

# Operating Instructions

## K5 4910. K5plus 4911.



Always on the safe side.



KaVo. Dental Excellence.

**KaVo Dental GmbH**

Bismarckring 39

D-88400 Biberach

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**Hersteller/manufacturer:**

**Kaltenbach & Voigt GmbH**

Bismarckring 39

D-88400 Biberach




# K5 4910. K5plus 4911.


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# K5 4910. K5plus 4911.


## 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.

 *Please note that the EC Directive on waste electrical and electronic equipment applies to this product. Within Europe therefore, this product must undergo special disposal. For more detailed information about this, please contact KaVo or your specialist dental supplier.*

# K5 4910. K5plus 4911.

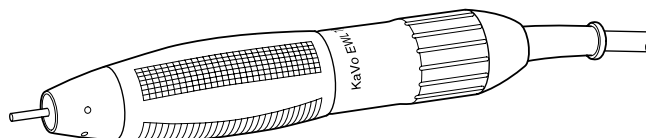
## A 1.4 Purpose and applications

K5 handpieces 4910 / 4911 are versatile and very particularly suitable for working on crowns, bridges, plastic. Suitable for:

Long-term operation at  $5000 - 35,000 \text{ min}^{-1}$   
Brief operation at  $1000 - 5000 \text{ min}^{-1}$

## A 1.5 Technical data

Length:	149 mm
Handpiece part:	max. $\varnothing$ 28 mm
Motor part:	max. $\varnothing$ 26 mm
Weight:	approx. 216 g
with connecting cable	approx. 319 g
Output power	max. 85 watt max. 4,5 Ncm
Voltage	max. 30V AC
Speed range	$1000 - 35,000 \text{ min}^{-1}$



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

Intermittent operation 2 min / 8 min

### Ambient conditions:

Permitted in interior rooms

Permissible ambient temperature range of  $5^{\circ} \text{C} - 40^{\circ} \text{C}$

Permitted to max. relative humidity 80%

**i** These instructions 1.000.4576 are also applicable to the K1 Japan.

We reserve the right to make technical modifications.

# K5 4910. K5plus 4911.

## A 2 Scope of delivery - Accessory

### Scope of delivery

K5 handpiece	4910
K5plus handpiece	4911
with chuck	Ø 2.35 mm
Care set	Mat. No. 0.411.3180
Instructions for use	1.000.4576

### Accessory

Available on request:

