

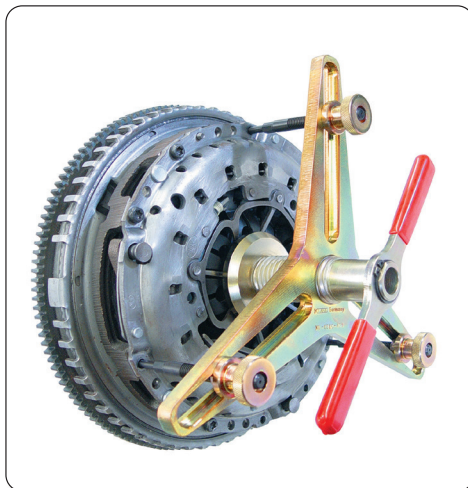


KL-0500-45 KA

Clutch Tool Set (SAC), in a Plastic Storage Case



Operating instructions EN
⚠ Read and understand before use!



www.gedore-automotive.com



GEDORE Automotive GmbH

Breslauer Straße 41
78166 - Donaueschingen
Postfach 1329
78154 Donaueschingen - GERMANY

☎ +49 (0) 771 / 8 32 23-0
☎ +49 (0) 771 / 8 32 23-90
✉ info.gam@gedore.com
🌐 gedore-automotive.com

GEDORE TOOLS, INC.

Only for USA, Canada & Mexico / Sólo para EE.UU., Canadá y México
Seulement pour les USA, le Canada et le Mexique
7187 Bryhawke Circle, Suite 700
North Charleston, SC 29418, USA

☎ +1-843 / 225 50 15
☎ +1-843 / 225 50 20
✉ info@gedoretools.com
🌐 gedore.com

Version 5 - 07/2021



ENGLISH

EN

Manufacturer's address

GEDORE Automotive GmbH

Breslauer Straße 41 // 78166 Donaueschingen - GERMANY

+49 (0)771/83223-71 // info.gam@gedore.com

Imprint

In the course of improvement and adaptation to the state of the art, we reserve the right to make changes with regard to appearance, dimensions, weights and properties, and performance.

This does not imply any claim to correction or subsequent delivery of already delivered products. Deletions can be made at any time without any legal claim arising.

Instructions for use and safety are not binding. They never substitute for any legal or trade association regulations.

We do not accept any liability for printing errors.

Any reproduction, in whole or in part, requires the prior written consent of **GEDORE Automotive GmbH**.

All rights reserved worldwide. © Copyright by **GEDORE Automotive GmbH**, Donaueschingen (GERMANY)

We refer to our general terms and conditions which
can be found in the imprint at:

www.gedore-automotive.com



Contents

1. Basic safety instructions	4
1.1 Target group	4
1.2 Intended use	4
1.3 Misuse/abuse	4
1.4 Personal protective equipment	4
1.5 Handling	4
1.6 Basic warnings	5
1.7 Work environment	5
1.8 Emissions	5
2. Product description	6
2.1 KL-0500-45 KA - SAC clutch tool set	6
2.2 Scope of delivery	6
2.3 Specifications	6
3. Preparations	7
3.1 Checking the scope of delivery	7
3.2 Preparing the tool	7
3.3 Preparing the vehicle	7
4. Typical application	8
4.1 Removing the SAC clutch	8
4.2 Resetting the SAC adjusting ring (<i>necessary for used SAC clutches</i>)	10
4.3 Putting together clutch centring tools	12
4.4 Installing the SAC clutch	14
4.5 Installing the SAC clutch (<i>with locking piece</i>)	16
5. Care and storage	17
6. Supplements	17
7. Maintenance and repair by the GEDORE Automotive Service Center	18
8. Spare parts	18
9. Environmentally friendly disposal	18

1. Basic safety instructions

⚠ WARNING

Read and understand the operating instructions before you start using the clutch tool set. Misuse can cause **moderate** or **minor injuries**.

The operating instructions are part of the clutch tool set. Keep these operating instructions at a safe place for future reference, and always pass them on to subsequent users of the clutch tool set.

1.1 Target group

These operating instructions are intended to be used by skilled personnel in motor vehicle workshops.

Never allow unauthorised persons or minors to use the clutch tool set.

The purchaser of the clutch tool set **must** ensure that the user has read and understood the operating instructions completely before he/she uses the clutch tool set.

The operating instructions **must** be available at all times to the user of the clutch tool set.

1.2 Intended use

The clutch tool set is **intended only** to remove and install SAC (Self-Adjusting Clutch) clutches, to centre clutch discs and to rotate the adjusting ring in the pressure plate.

The clutch tool set may **only be used** by skilled personnel in motor vehicle workshops.

The clutch tool set **may only be used** in the way that is described in the operating instructions.

- Any other use can cause **moderate** or **minor injuries!**

1.3 Misuse/abuse

Never subject the clutch tool set to technical modifications or additions or conversions that could have even the slightest effect on safety!

- **Always** read and observe all warnings, safety instructions and other instructions for the operation and maintenance of the clutch tool set!
- The clutch tool set **may only** be used in the way that is described in **Chapter 1.2 - Intended use**, any other use can cause **moderate** or **minor injuries!**

1.4 Personal protective equipment

Always wear your personal protective equipment when you use the clutch tool set. The clutch tool set can bring about mechanical hazards such as crushing, cutting and shock injuries.



EYE PROTECTORS (see OSHA 29 CFR 1910.133 and ANSI Z87) **must** be worn when using the clutch tool set, to protect against flying objects.

- Particles can be ejected when working with the clutch tool set, and cause severe injuries to your eyes.



PROTECTIVE GLOVES **must** be worn when using the clutch tool set.

- Working with the clutch tool set can cause skin abrasions and crushing.



SAFETY SHOES with anti-slip sole and steel toe cap (see OSHA 29 CFR 1910.136 and ANSI Z41) **must** be worn when using the clutch tool set.

- Dropping parts can cause injuries to feet and toes.

1.5 Handling



⚠ CAUTION

Observe the following safety precautions to avoid injuries and material damage as a result of misuse and unsafe handling of the clutch tool set. Misuse can cause **moderate** or **minor injuries**.

- Before using the clutch tool set, it is **essential** to observe the **basic warnings** given in **Chapter 1.6!**
- The clutch tool set must be checked for faultless and safe condition **before each use**, and defective or worn parts **must** be replaced before use!
- Use **only genuine GEDORE Automotive** spare parts and accessories for the clutch tool set!

1.6 Basic warnings

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

Warning sign	Signal word	Meaning
	CAUTION	Indicates a hazardous situation which, if not avoided, could cause moderate or minor injuries .
	CAUTION	Indicates a situation which, if not avoided, can cause damage to the tool, its functions, or an object in its vicinity.
	Note / tip	Note on important information and useful tips for use.

CAUTION

During transport, preparation and operation of the clutch tool set, there is a risk that various parts are hurled about or drop, causing **moderate or minor injuries**.

- The storage place for the clutch tool set must be sufficiently large and protect the tool set from dropping.
- Prior to each use, visually inspect the clutch tool set to ensure that it is not damaged!
- Never use the clutch tool set when it shows any damage or other abnormalities!
- Ensure that work on vehicles is carried out always in compliance with the instructions and safety regulations of the vehicle manufacturer!
- Always wear personal protective equipment (safety goggles, protective gloves, safety shoes)!
- Use **only genuine GEDORE Automotive** spare parts and accessories!

CAUTION

Risk of damaging clutch tool set and vehicle.

- When using the clutch tool set, lubricate threads **only** with molybdenum disulphide paste e.g. **KL-0014-0030** (*accessories / see catalogue*).
- Only the data and instructions issued by the vehicle manufacturer apply for any work on the vehicle.

1.7 Work environment

Safe work with the clutch tool set is only possible when the working environment is safe.

- The workplace **must** be clean and tidy.
- The workplace **must** be sufficiently large and protected.
- The workplace **must** be on a solid non-skidding floor.

1.8 Emissions

Molybdenum disulphide paste and hydraulic oil can drip when using the clutch tool set and thus pose a hazard to the environment.

- **Immediately** remove escaping hazardous substances with a cleaning cloth and dispose of in an environmentally friendly manner.

