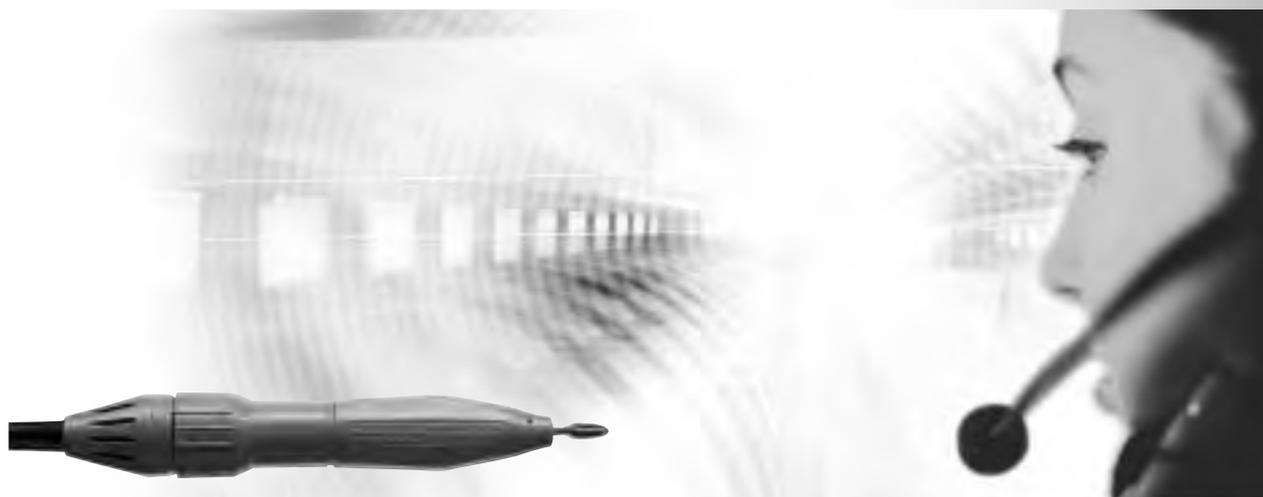


Operating Instructions

K9 4933



Always on the safe side.



KaVo. Dental Excellence.

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A 1 User information

A 1.1 Meaning of the pictograms

 *Situations where failure to follow the instructions may lead to danger, damage to material or operating faults.*

 *Important information for operator and engineer.*

 Automatic mode
Automatic sequence

 Close, screw in,
fasten, etc.

 Open, release, loosen

+ more, higher

- less, lower

 Continuous operation

 Time, time sequence

 Disconnect mains plug

A 1.2 Important information

 *The instructions for use should be read by the user before starting up the unit for the first time, in order to avoid incorrect operation and other damage. If other language versions are required, please request these from your responsible KaVo agent. Duplication and distribution of the instructions for use (IU) require KaVo's prior consent.*

All technical data, information and properties of the product described in the IU correspond to the state on going to press.

Modifications and improvements to the product as a result of new technical developments are possible.

This does not imply any right to retrofitting of existing units.

KaVo assumes no responsibility for damage arising through:

- external influences (poor quality of the media or inadequate installation)
- use of incorrect information
- improper use
- improperly performed repairs.

Repair and maintenance work - apart from the activities described in these instructions for use - may be performed only by qualified technical personnel.

In the event of modifications by third parties, the approvals become null and void. KaVo recommends using only original spare parts for operation and for repair.

A 1.3 Precautions

Safe operation and protection of the unit are ensured only through proper use in accordance with the instructions for use and using the tools approved for the purpose. The following should also be observed:

- the tool manufacturer's instructions,
- the work safety regulations,
- the accident prevention regulations.



■ *Each time before switching on, check the set speed.*

■ *Observe the permissible maximum speed and maximum pressure of the tools (according to tool manufacturer's instructions).*

■ *Use safety screens when working with rotating tools.*

■ *To avoid danger through accidental switching on, place the handpiece on a suitable shelf or tool support.*

In the event of an unsatisfactory condition of the unit or improper use, e.g.:

- unsuitable tools
- tool shafts not manufactured according to DIN-ISO
- improper use or use not in accordance with the purpose
- unapproved speeds for tools used
- incorrect clamping of the tools in the chuck
- insufficient retaining force of the chuck (wear, soiling, failure to follow the product care instructions for the chuck system, etc.)
- different sizes of tool shaft and chuck

- lack of regular cleaning of the chuck
- failure to follow the maintenance instructions
- failure to comply with the accident prevention regulations (e.g. failure to use safety screens, safety devices, handpiece supports, etc.)
- failure to take into account signs of wear and damage
- tool shafts which have slipped out (potential danger = bending of the tool shafts)

there is a danger of injury and damage to material and unit, e.g. due to:

- Bending of the tool shafts
- Accidental withdrawal of the tools from the chuck
- Breaking or splintering of the tool.

K9 4933

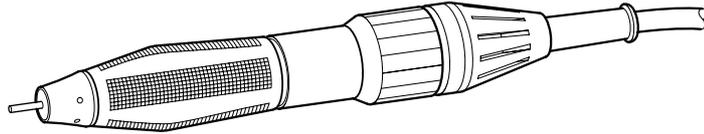
A 1.4 Purpose and applications

K9 4933 handpieces are versatile and very particularly suitable for working on crowns and bridges. Suitable for:

Long-term operation at 5,000 - 25,000 min⁻¹
Brief operation at 1,000 - 5,000 min⁻¹

A 1.5 Technical data

Length:	190 mm
Handpiece part:	max. Ø 27 mm
Motor part:	max. Ø 32 mm
Weight:	approx. 230 g
with connecting cable	approx. 420 g
Output power	max. 42 watt max. 3.3 Ncm
Speed range	1,000-25,000 min ⁻¹



i *In the presence of extreme interfering high-frequency fields, speed variations up to max. 20% may occur.*

Ambient conditions:

Permitted in interior rooms

Permissible ambient temperature range of 5° C - 40° C

Permitted to max. relative humidity 80%

Intermittent operation: on 2 min / off 8 min

We reserve the right to make technical modifications.

