oil to the injector extractor [A..] (see **chapter 3.3**).
- Only use clean compressed air with a pressure of up to **max. 6.2 bar (90 psi)**!

4. Screw the injector extractor [A..] completely onto the injector with 20Nm as shown and then connect it with compressed air.

## CAUTION

The injector extractor can cause **INJURY**.

- **Always** operate the injector extractor in a controlled manner using the manual switch!
  - **Never** inhale the exhaust air of the injector extractor directly!
  - Wear personal protective equipment, especially ear protection and safety goggles!
  - Do **not** hold the base of the injector extractor with your hands, if necessary **never** for a longer period of time!
5. Operate the hand switch and pull out the injector from the cylinder head in a controlled manner.
- If the injector comes loose, reduce the compressed air supply and stop it at the latest when its loose.



## 4.5 Opening and removing the injector (connection thread at an angle)..

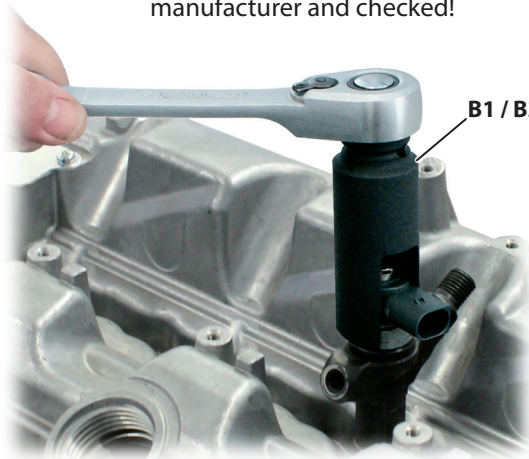
This application example describes how to pull out a stuck injector with the connection thread inclined to the side. Particularly suitable for defective injectors which are no longer to be used, as they have to be opened for this purpose.

### 📷A: Loosen and remove the lock nut on the injector.

#### CAUTION

Opening the injector can damage it.

➤ If an injector has been opened and is to be reused, it must be returned to the manufacturer and checked!



B1 / B2 / B3 / B4

1. Loosen and remove the lock nut on the injector using the special spanner [B1] - [B4] or a conventional open-end spanner.

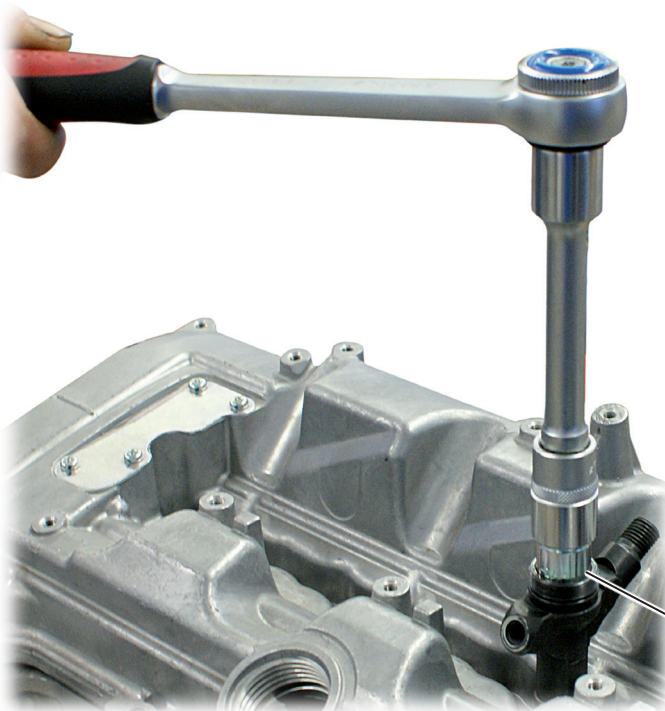
❗ It may be necessary to slightly twist the cable connection on the injector.



### 📷B: Unscrew the screw ring on the injector...

2. Loosen and remove the screw ring on the injector using the special inserts [B5] or [B6] or a conventional open-end spanner.

Then remove all loose internal parts with the help of the magnetic lifter [B7]



B5 / B6 / Open-end spanner

#### Various screw rings



Loosening with special inserts [B5]



Loosening with special inserts [B6]



Loosening with an open-end spanner



**C:** Screw in or screw on the matching pull adapter [C..], if necessary the union nut [D..], on the injector...



## CAUTION

The connection thread on the injector can be damaged by the high impact frequency of the injector extractor [A..].

► The injector extractor [A..] and all parts in between must always be completely screwed onto the injector and tightened to the prescribed torque!



3. Screw the pull adapter [C..] on the injector and place it in the correct position on the injector as shown. Then, tighten all threads to **20Nm**.