2. Product description

2.1 KL-0500-45 KA - SAC clutch tool set in plastic case

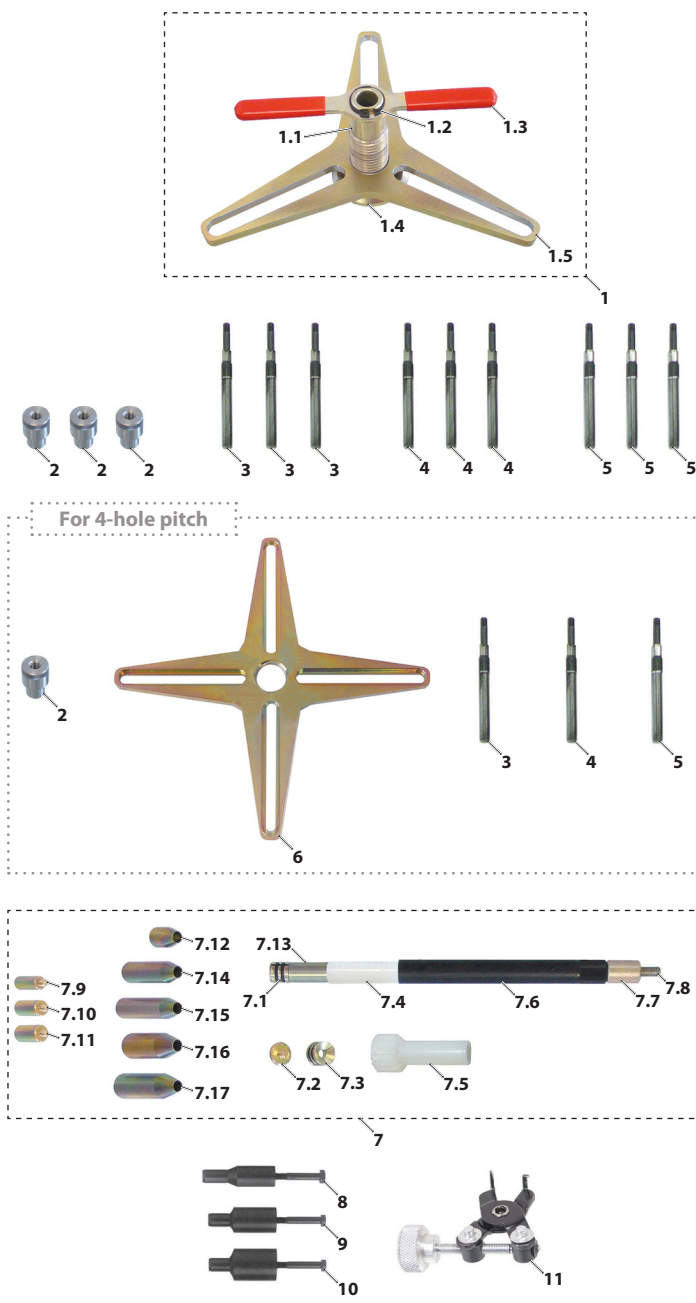
Fits universally for almost all SAC clutches with 3- and 4-hole pitch available on the market. Installed, for example, in VW-Audi, BMW, Mercedes, Volvo, Opel, Renault etc.

This SAC clutch tool kit is absolutely necessary for professional and damage-free removal and installation of SAC clutches (Self-Adjusting Clutch). It also permits the SAC adjusting ring in the clutch pressure plate to be reset.

The clutch centring tool included in the scope of delivery permits clutch discs with a hub \varnothing of 15 - 28 mm and a guide bearing or crankshaft bore \varnothing of 12 - 28 mm to be centred. Vehicles without guide bearings in the crankshaft are not a problem either.

The two clamping / centring elements ensure precise centring in the clutch disc on the first clamping element, and precise centring in the guide bearing or crankshaft hole on the second clamping element. Even clutches with a crankshaft bore diameter exceeding the clutch hub diameter can be centred neatly and precisely.

EN



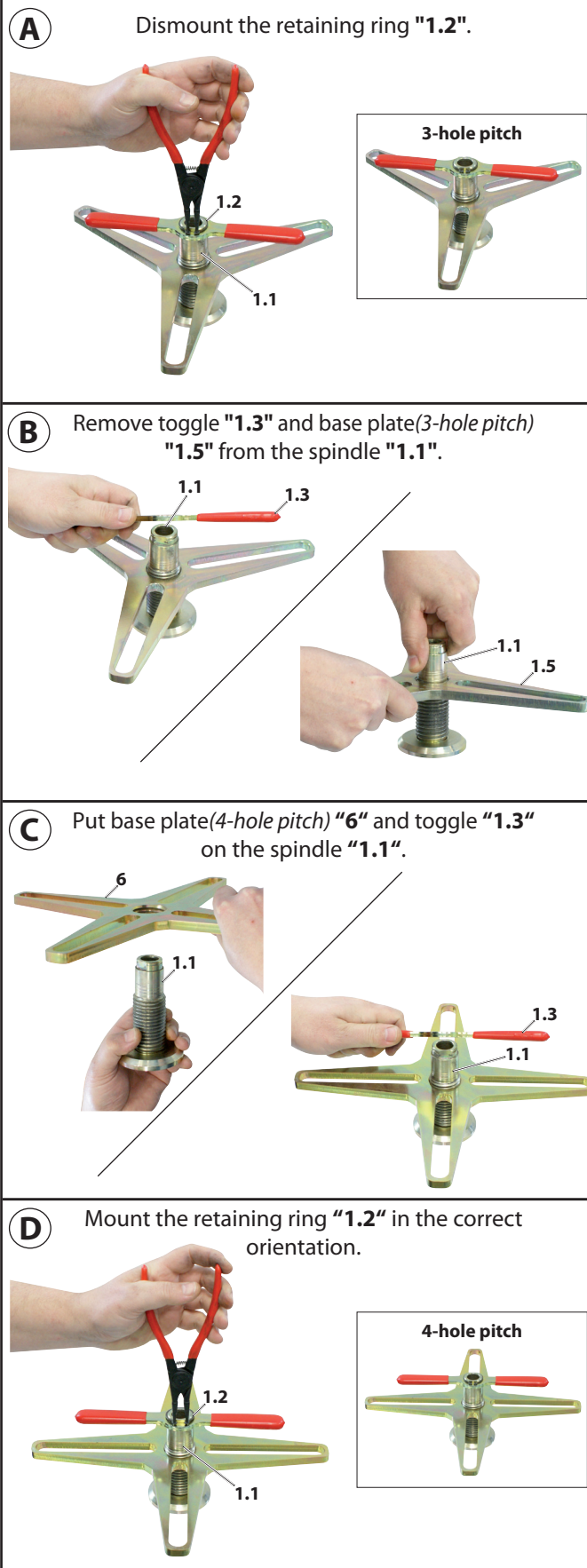
2.2 Scope of delivery/spare parts:

KL-0500-45 KA - SAC clutch tool set			
Item	Part no.	Description	Qty
1	KL-0500-401-1	Clutch pretensioning device	1
1.1	KL-0500-4002	Spindle	1
1.2	KL-0032-0012	Retaining ring A28	1
1.3	KL-0500-4003	Toggle with protective handle	1
1.4	KL-0500-4005	Thrust piece	1
1.5	KL-0500-4001	Base plate(3-hole pitch)	1
-	KL-0500-1007	Steel ball set	1
-	KL-0500-1008	Spring ring A24	1
2	KL-0500-4006	Knurled nut	4
3	KL-0500-4007	Threaded pin M6	4
4	KL-0500-4008	Threaded pin M7	4
5	KL-0500-4009	Threaded pin M8	4
6	KL-0500-4011	Base plate(4-hole pitch)	1
7	KL-0500-405	Clutch centring tool	1
7.1	KL-0500-4053	Clamping segment set \varnothing 15.5mm	1
7.2	KL-0500-4055	Cone attachment	1
7.3	KL-0500-4054	Clamping segment set \varnothing 20mm	1
7.4	KL-0069-0005	Clamping cone size 1, 15mm	1
7.5	KL-0069-0006	Clamping cone size 2, 22mm	1
7.6	KL-0500-4051	Base body pipe	1
7.7	KL-0500-4103	Knurled nut	1
7.8	KL-0500-4052	Clamping crew	1
7.9	KL-0500-4057-1	Centring mandrel \varnothing 12mm	1
7.10	KL-0500-4057-2	Centring mandrel \varnothing 14mm	1
7.11	KL-0500-4057-3	Centring mandrel \varnothing 15mm	1
7.12	KL-0500-4056-1	Sliding cone \varnothing 15mm, 30 m	1
7.13	KL-0500-4056-2	Sliding cone \varnothing 15mm, 40mm	1
7.14	KL-0500-4056-3	Sliding cone \varnothing 15mm, 67mm	1
7.15	KL-0500-4056-4	Sliding cone \varnothing 15mm, 75mm	1
7.16	KL-0500-4056-5	Sliding cone \varnothing 18mm, 67mm	1
7.17	KL-0500-4056-6	Sliding cone \varnothing 18mm, 75mm	1
8	KL-0500-11	Clutch centring mandrel \varnothing 23mm	1
9	KL-0500-12	Clutch centring mandrel \varnothing 28mm	1
10	KL-0500-21	Clutch centring mandrel \varnothing 32.5mm	1
11	KL-0500-403	Reset tool	1
-	KL-0500-4590	Plastic case	1

2.3 Specifications:

Weight:7.0kg

Fig. 1: Converting the clutch pretensioning device "1":



3. Preparations

Prior to using the clutch tool set for the first time, check and ensure that all parts of the scope of delivery are available. Follow the instructions below.

3.1 Checking the scope of delivery

3.2 Preparing the tool.

Depending on the hole pitch of the clutch, you may have to convert the clutch pretensioning device "1", as shown in **Fig. 1**, from 3-hole to 4-hole pitch or vice versa.

⚠ CAUTION

The retaining ring "1.2" can be flung up when you remove it.
• Wear personal protective equipment (safety goggles).

- Using circlip pliers, remove the retaining ring "1.2" from the spindle "1.1". (**Fig. 1 A**)
- Remove toggle "1.3" and base plate (3-hole pitch) "1.5" from the spindle "1.1". (**Fig. 1 B**)
- Put base plate (4-hole pitch) "6" and toggle "1.3" on the spindle "1.1". (**Fig. 1 C**)

⚠ CAUTION

The retaining ring "1.2" can be flung up when you remove it.
• Wear personal protective equipment (safety goggles).