K9 4933

A 2 Scope of delivery - accessory

Scope of delivery

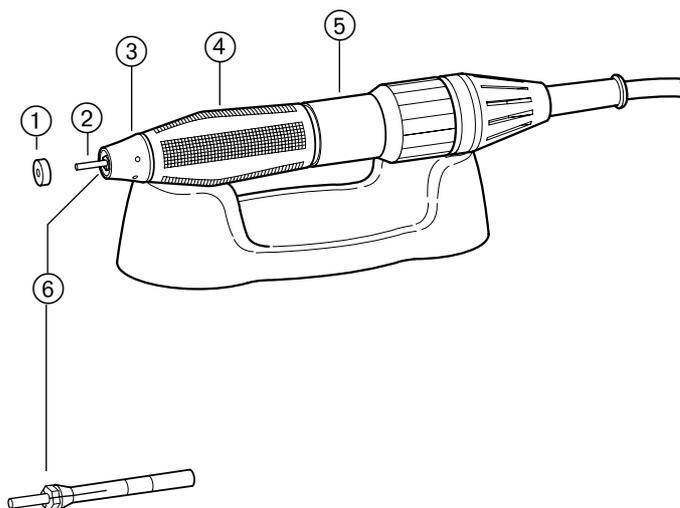
K9 handpiece 4933
with chuck \varnothing 2.35 mm
Care set Mat. No. 0.411.3180
Instructions for use Mat. No. 1.000.3920

Accessory

Available on request:
Handpiece support 4850
Mat. No. 0.642.0352

Tool for changing the ball bearings
D -Key Mat. No. 0.411.3962

E -Socket wrench Mat. No. 0.411.2310



A 3 Description

① Cover (3 covers as spare parts included in care set)

② Straight pin

③ Grip tip

④ K9-Handpiece part

⑤ K9-Motor part

⑥ Chuck

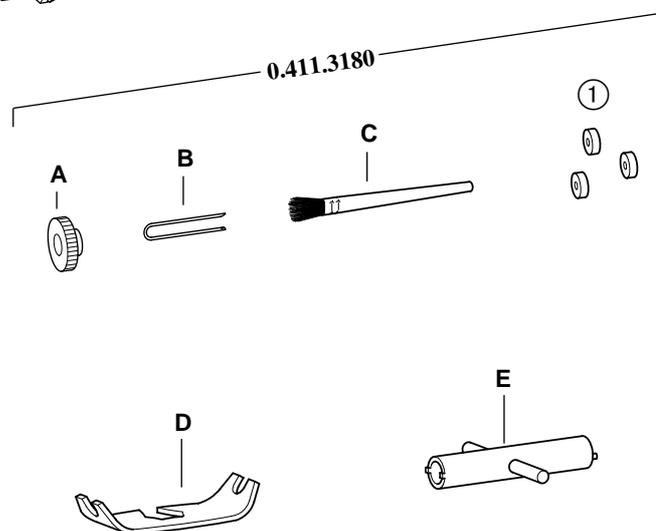
A Chuck key

B Clip

C Cleaning brush

D Key Mat. No. 0.411.3962

E Socket wrench Mat. No. 0.411.2310

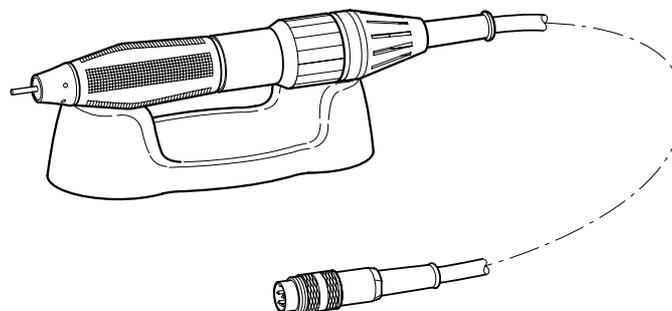


A 4 Commissioning

The K9 handpiece **4933** can be operated with the following controller:

Table-top K9 4953

Place K9 handpiece in the handpiece support on the workstation.
Insert plug into the appropriate socket of the suitable controller and screw down.



K9 4933

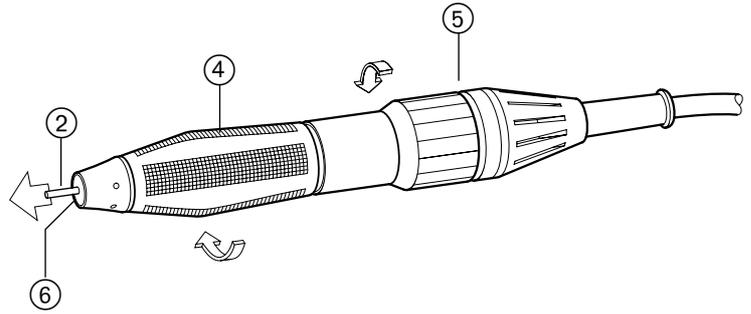
A 5 Operation

A 5.1 Inserting / changing the tool

 *During commissioning and each time when operating the EWL handpieces, it is essential to observe the points mentioned in the Section "A 1.3 Precautions"!*

Opening the chuck

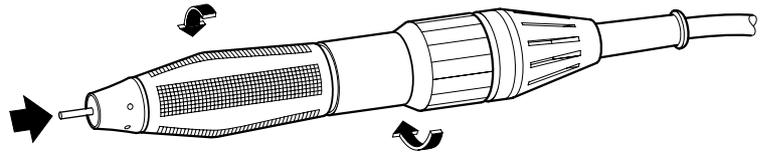
Turn handpiece part ④ and motor part ⑤ in the direction of the arrow until the chuck ⑥ is completely open.