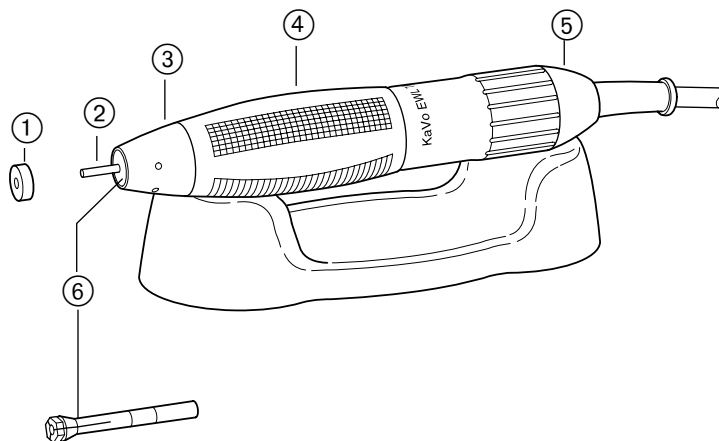
Handpiece support 4850 0.642.0352

Tool for changing the ball bearings

**D** Key 0.411.3962

**E** Assembly pin 0.411.4282

**F** Socket wrench 0.411.0211



## A 3 Description

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

② Straight pin

③ Grip tip

④ K5 handpiece part

⑤ K5 motor part

⑥ Chuck

**A** Chuck key

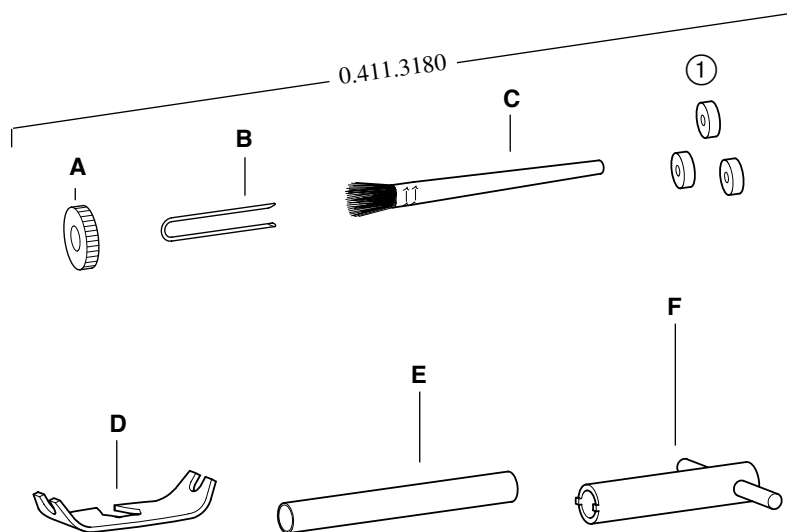
**B** Clip

**C** Cleaning brush

**D** Key

**E** Assembly pin

**F** Socket wrench



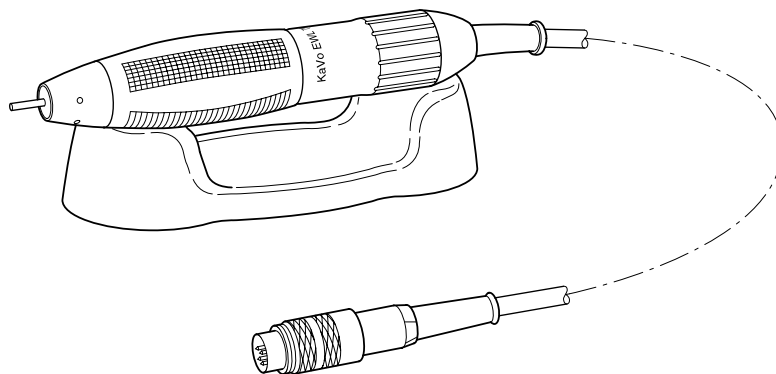
## A 4 Commissioning

The K5 handpiece 4910/4911 can be operated with the following controllers:

K-control	table	4965
K-control	knee	4965
K-control	foot	4965

Place K5 handpiece in handpiece support on workstation.

Insert plug into appropriate socket of the suitable controller and screw down.



# K5 4910. K5plus 4911.

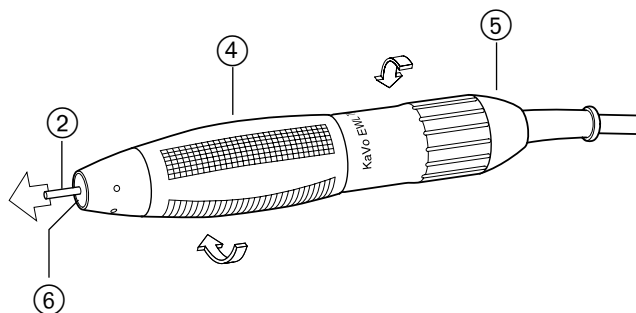
## A 5 Operation

### A 5.1 Inserting / changing the tool

**!** During commissioning and each time when operating the handpieces, it is essential to observe the points mentioned in the section «**A 1.3 Precautions**»!

#### Opening the chuck

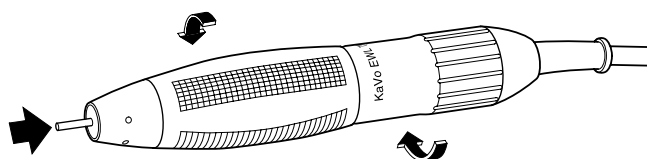
Turn handpiece part ④ and motor part ⑤ in the direction of the arrow until the chuck ⑥ is completely open.



#### 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

**i** 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 handpiece into operation according to the instructions for use of the up-circuit controller.