- Using circlip pliers, mount the retaining ring "1.2" in the correct orientation on the spindle "1.1". (**Fig. 1 D**)

📌 Note:

The conversion of the clutch pretensioning device "1" from 4-hole to 3-hole pitch is carried out in reverse order.

3.3 Preparing the vehicle

Loosen or remove all necessary parts as specified by the manufacturer.

Fig. 2: Unscrewing 3x fastening screws offset by 120° offset.

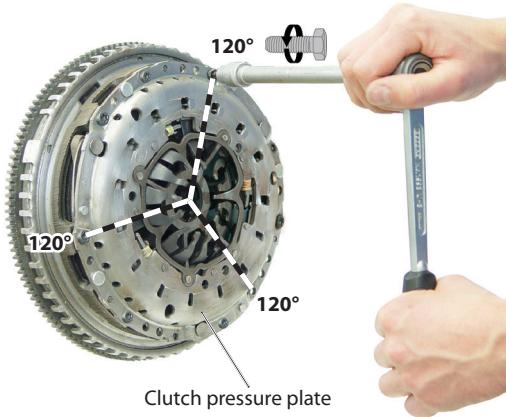


Fig. 3: Screwing in the threaded pin "3", "4" or "5".

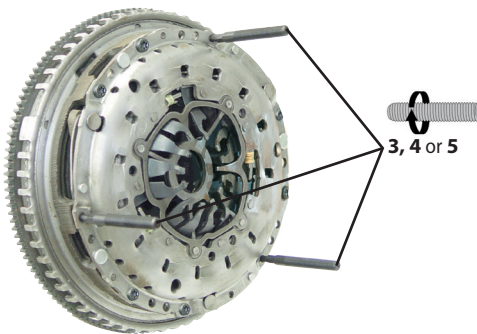


Fig. 4: Positioning and securing the clutch pretensioning device "1".

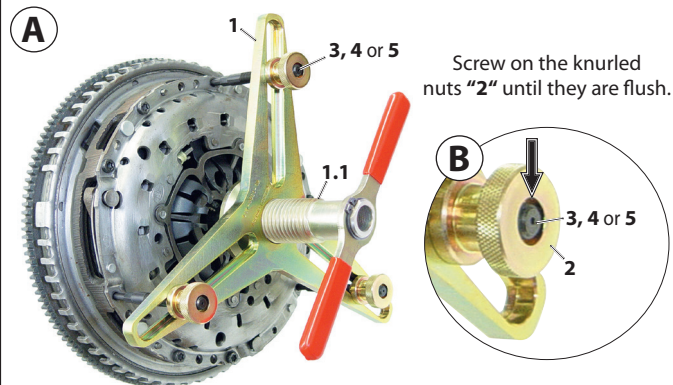
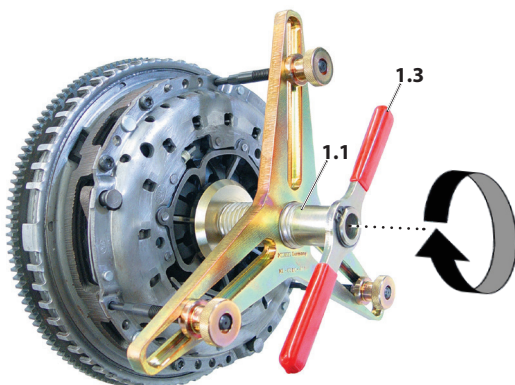


Fig. 5: Tensioning the SAC clutch.



4. Typical application

4.1 Removal of SAC clutch

This typical application describes the removal of an SAC clutch with 3-hole pitch.

(The removal of the 4-hole pitch follows the same principle)

1. Unscrew 3 fastening screws offset by 120° from the clutch pressure plate. (**Fig. 2**)

Note:

With 4-hole pitch, unscrew 4 threaded pins "3", "4" or "5", offset by 90° at the clutch pressure plate.

2. Depending on the thread \varnothing of the fastening screws, select the matching threaded pins "3", "4" or "5" and screw them evenly clockwise into the fastening holes that became free on the clutch pressure plate. (**Fig. 3**)

Note:

When reusing the clutch pressure plate, mark the position relative to the flywheel.

3. Turn the spindle "1.1" on the clutch pretensioning device "1" anticlockwise all the way back. (**Fig. 4 A**)

Place the clutch pretensioning device "1" centred with respect to the clutch pressure plate on the threaded pins "3", "4" or "5" and secure it with the knurled nuts "2". (**Fig. 4 A**)

Note:

Screw on the knurled nuts "2" only to the extent clockwise until they are flush with the threaded pins "3", "4" or "5". (**Fig. 4 B**)

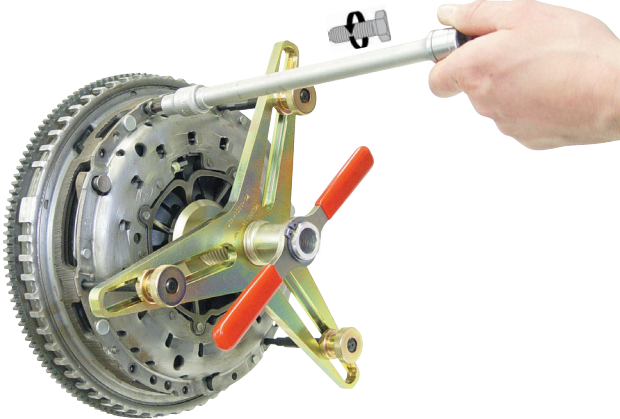
⚠ CAUTION

If the SAC clutch is overtensioned, it can be damaged and fragments can be flung up, which can cause **moderate** or **minor injuries**.

- Tension the SAC clutch only to the extent that the clutch disc is free.
- Wear personal protective equipment (safety goggles).

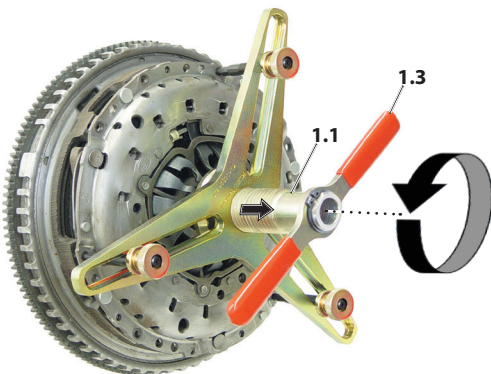
4. Screw in the spindle "1.1" via the toggle "1.3" clockwise, thus tensioning the cup spring of the SAC clutch until the clutch disc is free. (**Fig. 5**)

Fig. 6: Unscrewing the remaining fastening screws.



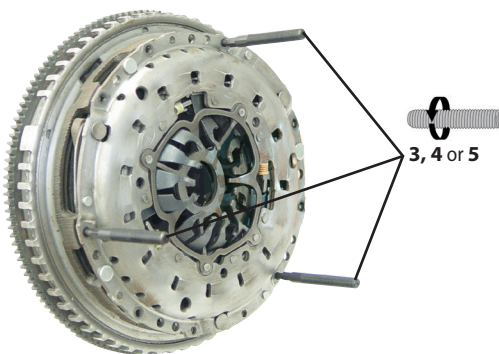
5. Unscrew the remaining fastening screws of the clutch pressure plate. **(Fig. 6)**

Fig. 7: Relieving the SAC clutch.



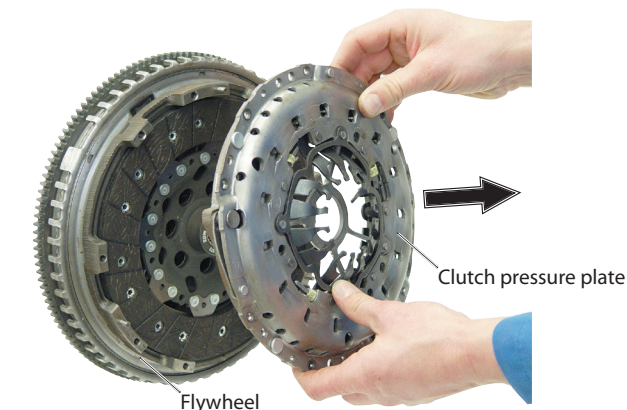
6. Turn the spindle "1.1" via the toggle "1.3" back anticlockwise, thus relieving the cup spring of the SAC clutch completely. **(Fig. 7)**

Fig. 8: Removing the clutch pretensioning device "1" and removing the threaded pins "3", "4" or "5".



7. Loosen the knurled nuts "2" anticlockwise and remove the clutch pretensioning device "1" from the threaded pins "3", "4" or "5". **(Fig. 8)**

Fig. 9: Removing clutch pressure plate and disc.



⚠ CAUTION

The clutch pressure plate and disc can drop and cause **moderate** or **minor** injuries.

- Hold clutch pressure plate and disc while you are removing the threaded pins "3", "4" or "5", to protect them against dropping, and remove them afterwards.
- Wear personal protective equipment (safety shoes)!

8. Unscrew the threaded pins "3", "4" or "5" anticlockwise and remove the clutch pressure plate with disc from the flywheel. **(Fig. 9)**

Fig. 10: Positioning the clutch pressure plate without disc.