Inserting / changing the tool

Closing the chuck

Turn handpiece part ④ and motor part ⑤ in the direction of the arrow as far as they will go.



A 5.2 Operation

 *If the workplace is unsuitably illuminated, a stroboscopic effect may occur. This causes the tool to appear stationary at certain speeds. The situation can be remedied only by acquiring suitable lighting.*

Each time before switching on, check the desired speed on the controller and if necessary adjust.

Put the K9 handpiece into operation according to the instructions for use of the up-circuit controller.

K9 4933

A 6 Maintenance



■ Repair and maintenance work on the electrical part of the unit may be performed only by qualified technical personnel or trained persons who have been made aware of the safety regulations. Before maintenance work, disconnect the mains plug or isolate the unit completely from the power supply so that there is no power to the unit.

■ On no account may the K9 handpiece be cleaned with compressed air; use the cleaning brush from the care set.

■ On no account should cleaning agents (such as spray cleaner, degreaser, etc.) be introduced into the interior of the handpiece.



A 6.1 Weekly cleaning of chuck and handpiece part

Removing the chuck

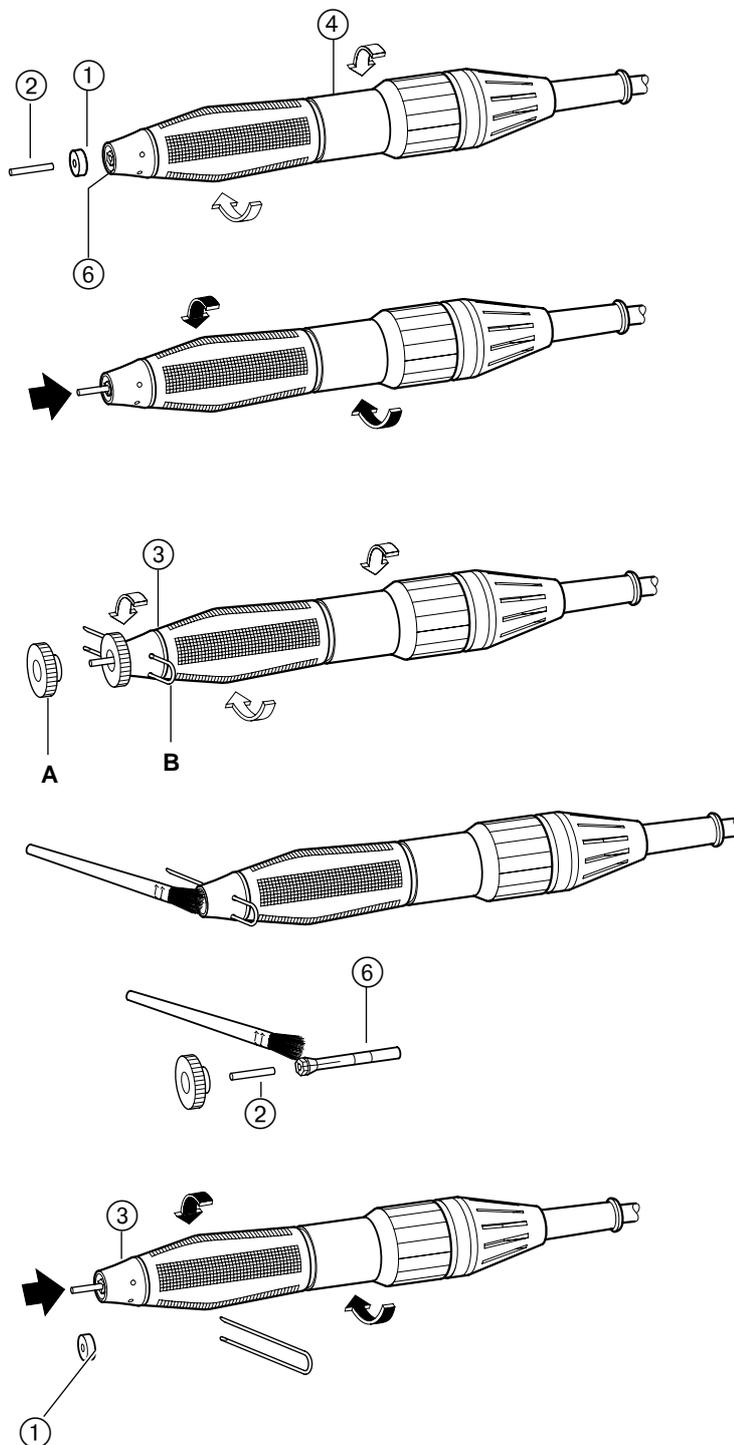
Remove previously used tool or straight pin from chuck and take off cover ① (3 covers as spare parts in the care set).