# K5 4910. K5plus 4911.

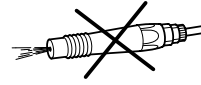
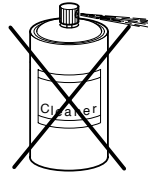
## A 6 Maintenance



■ 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 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

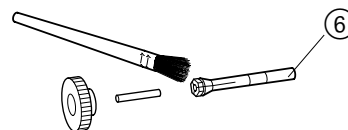
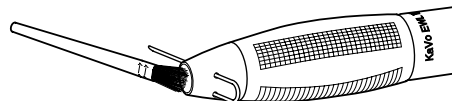
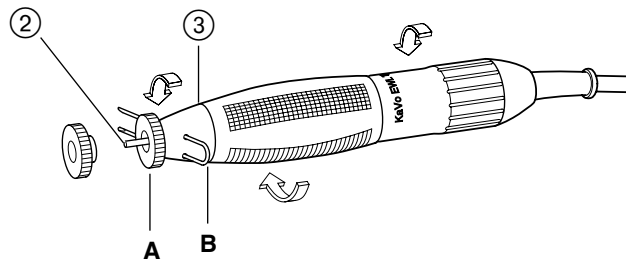
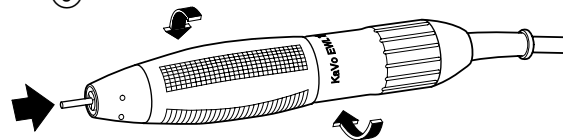
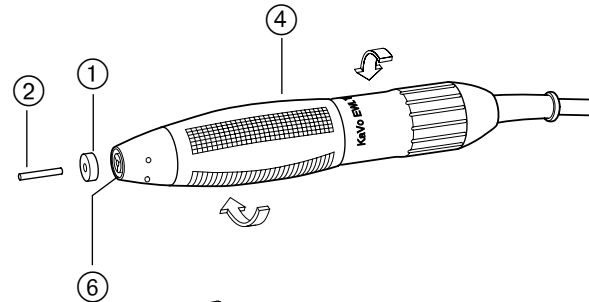
Remove previously used tool or straight pin from the chuck and take off cover ① (3 covers as spare parts in the care set).

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

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

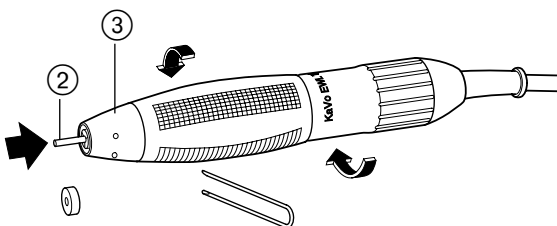


#### Installing the chuck

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.





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## 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.

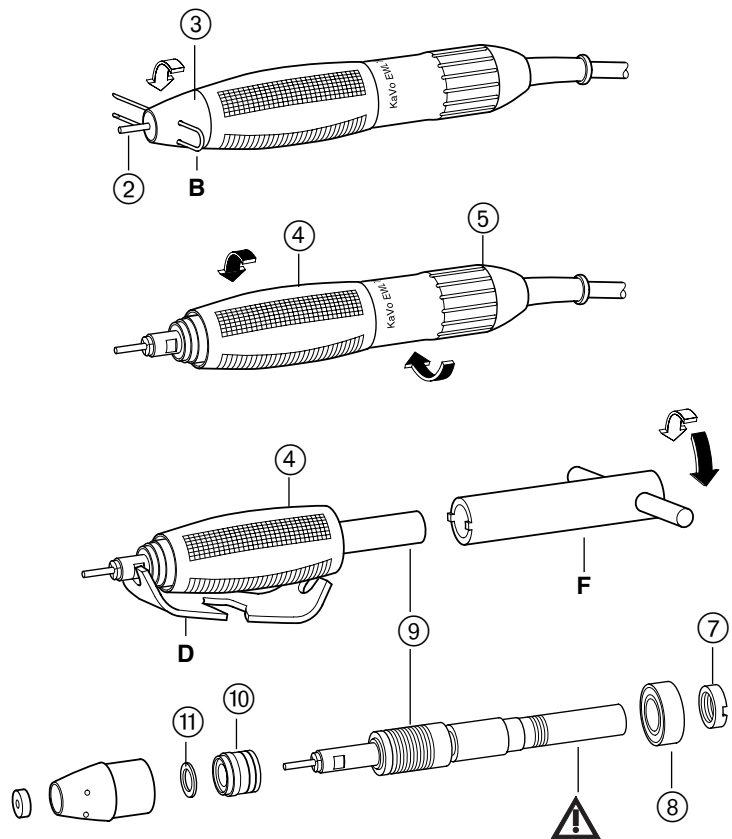
Unscrew handpiece part ④ from motor part ⑤.