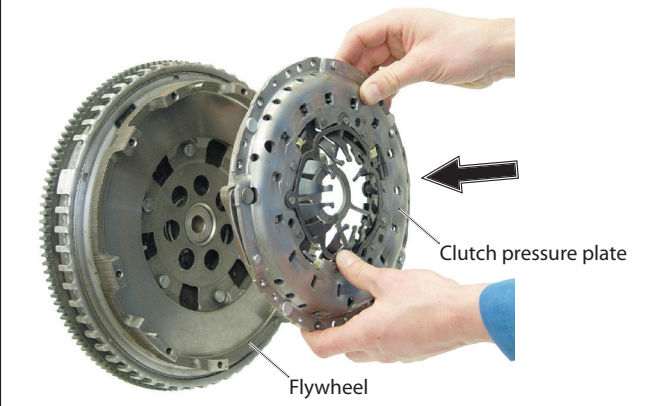


Fig. 11: Screwing in the threaded pin "3", "4" or "5".

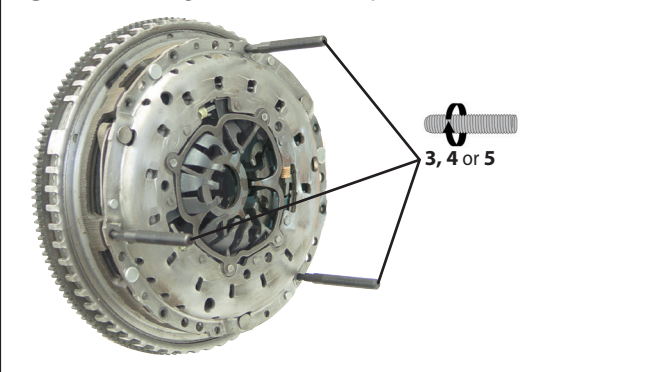


Fig. 12: Positioning and securing the clutch pretensioning

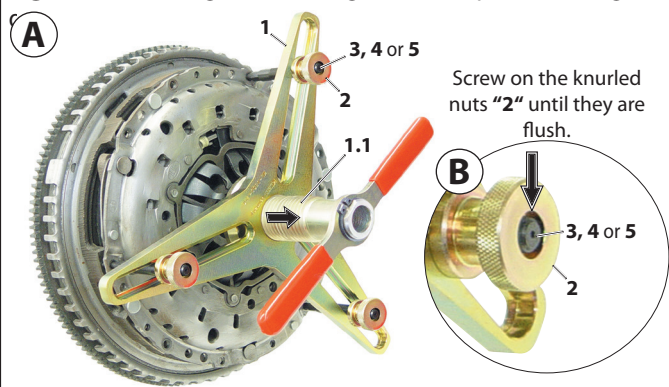
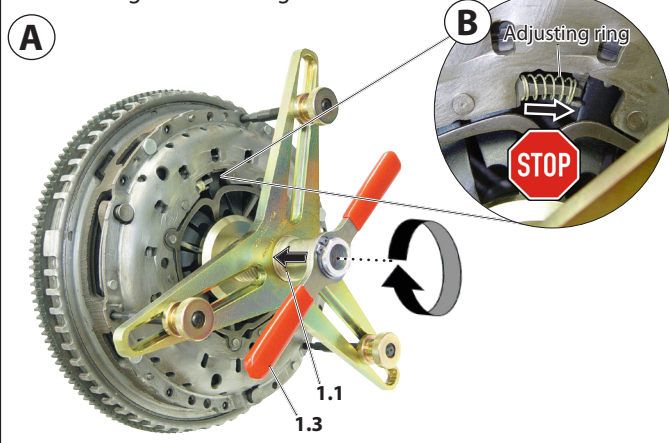


Fig. 13: Tensioning the clutch pressure plate until the adjusting ring starts rotating clockwise.



4.2 Resetting the SAC adjusting ring (necessary for used SAC clutches)

This typical application describes the resetting of the SAC adjusting ring on a used SAC clutch with 3-hole pitch.

(Resetting of the 4-hole pitch follows the same principle)

ⓘ Note:

Resetting the SAC adjusting ring is not necessary when you install a new SAC clutch, as it is already preset in the new position. **(continue with chapter 4.3)**

1. Position the clutch pressure plate on the flywheel (**without clutch disc!** / see Fig. 10). Next, screw 3 matching threaded pins "3", "4" or "5", offset by 120° equally into the fastening bores in the clutch pressure plate. (Fig. 11)

ⓘ Note:

For 4-hole pitch, screw in 4 threaded pins "3", "4" and "5", offset by 90°, into the clutch pressure plate.

2. Turn the spindle "1.1" on the clutch pretensioning device "1" anticlockwise all the way back. (Fig. 12 A) Place the clutch pretensioning device "1" centred with respect to the clutch pressure plate on the threaded pins "3", "4" or "5", and secure it with the knurled nuts "2". (Fig. 12 A)

ⓘ Note:

Screw on the knurled nuts "2" **only to the extent clockwise** until they are flush with the threaded pins "3", "4" or "5". (Fig. 12 B)

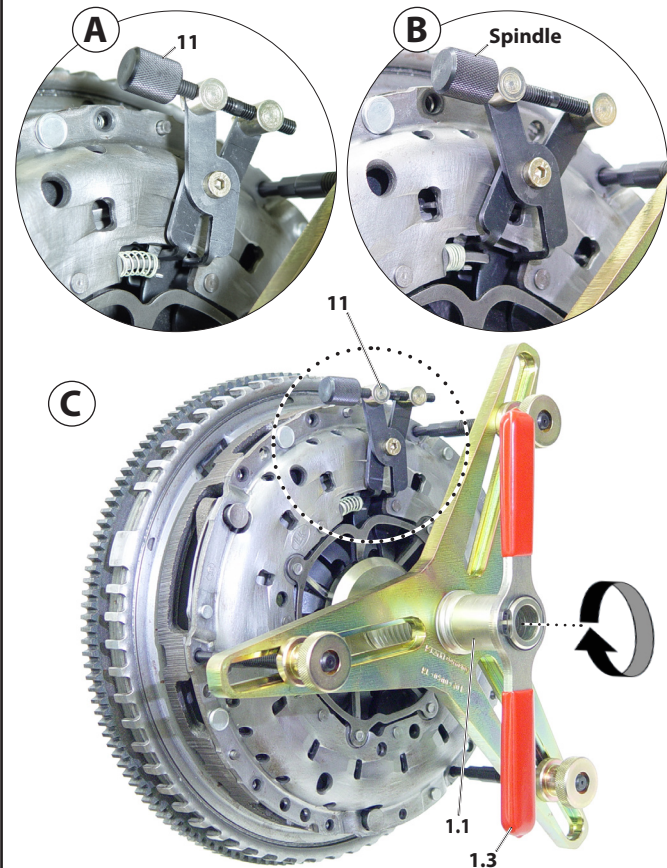
⚠ CAUTION

If the SAC clutch is overtensioned, it can be damaged and fragments can be flung up, which can cause **moderate** or **light injuries**.

- Tension the SAC clutch only to the extent that the adjusting ring on the clutch pressure plate starts to rotate clockwise on its own.

3. Screw in the spindle "1.1" via the toggle "1.3" clockwise, thus tensioning the cup spring of the SAC clutch (Fig. 13 A), to the extent that the adjusting ring on the clutch pressure plate starts rotating (clockwise) on its own. This is perceptible visually as well as by a rattling noise. (Fig. 13 B)

Fig. 14: Resetting SAC adjusting ring to zero / neutral position.



CAUTION

There is a risk of damaging the reset tool "11".

- Since the adjusting ring is blocked, never actuate the reset tool "11" when the cup spring on the clutch pressure plate is not tensioned or completely tensioned!
- The clutch pressure plate **must** be tensioned with the clutch pretensioning device "1" before the adjusting ring is reset.
- Do not use force to actuate the spindle on the reset tool "11". This could bend the reset arms.

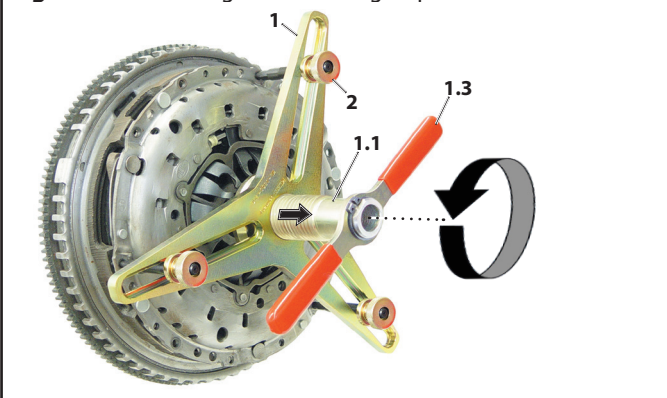
5. Insert the closed reset tool "11" into the recess with spring at the SAC adjusting ring. (Fig. 14 A)

Reset the SAC adjusting ring to zero or new position. To do this, actuate the spindle on the reset tool "11" clockwise. The adjusting ring is reset anticlockwise to the zero or new position. (Fig. 14 B)

ⓘ Note:

Tension the cup spring of the clutch pressure plate a little further if it is difficult to reset the adjusting ring. To do this, screw in the spindle "1.1" via the toggle "1.3" clockwise a bit further. (Fig. 14 C)

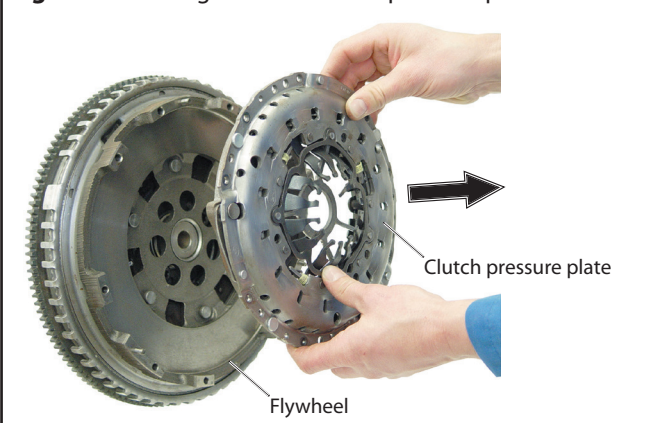
Fig. 15: Dismounting and removing all parts of the SAC tool.