Push tool or straight pin into chuck as far as it will go and close chuck.

Slowly turn the shaft by the straight pin ② until clip B can be inserted into grip tip ③ with little resistance.

Open the chuck. Unscrew the chuck using original chuck key A and inserted straight pin or tool ②.

Clean the front opening of the K9 handpiece with a brush or with cleaning brush supplied. Clean chuck thread, surface of chuck ⑥ and rotor cone and lightly grease.



Installing the chuck

Insert chuck incl. straight pin ② using original chuck key A and tighten.

Mount cover ① again.

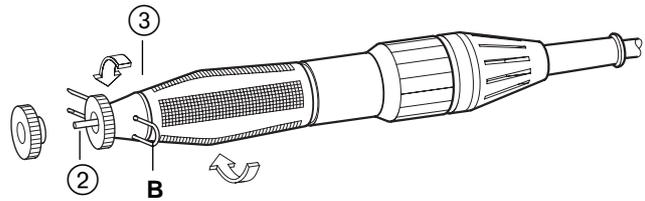
Remove clip B from grip tip ③ and close chuck with inserted straight pin again.

K9 4933

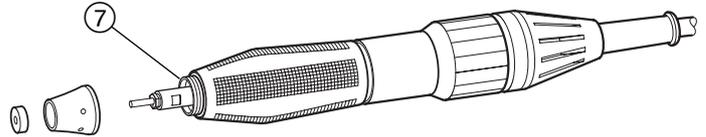
A 6.2 Replacing the ball bearings

Dismantling

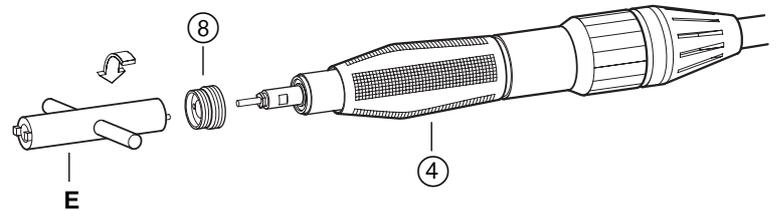
Slowly turn the shaft by the straight pin ② until clip **B** can be inserted into grip tip ③ with little resistance.



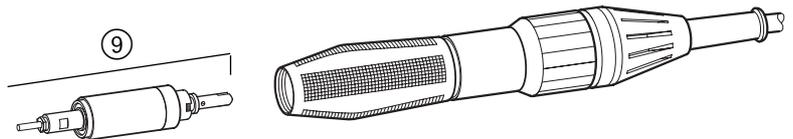
Loosen grip tip in direction of arrow and remove clip. Completely unscrew grip tip and remove felt washer ⑦.



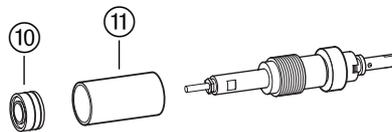
Grip handpiece part ④ and loosen threaded ring ⑧ with socket wrench **E** and unscrew.



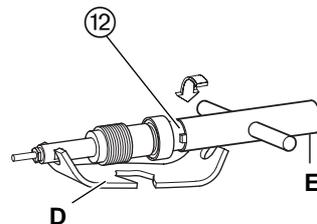
Remove complete shaft unit ⑨ from K9 handpiece.



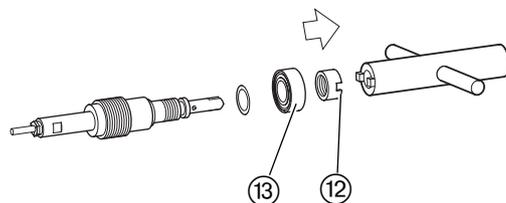
Remove ball bearing ⑩ and bush ⑪ from shaft.



Hold shaft with key **D** and loosen nut ⑫ with socket wrench **E** - **note left-handed thread**.



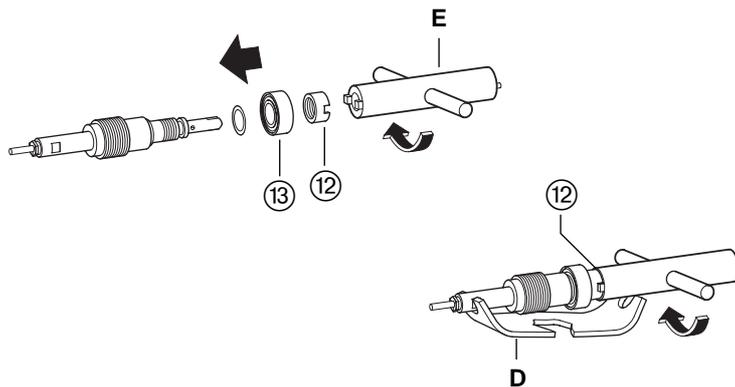
Remove nut ⑫ with ball bearing ⑬ from shaft.



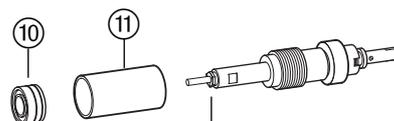
K9 4933

Assembly

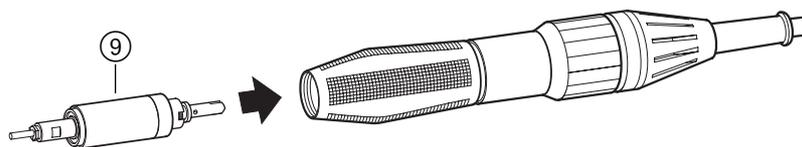
Push new ball bearing ⑬ onto shaft. Hold shaft with key **D** and screw on nut ⑫ again with socket wrench **E** - note the left-handed thread.