Loosen threaded ring ⑦ with socket wrench **F** - note left-handed thread (hold rotor shaft ⑨ on the key surface with special key **D**). Remove complete rotor shaft forwards from handpiece part ④.



*The rotor shaft ⑨ is magnetic.*

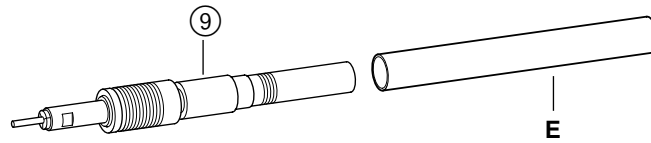
Remove felt washer ⑪ and ball bearing ⑩ from rotor shaft ⑨. Remove ball bearing ⑧ from handpiece part ④.



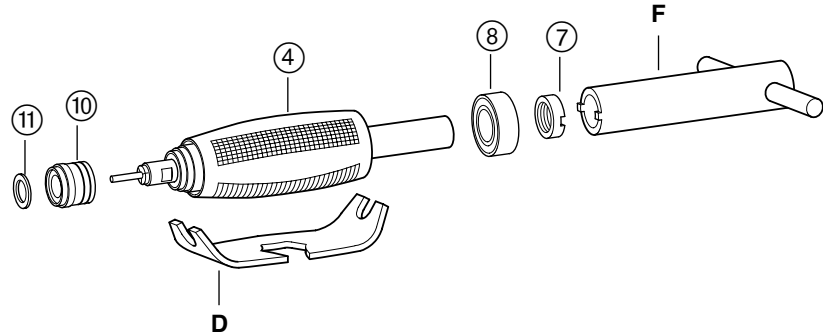
# K5 4910. K5plus 4911.

## Assembly

Screw assembly pin **E** (installation aid) onto rotor shaft **9** (left-handed thread) and introduce rotor shaft into handpiece part **4** from the front.

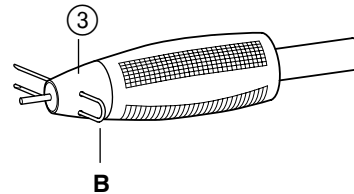


Push new ball bearing **10** (with O-ring side facing inwards) into the housing on the rotor axle.

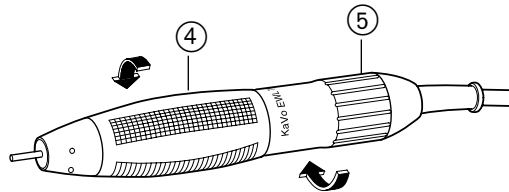


Unscrew assembly pin **E** (left-handed thread) and push new ball bearing **8** over magnetic side of rotor onto rotor shaft **9**. Hold rotor shaft with special key **D** and tighten threaded ring **7** with socket wrench **F** again (note left-handed thread).

Insert felt washer **11** over spring washer and screw on grip tip **3**. Completely tighten grip tip by means of clip **B**.



Screw handpiece part **4** to motor part **5** again.

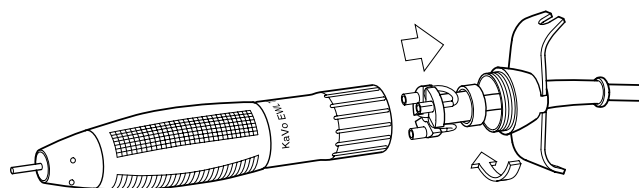


**!** To increase the life of the ball bearing, KaVo recommends:

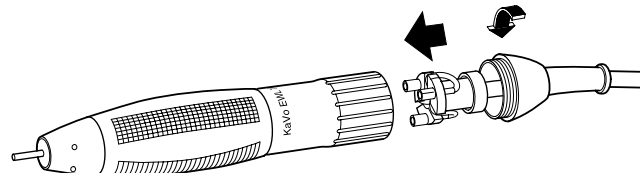
■ After changing the ball bearing, allow the handpiece to run without an inserted instrument for about 60 minutes at 10,000 to 15,000 rpm.