6. Turn the spindle "1.1" via the toggle "1.3" back anticlockwise, thus relieving the cup spring of the SAC clutch completely. (Fig. 15) Next, relieve the reset tool "11" and remove it from the clutch pressure plate.

7. Loosen the knurled nuts "2" anticlockwise and remove the clutch pretensioning device "1" from the threaded pins "3", "4" or "5". (Fig. 15)

Fig. 16: Removing the reset clutch pressure plate.



⚠ CAUTION

The clutch pressure plate can drop and cause **moderate** or **minor** injuries.

- Hold the clutch pressure plate while you are removing the threaded pins "3", "4" or "5", to protect it against dropping, and remove it afterwards.

8. Unscrew the threaded pins "3", "4" or "5" anticlockwise (Fig. 15) and remove the reset clutch pressure plate from the flywheel. (Fig. 16)

Fig. 17: Determining the matching **clamping cone**, to do this ...

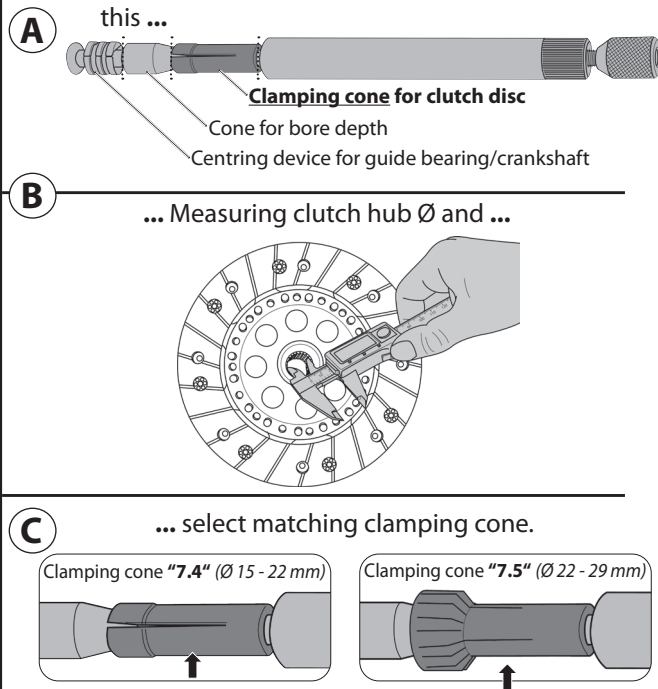
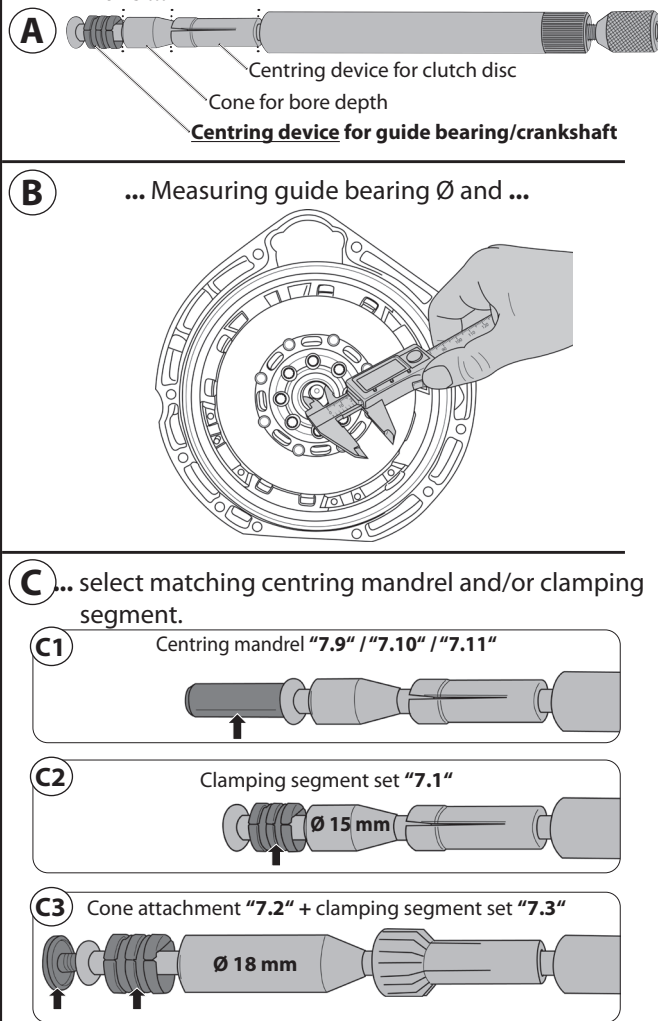


Fig. 18: Determining the matching **centring device**, to do this ...



4.3 Putting together clutch centring tools

This typical application describes how to prepare and put together the clutch centring tool "7" for the installation of an SAC clutch.

Note: Three basic tool components must be determined for using the clutch centring tool "7":

- **Clamping cone** for the clutch disc
- **Centring device** for guide bearing/crankshaft
- **Cone** for bore depth

Alternatively, you can use a suitable clutch centring mandrel "8", "9" or "10" to centre the clutch disc. (see Chapter 4.4 / Item 1 / Variant B)

1. Determine the matching **clamping cone** (Fig. 17 A). To do this, measure the clutch hub \varnothing (Fig. 17 B) and select the matching clamping cone (Fig. 17 C).

- Clamping cone "7.4" (for clutch hub \varnothing 15 - 22mm)
- Clamping cone "7.5" (for clutch hub \varnothing 22 - 29mm)

2. Determine the matching **centring device** (Fig. 18 A). To do this, measure the guide bearing \varnothing (Fig. 18 B) and select the matching mandrel and/or the matching clamping segment (Fig. 18 C).

2.1. For an inside \varnothing of 12 - 15 mm: (Fig. 18 C1)

- Centring mandrel "7.9" (\varnothing 12mm)
- Centring mandrel "7.10" (\varnothing 14mm)
- Centring mandrel "7.11" (\varnothing 15mm)

2.2. For an inside \varnothing of 15.5 - 21 mm: (Fig. 18 C2)

- Clamping segment set "7.1" (\varnothing 15,5 - 21mm)

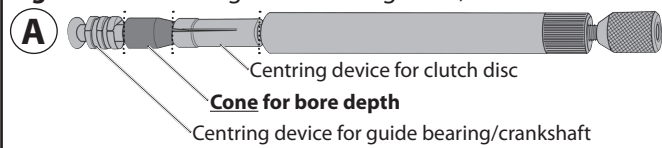
Note: The clamping segment set "7.1" is used in connection with the sliding cones (\varnothing 15 mm) "7.12", "7.13", "7.14" or "7.15".

2.3. For an inside \varnothing of 21 - 28 mm: (Fig. 18 C3)

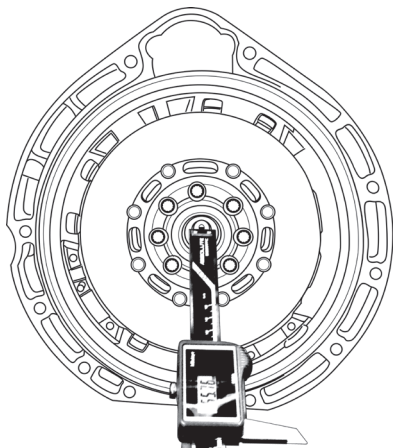
- Clamping segment set "7.3" (\varnothing 21 - 28mm)

Note: The clamping segment set "7.3" is used in connection with the cone attachment "7.2" and the sliding cones (\varnothing 18mm) "7.16" or "7.17".

Fig. 19: Determining the matching cone, to do this ...



B ... Measure the guide bearing depth and ...



C ... select the matching cone.

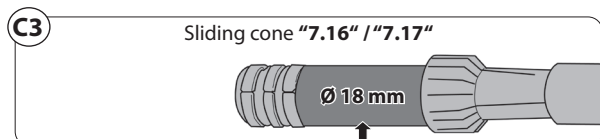
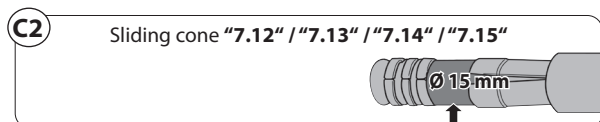
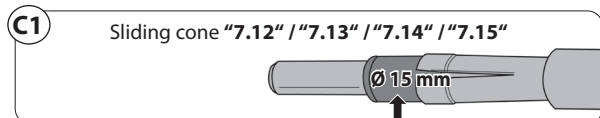
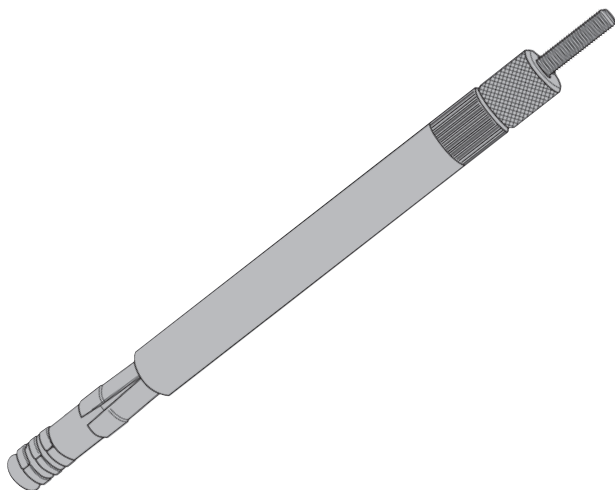


Fig. 20: Centring tools "7" put together.