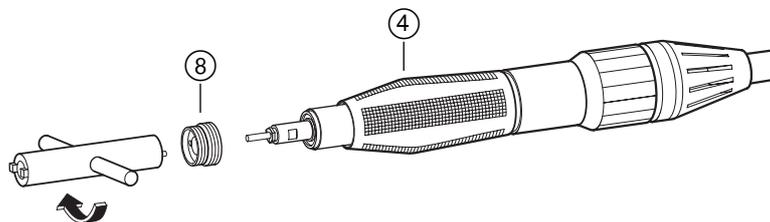
Push ball bearing ⑩ (with two O-rings facing the inside of the handpiece) and bush ⑪ onto the shaft as far as they will go.



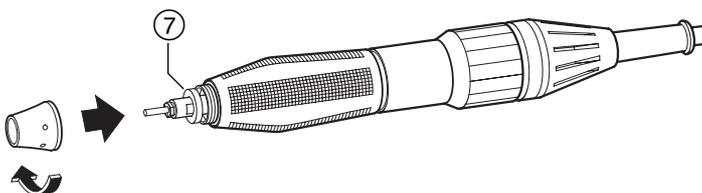
While rotating the shaft unit ⑨, insert it into the K9 handpiece.



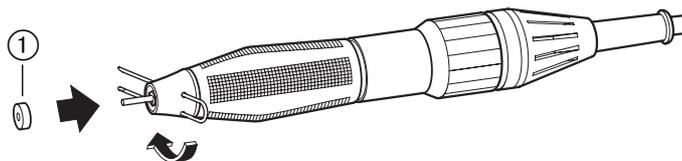
Grip handpiece part ④ and tighten the threaded ring ⑧ with socket wrench **E**.



Insert new felt washer ⑦ into threaded ring ⑧.



Hold K9 handpiece, screw on grip tip by hand and tighten carefully with clip **B**. Insert cover ①.



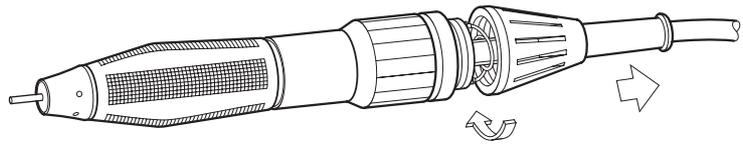
i To increase the life of the ball bearing, KaVo EWL recommends:

■ After changing the ball bearing, allow the handpiece to run without an inserted instrument for about 60 minutes at 10,000 to 15,000 rpm.

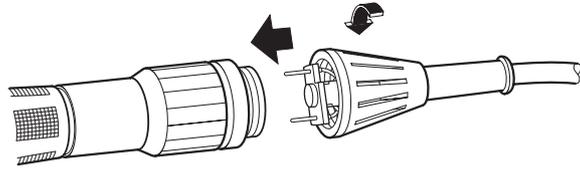
K9 4933

A 6.3 Changing the connecting cable

Unscrew locking cap from the motor part and disconnect the connecting cable in the direction of the arrow.



Insert new connecting cable (2-pin) completely into motor part and screw back locking cap.



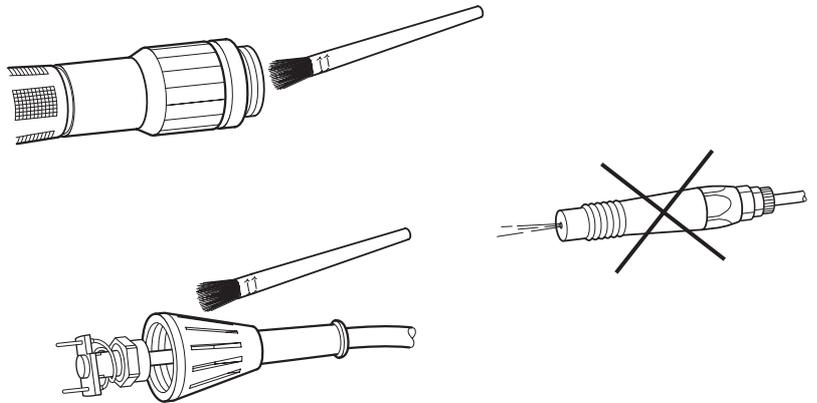
A 6.4 Monthly cleaning of the cooling air vents on motor part and locking cap

Unscrew locking cap from motor part ⑤ and disconnect connecting cable.

Clean locking cap and interior of motor part with cleaning brush.

 *On no account should cleaning be carried out with compressed air!*

Mount connecting cable and locking cap again.



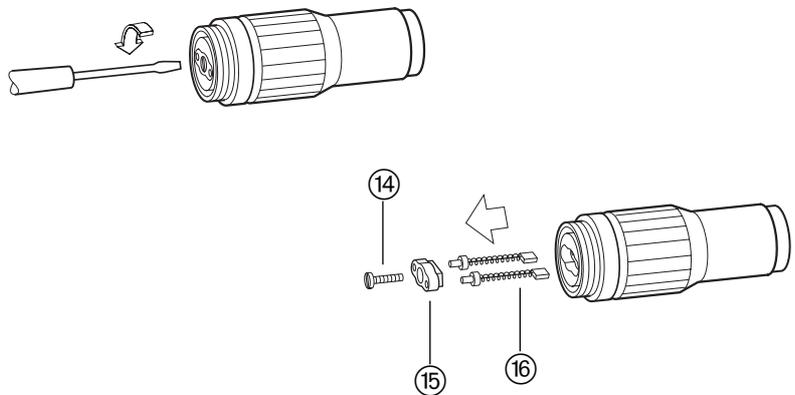
A 6.5 Changing the carbon brushes

Remove connecting cable from motor part (see A 6.3).