## 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 (3-pin) completely into motor part and screw back locking cap.



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## 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** • K5 handpiece no longer rotates or stops from time to time.

**C** • K5 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 (see **A 6.3**).

**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 K5 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.

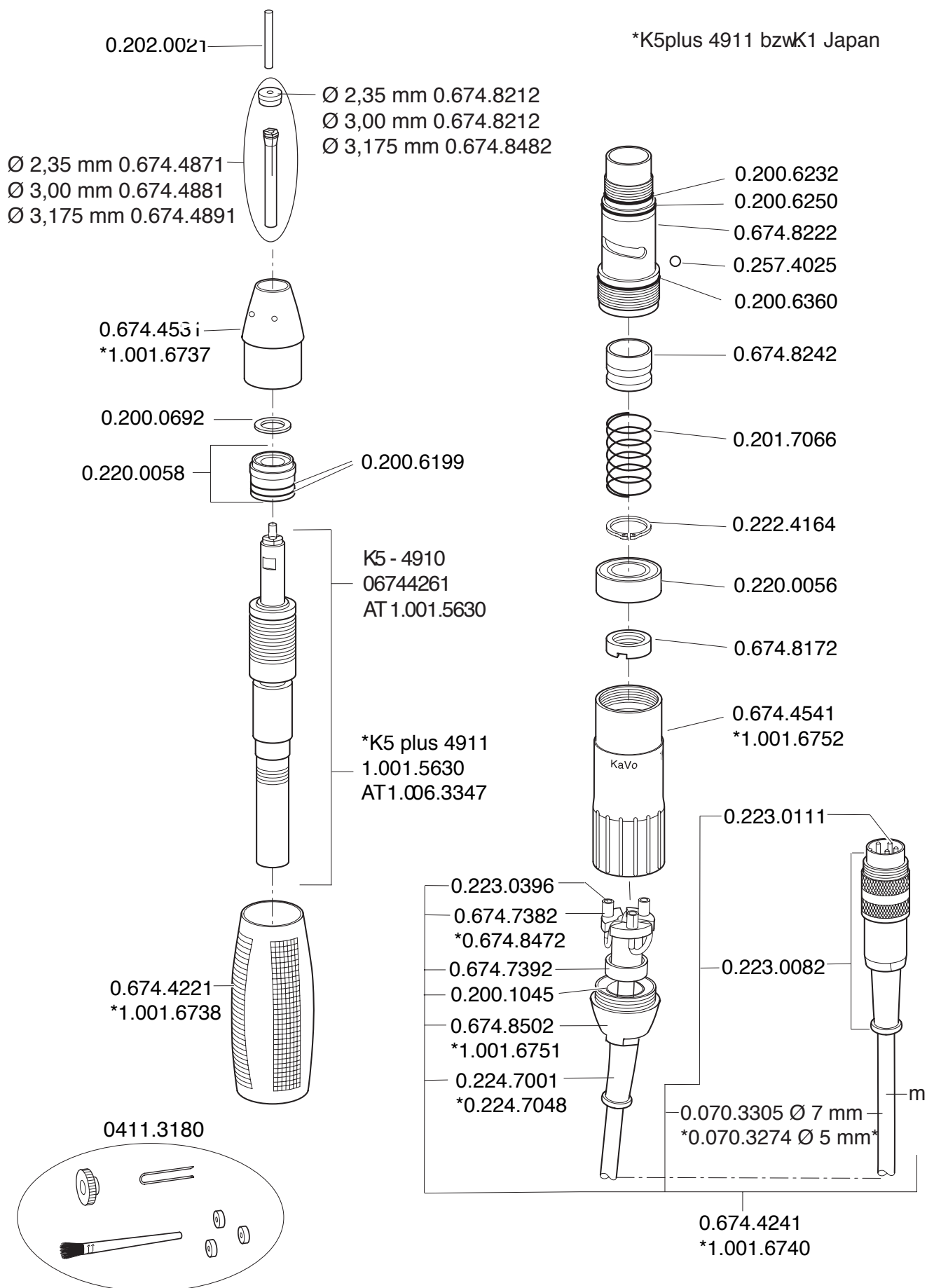
**R** • Eliminate cause of high load, if necessary increase speed or use tools with smaller diameter.