3. Determine the matching cone (Fig. 19 A). To do this, measure the guide bearing depth (Fig. 19 B) and select a matching cone (Fig. 19 C).

3.1. When using the centring mandrels "7.9", "7.10" or "7.11", use the following cones as required by the guide bearing depth: (Fig. 19 C1)

- Sliding cone "7.12" (Ø 15mm, 30mm long)
- Sliding cone "7.13" (Ø 15mm, 40mm long)
- Sliding cone "7.14" (Ø 15mm, 67mm long)
- Sliding cone "7.15" (Ø 15mm, 75mm long)

3.2. When using the centring mandrel set "7.1", use the following cones as required by the guide bearing depth: (Fig. 19 C2)

- Sliding cone "7.12" (Ø 15mm, 30mm long)
- Sliding cone "7.13" (Ø 15mm, 40mm long)
- Sliding cone "7.14" (Ø 15mm, 67mm long)
- Sliding cone "7.15" (Ø 15mm, 75mm long)

3.3. When using the centring mandrel set "7.3", use the following cones as required by the guide bearing depth: (Fig. 19 C3)

- Sliding cone "7.16" (Ø 18mm, 67mm long)
- Sliding cone "7.17" (Ø 18mm, 75mm long)

4. Put together the clutch centring tool "7", as shown in the typical assembly in Fig. 20, with the determined components.

Fig. 21: Centring the clutch disc with respect to the flywheel.

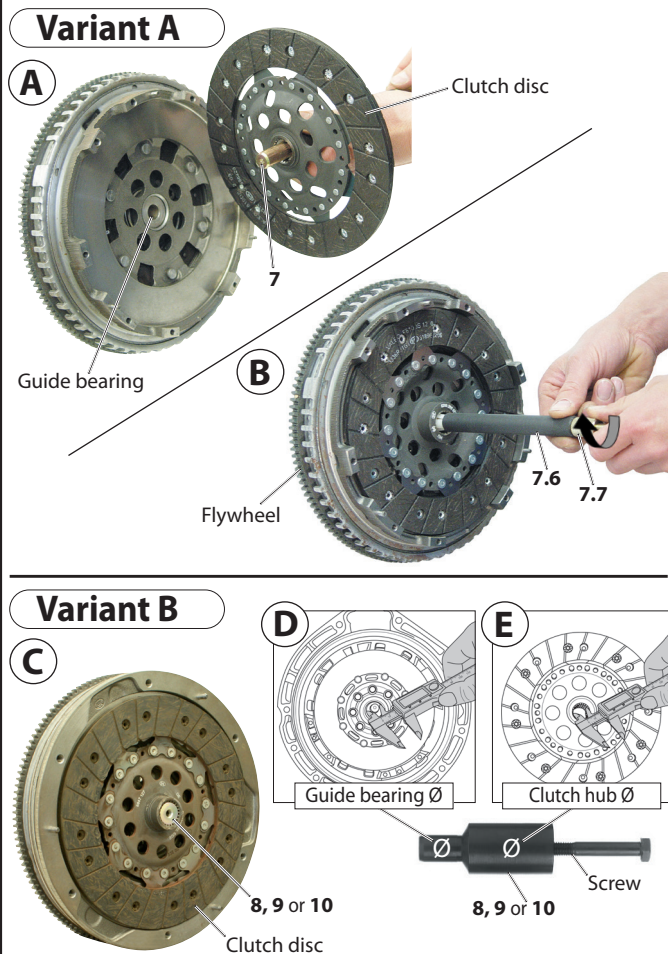


Fig. 22: Positioning the clutch pressure plate and screwing in the threaded pins "3", "4" or "5".

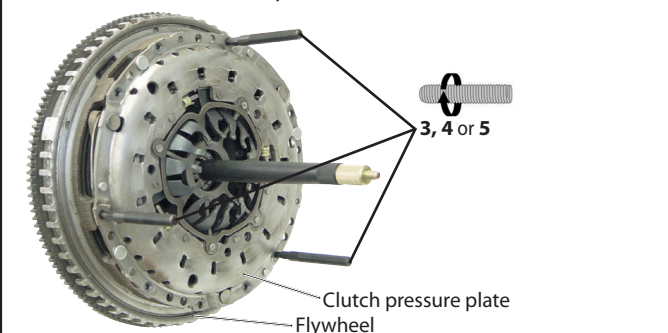
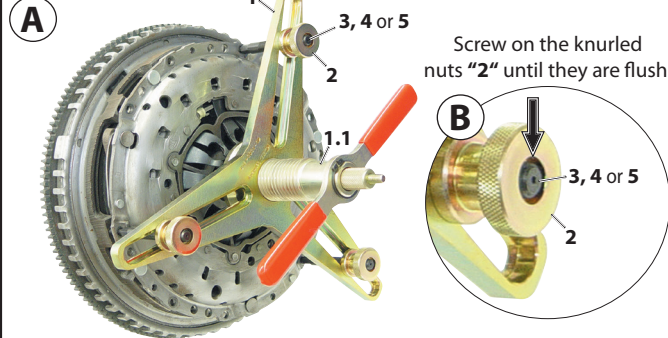


Fig. 23: Positioning and securing the clutch pretensioning device "1".



4.4 Installing the SAC clutch

This typical application describes the installation of an SAC clutch with 3-hole pitch and the centring of the clutch disc.
(The installation of the 4-hole pitch follows the same principle)

CAUTION

- There is a risk of damaging the SAC clutch during installation.*
- Ensure that the SAC clutch is positioned in the correct orientation as specified by the manufacturer.
 - At a used clutch, the SAC adjusting ring **must** be reset before reinstallation! (see Chapter 4.2 / Resetting the SAC adjusting ring)

1. Centre the clutch disc with respect to the flywheel, using ...

... Variant A - clutch centring tool "7":

Insert the prepared clutch centring tool "7" together with the clutch disc into the guide bearing on the flywheel. (Fig. 21 A) To centre the clutch disc, rotate the knurled nut "7.7" clockwise, counterholding the base body pipe "7.6". (Fig. 21 B)

... Variant B - clutch centring mandrel "8", "9" or "10":

Depending on guide bearing \varnothing (Fig. 21 D) and clutch hub \varnothing (Fig. 21 E), select a matching clutch centring mandrel "8", "9" or "10". Next, insert the clutch centring mandrel together with the clutch disc into the guide bearing on the flywheel until it is flush with the clutch hub. (Fig. 21 C) Next, unscrew the screw on the centring mandrel.

ⓘ Note:

Position the clutch disc on the flywheel in the correct orientation as specified by the manufacturer!

2. Position the clutch pressure plate on the flywheel. Next, uniformly screw in **3** matching threaded pins "3", "4" or "5", offset by 120°, into the mounting bores in the clutch pressure plate. (Fig. 22)

ⓘ Note:

For 4-hole pitch, screw in **4** threaded pins "3", "4" or "5", offset by 90°, into the clutch pressure plate.
With a used SAC clutch, take note of the marking made when the clutch was removed!

3. Turn back the spindle "1.1" on the clutch pretensioning device "1" completely anticlockwise. (Fig. 23 A)

Place the clutch pretensioning device "1" centred with respect to the clutch pressure device "1" centred with respect to the clutch pressure plate on the threaded pins "3", "4" or "5", and secure it with the knurled nuts "2". (Fig. 23 A)

ⓘ Note:

Screw on the knurled nuts "2" **only to the extent clockwise** until they are flush with the threaded pins "3", "4" or "5". (Fig. 23 B)

Fig. 24: Tensioning the SAC clutch.

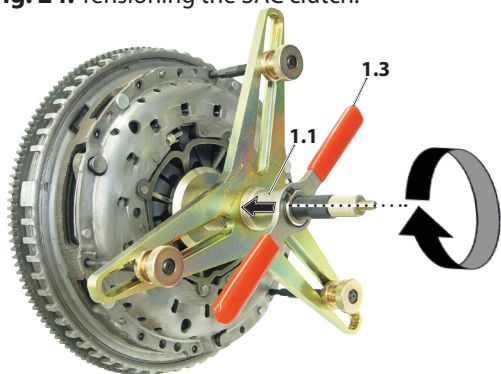


Fig. 25: Screwing in the fastening screws, and relieving the tension on the SAC clutch.