Unscrew cheese-head screw ⑭ and remove brush holder ⑮ incl. carbon brushes ⑯.

Replace carbon brushes ⑯ and insert carbon holder ⑮ with carbon brushes back into motor part ⑤.

Mount connecting cable again (see A 6.3).



K9 4933

A 7 Malfunctions

 *Repair and maintenance work on the electrical part of the unit may be performed only by specialists or by persons who have been trained in the factory and have been made aware of the safety regulations. Before opening the housing parts, disconnect the mains plug or isolate the unit completely from the power supply so that there is no power to the unit.*

- F**• K9 handpiece no longer rotates or stops from time to time.
- C**• K9 handpiece is blocked, possibly due to open chuck system.
- R**• Close chuck correctly with inserted tool (see **A 5.1**).

- C**• Break in connecting cable.
- R**• Check connecting cable incl. plug devices and if necessary replace.

- C**• Carbon brushes worn.
- R**• Replace carbon brushes (see **A 6.5**).

- C**• Fault in the electrical system of K9 controller.
- R**• Check K9 controller or have repaired.

- F**• Tool is no longer adequately retained in the chuck..
- C**• Diameter of tool shaft does not agree with chuck.
- R**• Use chuck or tool with appropriate diameter.

- C**• Chuck has become loose.
- R**• Insert chuck correctly (see **A 6.1**).

- C**• Chuck is worn.
- R**• Replace chuck (see **A 6.1**).

- F**• Loud running noise or K9 handpiece heats up
- C**• Ball bearing faulty owing to wear or soiling.
- R**• Check ball bearing and if necessary replace. (see **A 6.2**)

- C**• Prolonged operation under very high load.
- R**• Eliminate cause of high load, if necessary increase speed or use tools with smaller diameters.

- C**• Electronics of K9 controller faulty.
- R**• Check K9 controller or have repaired.

F = Fault **C** = Cause **R** = Rectification

K9 4933

Guarantee conditions

Under the valid KaVo EWL delivery and payment conditions, KaVo EWL gives a guarantee of satisfactory function and freedom from faults in material and manufacture for the duration of 6 months from the date of sale certified by the vendor. After expiry of the warranty, KaVo gives a guarantee of another 6 months for damage attributable to deficiencies in the material or in manufacture.

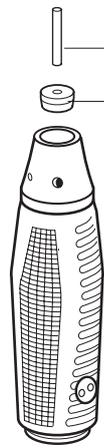
In the case of justifiable complaints, KaVo EWL shall supply spare parts or carry out repairs free of charge. KaVo EWL accepts no liability for defects and their consequences which have arisen or could have arisen as a result of natural wear, improper handling, cleaning or maintenance, noncompliance with the maintenance, operating and connecting instructions, corrosion, impurities in the air supply or chemical or electrical influences which are unusual or not admissible in accordance with KaVo's instructions. The guarantee shall become null and void if defects or their consequences can be attributed to interventions in or modifications to the product. Guarantee claims can only be validated if they are notified immediately in writing to KaVo EWL.

When the product is sent in, it must be accompanied by a copy of an invoice or delivery note which clearly shows the fabrication number.

K9 4933

0.674.4871 \varnothing 2,35 mm
 0.674.4881 \varnothing 3,00 mm
 0.674.4891 \varnothing 3,175 mm

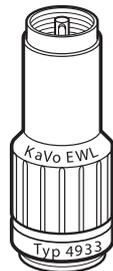
A



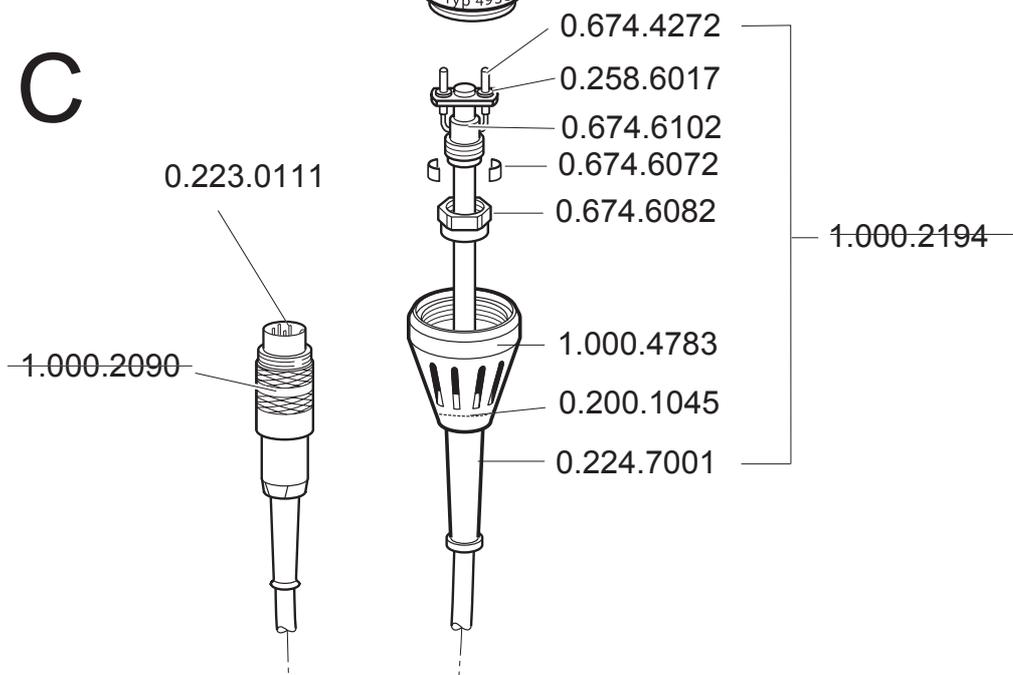
0.202.0021
 0.674.8212 \varnothing 2,35 mm / \varnothing 3,00 mm
 0.674.8482 \varnothing 3,175 mm