**D:** Screw on the injector extractor [A..] and pull out the injector in a controlled manner...

## CAUTION

The injector extractor [A..] may be damaged!

► Regularly add pneumatic oil to the injector extractor [A..] (see **chapter 3.3**).

► Only use clean compressed air with a pressure of up to **max. 6.2 bar (90 psi)**!

4. Screw the injector extractor [A..] completely onto the injector with 20Nm as shown and then connect it with compressed air.

## CAUTION

The injector extractor can cause **INJURY**.

► **Always** operate the injector extractor in a controlled manner using the manual switch!

► **Never** inhale the exhaust air of the injector extractor directly!

► Wear personal protective equipment, especially ear protection and safety goggles!

► Do **not** hold the base of the injector extractor with your hands, if necessary **never** for a longer period of time!

5. Operate the hand switch and pull out the injector from the cylinder head in a controlled manner.

If the injector comes loose, reduce the compressed air supply and stop it at the latest when its loose.



## 5. EG KONFORMITÄTSERKLÄRUNG / UK DECLARATION OF CONFORMITY

### EG KONFORMITÄTSERKLÄRUNG (Original EG Konformitätserklärung)

**Name und Anschrift des Herstellers**

GEDORE Automotive GmbH  
 Breslauer Straße 41  
 78166 Donaueschingen, GERMANY



Hiermit erklären wir, dass das nachstehend beschriebene Produkt

**Bezeichnung: Pneumatischer Injektorenauszieher**

**Serie / Typ: KL-0186-8001-1**

allen einschlägigen Bestimmungen der **Maschinen-Richtlinie 2006/42/EG, Anhang II A** des europäischen Parlaments und des Rates vom 17. Mai 2006 über Maschinen und zur Änderung der Richtlinie 95/16/EG entspricht.

Die Erklärung verliert ihre Gültigkeit, wenn das Produkt ohne unsere Zustimmung umgebaut oder verändert wird.

**Angewandte, harmonisierte EN-Normen:**

EN ISO 12100:2010 - Sicherheit von Maschinen - Allgemeine Gestaltungsgrundsätze - Risikobeurteilung und Risikominderung  
 EN ISO 11148-4:2012 - Handgehaltene nicht elektrisch betriebene Maschinen - Sicherheitsanforderungen - Teil 4: Nicht drehende, schlagende Maschinen  
 EN ISO 15744:2008 - Handgehaltene nicht elektrisch betriebene Maschinen - Geräuschmessverfahren - Verfahren der Genauigkeitsklasse 2  
 EN ISO 28927-10:2011 - Handgehaltene motorbetriebene Maschinen - Messverfahren zur Ermittlung der Schwingungsemission - Teil 10:  
 Bohrhämmer, Schlaghämmer und Aufbruchhämmer

**Sonstige angewandte, nationale technische Normen und Spezifikationen:**

DIN EN IEC/IEEE 82079-1:2021-09 - Erstellung von Nutzungsinformationen (Gebrauchsanleitungen) für Produkte - Teil 1:  
 Grundsätze und allgemeine Anforderungen

**Bevollmächtigter der Firma GEDORE Automotive GmbH für die Zusammenstellung aller technischen Unterlagen:**

Leitung der Produktentwicklung, Breslauer Straße 41, 78166 Donaueschingen, GERMANY

Donaueschingen, 11.10.2023

i.V. Michael Wehler, Head of Global Business Development, GEDORE Automotive GmbH

### UK DECLARATION OF CONFORMITY (Original UK Declaration of conformity)

**Name and address of manufacturer**

GEDORE Automotive GmbH  
 Breslauer Straße 41  
 78166 Donaueschingen, GERMANY



**We hereby declare** that the product described below

**Designation: Pneumatic injector puller**

**Series / Type: KL-0186-8001-1**

conforms to all relevant provisions of the **Supply of Machinery (Safety) Regulations 2008, Annex II 1A** for machinery and safety components is applicable to equipment with defined characteristics and functionalities, which are manufactured or sold and operated in the UK.

The declaration loses its validity if the product is converted or modified without our consent.

**Designated (GB) or harmonised (NI) standards applied:**

EN ISO 12100:2010 - Safety of machinery - General principles for design - Risk assessment and risk reduction  
 EN ISO 11148-4:2012 - Hand-held non-electric power tools - Safety requirements - Part 4: Non-rotary percussive power tools  
 EN ISO 15744:2008 - Hand-held non-electric power tools - Noise measurement code - Engineering method (grade 2)  
 EN ISO 28927-10:2011 - Hand-held portable power tools - Test methods for evaluation of vibration emission - Part 10:  
 Percussive drills, hammers and breakers

**Other technical standards and specifications applied:**

EN IEC/IEEE 82079-1:2020 - Preparation of information for use (instructions for use) of products - Part 1: Principles and general requirements

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