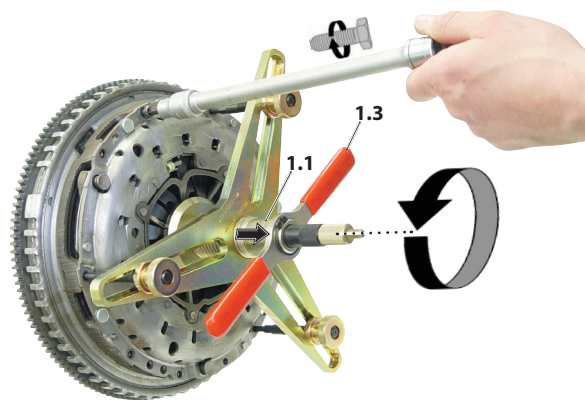


Fig. 26: Dismounting and removing all parts of the SAC tool.

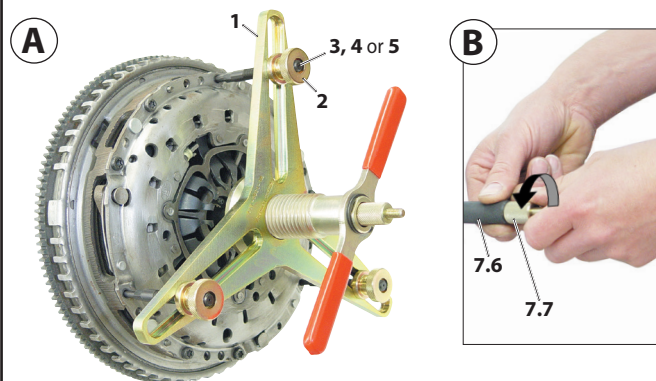
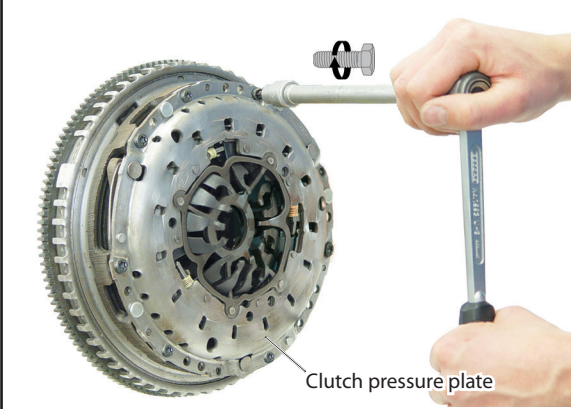


Fig. 27: Screwing in the remaining fastening screws.



⚠ CAUTION

If the SAC clutch is overtensioned, it can be damaged and fragments can be flung up, which can cause **moderate** or **minor injuries**.

- Tension the SAC clutch only to the extent that the clutch pressure plate is in full and neat contact with the flywheel.
- Wear personal protective equipment (safety goggles).

4. Screw in the spindle "1.1" via the toggle "1.3" clockwise, thus tensioning the cup springs of the SAC clutch, until the clutch pressure plate is in full and neat contact with the flywheel. (Fig. 24)

5. Screw the fastening screws of the clutch pressure plate into the free holes and tighten them to the specified torque. (Fig. 25)

6. Turn back the spindle "1.1" via the toggle "1.3" anticlockwise, thus relieving the cup spring of the SAC clutch completely.

7. Loosen the knurled nuts "2" anticlockwise and remove the clutch pretensioning device "1". Unscrew the threaded pins "3", "4" or "5" anticlockwise. (Fig. 26 A)

8. Remove the clutch centring tool / centring mandrel ...

... Variant A - clutch centring tool "7":

Remove the clutch centring tool "7". To do this, rotate the knurled nut "7.7" anticlockwise, counterholding the base body pipe "7.6". (Fig. 26 B)

... Variant B - clutch centring mandrel "8", "9" or "10":

Remove the clutch centring mandrel "8", "9" or "10". To do this, screw in the screw on the clutch centring mandrel and remove the mandrel from the clutch disc.

9. Screw in the remaining fastening screws of the clutch pressure plate and tighten them to the specified torque. (Fig. 27)

10. Perform further work on the vehicle as specified by the manufacturer.

Fig. 28: SAC clutch with locking piece

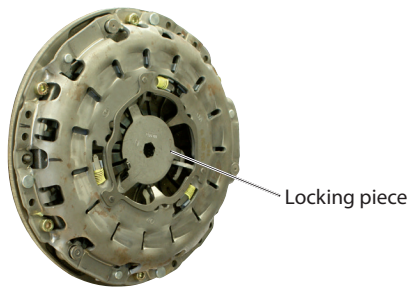


Fig. 29: Positioning and centring the clutch disc.

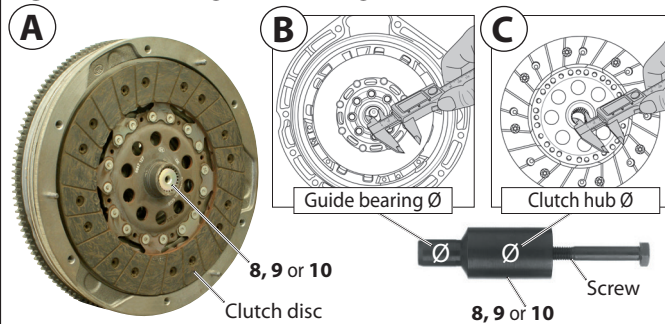


Fig. 30: Positioning and screwing on the clutch pressure plate.

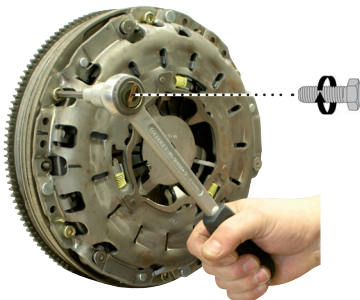


Fig. 31: Unlocking and removing the locking piece.

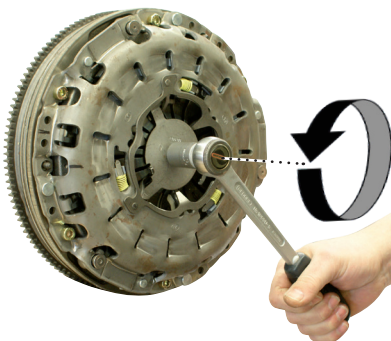
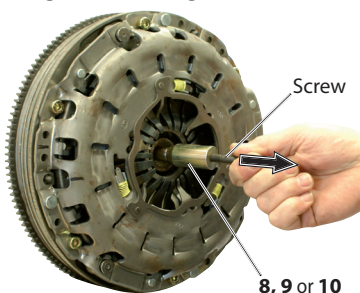


Fig. 32: Removing the centring mandrels "8", "9" or "10".



4.5 Installing an SAC clutch (with locking piece)

This typical application describes the installation of an SAC clutch with locking piece (see Fig. 28) and the centring of the clutch disc.

⚠ CAUTION

*The locking piece is under mechanical tension and can be flung up, which can cause **moderate** or **minor injuries**.*

• The locking piece **may only** be removed after the clutch pressure plate has been completely screwed on!

1. Depending on guide bearing \varnothing (Fig. 29 B) and clutch hub \varnothing (Fig. 29 C), select a matching clutch centring mandrel "8", "9" or "10". Next, insert the clutch centring mandrel together with the clutch disc into the guide bearing on the flywheel until it is flush with the clutch hub. (Fig. 29 A) Next, unscrew the screw on the centring mandrel.

ⓘ Note:

Position the clutch disc on the flywheel in the correct orientation as specified by the manufacturer!

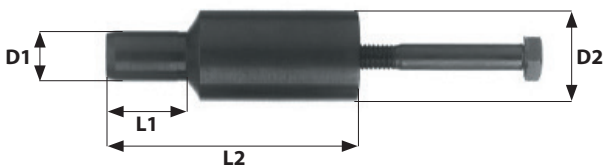
2. Position the clutch pressure plate on the flywheel in the correct orientation and as specified by the manufacturer, and tighten all fastening screws to the specified torque. (Fig. 30)

3. Unlock and remove the locking piece on the clutch pressure plate as specified by the manufacturer. (Fig. 31)

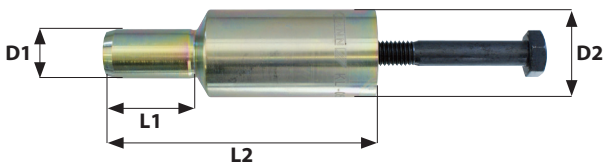
4. Screw in the screw on the clutch centring mandrel "8", "9" or "10", and remove the mandrel from the clutch disc. (Fig. 32)

5. Perform further work on the vehicle as specified by the manufacturer.

Supplement: KL-0500-15



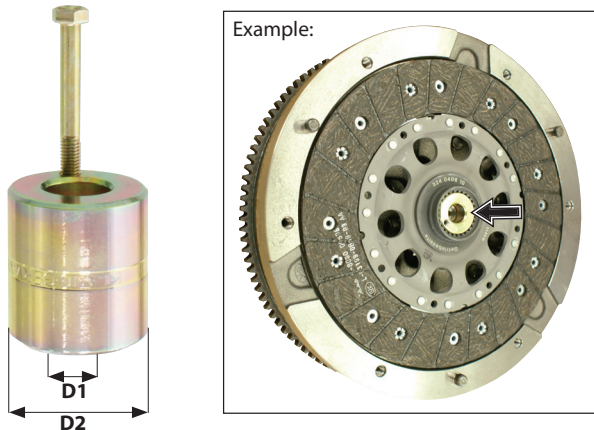
Supplement: KL-0500-20



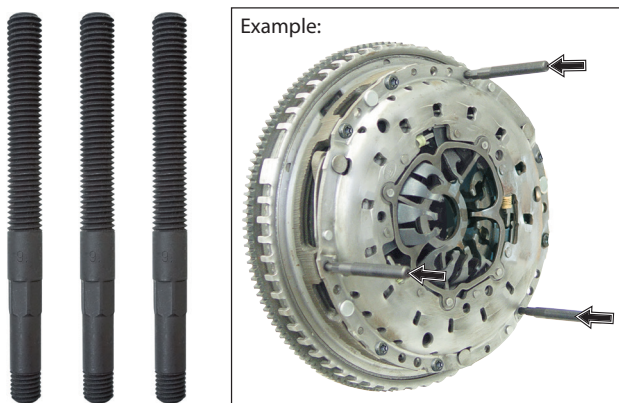
Supplement: KL-0500-23



Supplement: KL-0500-22



Supplement: KL-0500-4012



5. Care and storage

CAUTION: Benzene and chemical solvents can damage plastic parts. After each use, clean all parts with a clean cloth only. To protect them against corrosion, lightly rub all metal parts after use with an anti-corrosion oil or wax that is suitable for tool care. Keep the special tool in a dry and clean place.