0.200.0836
 0.200.0837
 0.201.8083
 0.200.0834
 0.200.0835

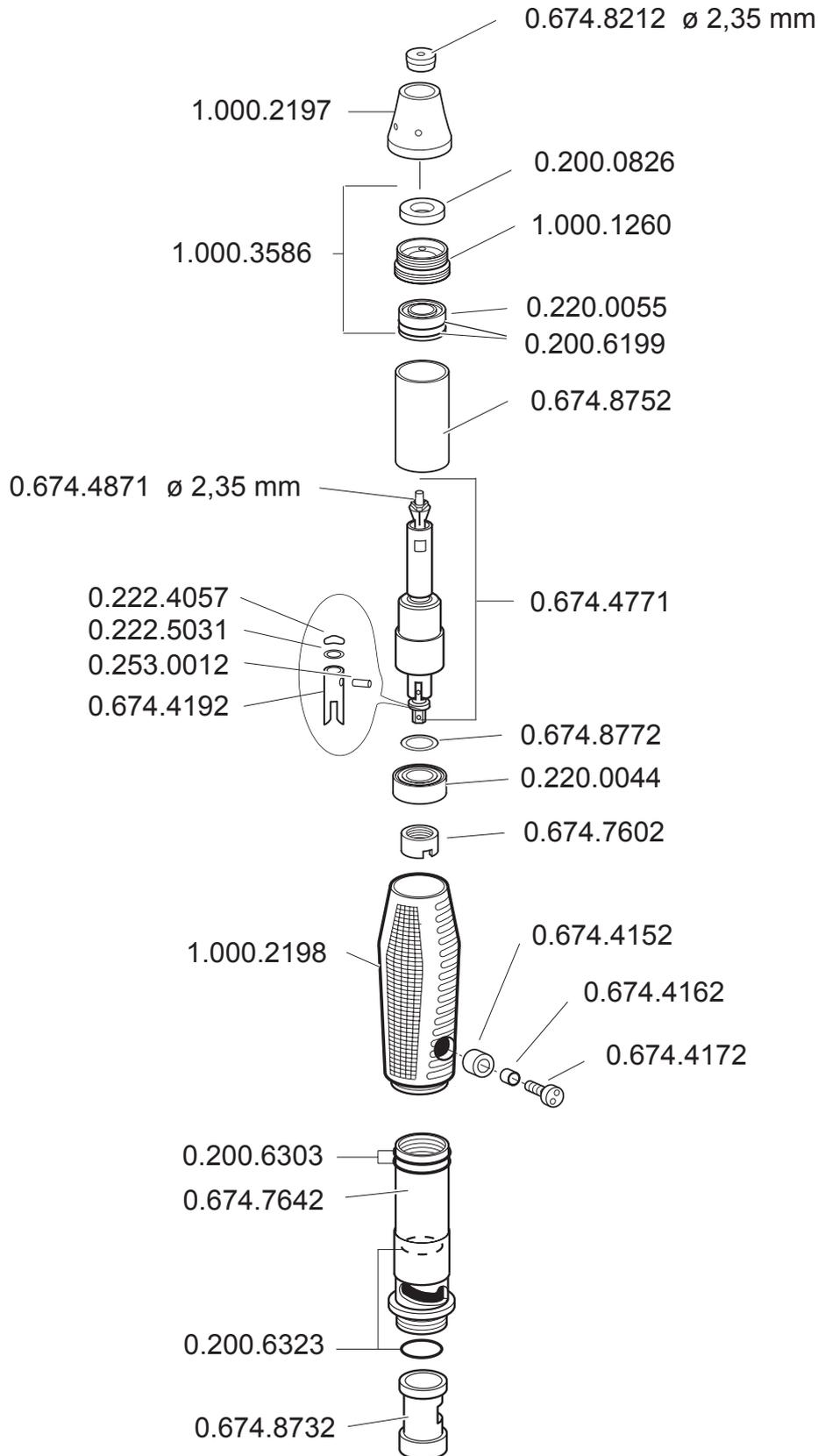
B



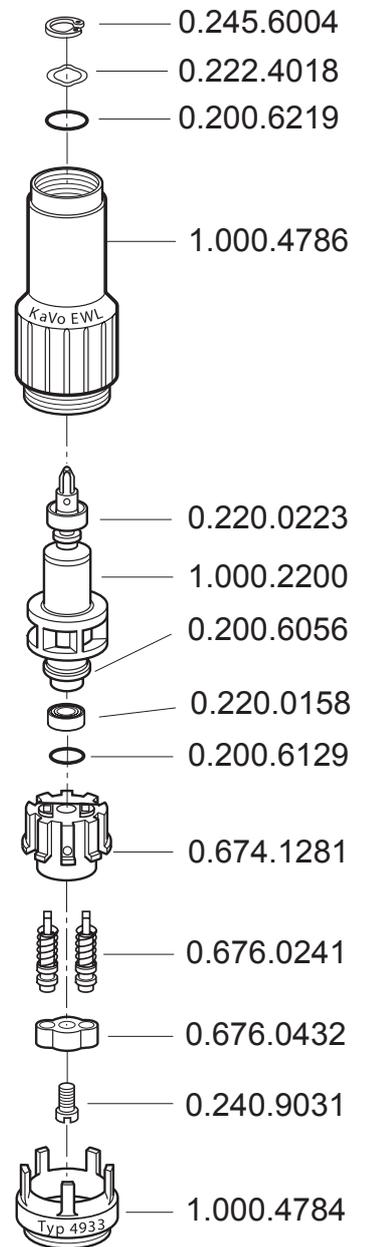
C



A



B



Konformitätserklärung; Déclaration de conformité; CE-Dichiarazione di conformità; Declaração de conformidade; EU-Konformitätserklärung; EU-Konformitätserklärung;	Declaration of conformity; Declaración de conformidad; EU-conformiteitsverklaring EU-konformitetsförklaring EY Vaatimustenmukaisuusvakuutus	KE 4
<p>Wu, Wu, Nove, Novatos, Nu, Wj, Nös, Vi, Vi, Me, Ye. KaVo ELEKTROTECHNISCHES WERK GmbH Wangener Str. 78 D-88299 Leutkirch im Allgäu</p>		
<p>erklären, dass das Produkt; déclare that the product déclarons que le produit declaramos que el producto dichiariamo che il nostro prodotto; verklaren dat het product declaramos que o produto förklara om produktens erklærer, at produktet ilmoittaa, että tuote erklærer, at produktet</p>	<p>Tischsteuergerät K9 Typ 4953 mit Motorhandstück Typ 4933 K9 table top controller type 4953 with motor handpiece type 4933 Boîtier de commande sur table K9 pièce à main 4933 Aparatos de mando-K9 sobremesa 4953 con pieza de mano de motor tipo 4933 K9 Alimentatore da tavolo 4953 con maniglia K9 4933 K9 styrkäst typ 4953 i kombi med K9 handstykke type 4933 Comando de mesa K4 4953 com Peça de mão motorizada tipo 4933 K9 styreenhet typ 4953 i förbindelse med K9 handstycke EWL 4933 K9 enhet type 4953 sammen med K9 Håndstykke type 4933 K9-ohjainlaitteen tyyppi 4953 yhdessä K9-käsitökalusta tyyppi 4933 K9 styreenhet type 4953 i förbindelse med K9 motargrep type 4933</p>	
<p>auf das sich diese Erklärung bezieht, mit den wesentlichen Schutzanforderungen gemäß den Bestimmungen der Richtlinie (Übereinstimmung); to which this declaration refers conforms to the essential safety requirements according to the provisions of Directive (); auquel se réfère cette déclaration, en conformité aux exigences essentielles de protection conformément aux dispositions de la (des) Directive(s); al lo cual se refiere esta declaración, coincide con las esenciales exigencias de protección según las determinaciones de la (s) norma(s); a cui si fa riferimento in questa dichiarazione, è conforme alle misure di sicurezza secondo la direttiva