**C** • Electronics of controller faulty.

**R** • Check controller or have repaired.

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

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# K5 4910. K5plus 4911.

## **Guarantee conditions**

Within the framework of applicable KaVo delivery and payment conditions, KaVo guarantees proper function, freedom from flaws in material and manufacturing for a period of 12 months from the date of purchase demonstrated by the purchaser. In case of justified complaints, KaVo will honor its warranty with a free replacement or repair.

The warranty does not cover defects and their consequences that arose or may have arisen due to natural wear, improper handling, cleaning or maintenance, noncompliance with operating, maintenance or connection instructions, corrosion, contaminated media supply or chemical or electrical influences deemed abnormal or impermissible in accordance with factory specifications.

The warranty does not usually cover lamps, light conductors made of glass and glass fibers, glassware, rubber parts and the colourfastness of plastic parts.

The warranty expires when defects or their consequences can arise from manipulations or changes to the product. Warranty claims can only be asserted when they are immediately reported to KaVo in writing.

This notification must be accompanied by a copy of the invoice or delivery note on which the manufacturing number is clearly visible. In addition to the guaranty, the statutory warranty claims of the purchaser also apply with a warranty period of 12 months.

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EG-Konformitätserklärung  
EC-Declaration of conformity  
CE-Déclaration de conformité  
Dichiarazione di conformità con le norme CE  
Prohlášení o shodě s normami ES  
Declaración de Conformidad de la CE

## Manufacturer:

**Kaltenbach & Voigt GmbH  
Bismarckring 39  
D-88400 Biberach**

## **Controller K-Control Type 4960/4965/4970**

in connection with handpiece

**K-ERGOgrip 4944 / POWERgrip 4941 / K5plus 4911 /  
K9 - 950 / K9 - 955 / K9 - 960 / K9 - 970 / K9 - 4930 / SF 4005  
K5 - 4910 / K10 - 4950 / K11 - 4990 / K12 - 4940**

2006/95/EC  
2004/108/EC  
EN 61010-1

EN 61326-1

**EC Low Voltage Directive  
EMC Directive  
Safety requirements for electrical equipment  
for measurement, control and laboratory use.  
General requirements  
Electrical equipment for measurement, control  
and laboratory use – EMC requirements –  
Part 1: General requirements**

D

Wir erklären, dass die von uns hergestellten Produkte auf die sich diese Erklärung bezieht, mit den grundlegenden Anforderungen gemäß den Bestimmungen der obigen Richtlinie übereinstimmen. Zur Beurteilung des Erzeugnisses wurden die benannten Normen oder normative Dokumente angewandt.

GB

We declare that the products manufactured by us to which this statement refers, conform to the essential requirements according to the above-mentioned directive. The specified standards or normative documents were applied to evaluate the product.

FR

Nous déclarons que les produits que nous fabriquons, auxquels se réfère cette déclaration, sont conformes aux exigences essentielles selon les dispositions de la directive susmentionnée. Les normes ou autres documents normatifs désignés sont utilisés pour le jugement de ce produit.

IT

Dichiariamo che i prodotti da noi fabbricati, a cui si riferisce la presente dichiarazione, sono conformi ai requisiti fondamentali ai sensi delle disposizioni della direttiva summenzionata. Per la valutazione del prodotto sono stati applicati le norme o i documenti normativi citati.

CZ

Prohlašujeme, že se námi vyráběné výrobky, na které se vztahuje toto prohlášení, shodují se základními požadavky podle předpisů výše uvedené směrnice. K posouzení výrobku byly použity uvedené normy nebo normativy.

ES

Por la presente declaramos que los productos que nosotros fabricamos, y a los que hace referencia esta declaración, cumplen los requisitos básicos de conformidad con las disposiciones de la directiva arriba mencionada. Las normas o documentos normativos mencionados se aplican en la evaluación de dichos productos.

Biberach  
effective date 01.10.2008



*Bernd Rakow*

Bernd Rakow  
Quality Director

K5 4910. K5plus 4911.



**KaVo. Dental Excellence.**

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