6. Supplements

Clutch centring mandrels + sleeves:

To centre the clutch disc, required when installing SAC clutches.

KL-0500-15 - clutch centring mandrel Ø26.5mm

Suitable for BMW and Audi.

Specifications:

D1: 15mm D2: 26.5mm
L1: 23mm L2: 72mm

KL-0500-20 - clutch centring mandrel Ø26.5mm

Suitable for BMW E36, E39, E46, E87 in connection with gearbox S5D-250G.

Specifications:

D1: 15mm D2: 26.5mm
L1: 27mm L2: 80mm

KL-0500-23 - clutch centring mandrel Ø32.5 mm

Suitable for BMW vehicles with gearbox GS6-53DG and engine S65 (V8) and S85 (V10) at E92 (M3), E60 (M5) and E63 (M6).

Specifications:

D1: 15mm D2: 32.5mm
L1: 27mm L2: 100mm

KL-0500-22 - clutch centring sleeve Ø32.5 mm

Suitable for BMW vehicles with engine N54B30 z.B. E90 / E91 / E92 / E93 (335i)

Specifications:

D1 (inside): 15mm
D2: 32.5mm

KL-0500-4012 - Supplementary kit threaded pins M9 (3x)

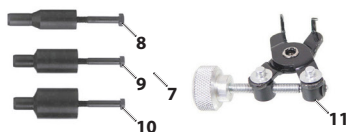
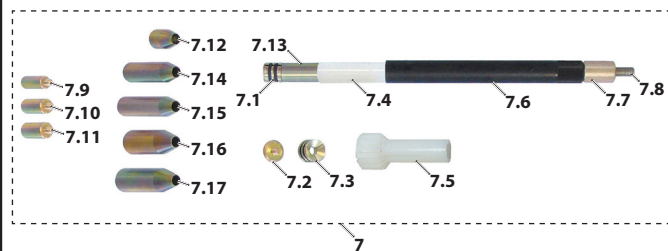
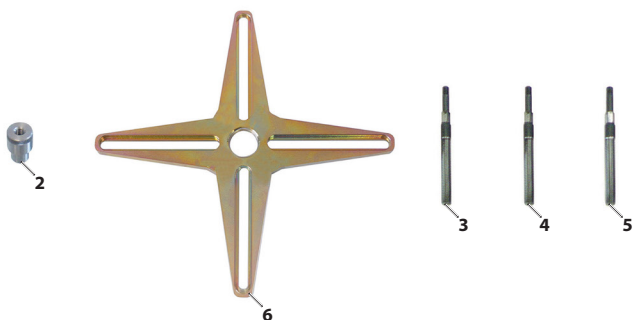
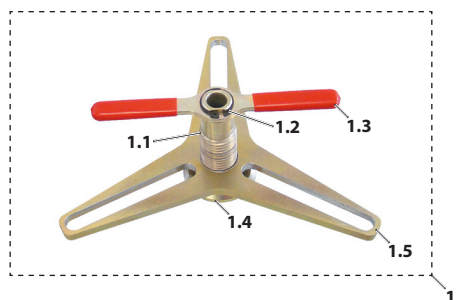
Universally suitable for SAC clutches with M9x1.25 mounting screw connection, e.g. with BMW MINI One, One D, Cooper, Cooper S, Works, John Cooper Works (R50, R52, R53) etc.

This supplementary kit permits the clutch pretensioning device - **KL-0500-401** to be mounted on SAC clutches with **M9x1.25** mounting screw connection.

Specifications:

Thread: M9x1.25mm
Length: 110mm

Spare parts: KL-0500-45 KA



7. Maintenance and repair by the GEDORE Automotive Service Centre

WARNING: For safety reasons, ensure that damaged special tool is no longer used. Only specifically trained personnel are allowed to carry out professional inspection and repair. Improper repair of the special tool can cause **moderate** or **minor injuries**.

Please contact **GEDORE Automotive GmbH**
Breslauer Str. 41 // 78166 Donaueschingen

Phone: +49 771 83223 -71 // E-mail: info.gam@gedore.com

8. Spare parts

KL-0500-45 KA - SAC clutch tool set

Item	Part no.	Description	Qty
1	KL-0500-401-1	Clutch pretensioning device	1
1.1	KL-0500-4002	Spindle	1
1.2	KL-0032-0012	Retaining ring A28	1
1.3	KL-0500-4003	Toggle with protective handle	1
1.4	KL-0500-4005	Thrust piece	1
1.5	KL-0500-4001	Base plate(3-hole pitch)	1
-	KL-0500-1007	Steel ball set	1
-	KL-0500-1008	Spring ring A24	1
2	KL-0500-4006	Knurled nut	4
3	KL-0500-4007	Threaded pin M6	4
4	KL-0500-4008	Threaded pin M7	4
5	KL-0500-4009	Threaded pin M8	4
6	KL-0500-4011	Base plate(4-hole pitch)	1
7	KL-0500-405	Clutch centring tool	1
7.1	KL-0500-4053	Clamping segment set Ø 15.5mm	1
7.2	KL-0500-4055	Cone attachment	1
7.3	KL-0500-4054	Clamping segment set Ø 20mm	1
7.4	KL-0069-0005	Clamping cone size 1, 15mm	1
7.5	KL-0069-0006	Clamping cone size 2, 22mm	1
7.6	KL-0500-4051	Base body pipe	1
7.7	KL-0500-4103	Knurled nut	1
7.8	KL-0500-4052	Clamping crew	1
7.9	KL-0500-4057-1	Centring mandrel Ø 12mm	1
7.10	KL-0500-4057-2	Centring mandrel Ø 14mm	1
7.11	KL-0500-4057-3	Centring mandrel Ø 15mm	1
7.12	KL-0500-4056-1	Sliding cone Ø 15 mm, 30mm	1
7.13	KL-0500-4056-2	Sliding cone Ø 15 mm, 40mm	1
7.14	KL-0500-4056-3	Sliding cone Ø 15 mm, 67mm	1
7.15	KL-0500-4056-4	Sliding cone Ø 15 mm, 75mm	1
7.16	KL-0500-4056-5	Sliding cone Ø 18 mm, 67mm	1
7.17	KL-0500-4056-6	Sliding cone Ø 18 mm, 75mm	1
8	KL-0500-11	Clutch centring mandrel Ø 23mm	1
9	KL-0500-12	Clutch centring mandrel Ø 28mm	1
10	KL-0500-21	Clutch centring mandrel Ø 32.5mm	1
11	KL-0500-403	Reset tool	1
-	KL-0500-4590	Plastic case	1

9. Environmentally compliant disposal

Dispose of special tool and packaging material in accordance with the legal requirements in an environmentally friendly manner.

GEDORE-Werkzeugfabrik GmbH & Co. KG

Remscheider Straße 149
42899 - Remscheid
Postfach 120361
47873 Remscheid
GERMANY

Vertrieb DEUTSCHLAND

☎ +49 (0) 2191 / 596-0
☎ +49 (0) 2191 / 596-230
✉ info@gedore.com
🌐 www.gedore.com

Sales INTERNATIONAL

☎ +49 (0) 2191 / 596-910
☎ +49 (0) 2191 / 596-911
✉ info@gedore.com
🌐 www.gedore.com

GEDORE TOOLS, INC.

Only for USA, Canada & Mexico
Sólo para EE.UU., Canadá y México
Seulement pour les USA, le Canada et le Mexique
7187 Bryhawke Circle, Suite 700, North Charleston, SC 29418, USA

☎ +1-843 / 225 50 15
☎ +1-843 / 225 50 20
✉ info@gedoretools.com
🌐 www.gedoretools.com

Worldwide GEDORE service centers and offices are listed on the Internet at: www.gedore.com

GEDORE Automotive GmbH

Breslauer Straße 41
78166 - Donaueschingen
Postfach 1329
78154 Donaueschingen
GERMANY

Vertrieb DEUTSCHLAND

☎ +49 (0) 771 / 8 32 23-0
☎ +49 (0) 771 / 8 32 23-90
✉ info.gam@gedore.com
🌐 gedore-automotive.com



www.gedore-automotive.com