delle norme; waartop deze verklaring betrekking heeft, overeenstemt met de meest essentiële veiligheidsvoorschriften volgens de bepalingen van de richtlijn(en) voluut; no qual se refere esta Declaração, coincide com as exigências fundamentais de segurança segundo as determinações das (normas); som denna förklaring hänför sig till överensstämmer med de väsentliga skyddskraven enligt bestämmelserna i direktivet; som denne erklæring omhandler, opfylder de væsentlige beskyttelseskrav i bestemmelserne i de følgende direktiver; johon tämä ilmoitus viittaa, on direktiivin määräysten tärkeimpien turvallisuustavoitteiden mukainen; som denne erklæringen gjelder, er i overensstemmelse med de væsentlige vernekravene i følge bestemmelserne i ordningsuttsett</p>		
<p>89/336EWG (EMV-Richtlinie) 73/23EWG (Niederspannungsrichtlinie)</p>	<p>(EMV-Richtlinie) (Niederspannungsrichtlinie)</p>	
<p>Zur Beurteilung des Erzeugnisses wurden folgende Normen oder normative Dokumente angewandt: The following standards or normative documents were used for assessing the product: Les normes ou autres documents normatifs suivants ont été utilisés pour le jugement de ce produit. Para la evaluación del producto se aplicaron las siguientes normas o documentos normativos: Per la valutazione del prodotto sono state applicate le seguenti normative o altri documenti normativi: Ter beoordeling van dit product is gebruik gemaakt van de volgende normen of normatieve documenten: Para a avaliação do produto foram aplicadas as seguintes normas ou documentos normativos: For bedømming av produktet har følgende normer eller normative dokumenter tilleggs: De følgende Normer eller normative dokumenter blev anvendt ved bedømmelsen af produktet: Tuoteen arvioinnissa käytettiin seuraavia standardeja ja standardeista määrättyjä osittaisia Følgende standarder eller andre normative dokumenter er benyttet i vurderingen av dette produktet</p>		
<p>EN 61010 EN 61326-1</p>	<p>Sikkerhetsbestemmelser for Laborgeräte EMV-Anforderungen für Laborgeräte</p>	
<p>Leutkirch, 25.10.2002</p>	 M. Mohr -Managing Director-	

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KaVo. Dental Excellence.

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