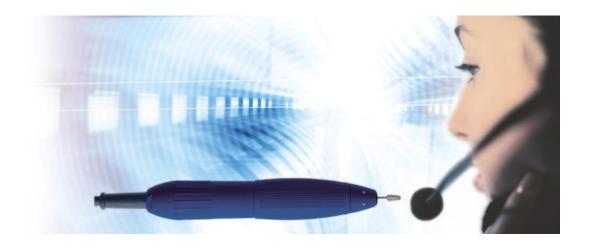
Instructions for use K5plus 4911



Always be on the safe side.





KaVo Dental GmbH Bismarckring 39 D-88400 Biberach Tel. +49 7351 56-0 Fax +49 7351 56-1488 Manufacturer: Kaltenbach & Voigt GmbH Bismarckring 39 D-88400 Biberach www.kavo.com



Contents

Contents

	Contents	1
1	User instructions	2
1.1	Service	2
1.2	User guide	2
1.2.1	Abbreviations	2
1.2.2	Symbols	2
1.2.3	Target group	2
1.3	Warranty terms and conditions	3
1.4	Transportation and storage	3
1.4.1	Currently valid packaging ordinance	3
1.4.2	Damage in transit	3
1.4.3	Information on the packaging: Storage and transportation	4
2	Safety	6
2.1	Description of safety instructions	6
2.1.1	Warning symbol	6
2.1.2	Structure	6
2.1.3	Description of danger levels	6
2.2	Purpose – Proper use	6
2.2.1	General information	6
2.2.2	Product-specific	7
2.2.3	Disposal of electronic and electrical devices	7
2.3	Safety instructions	8
2.3.1	General information	8
2.3.2	Product-specific	10
3	Product description	11
3.1	Handpiece K5 plus 4911	11
3.2	Scope of delivery	11
3.3	Technical data	12
4	First use	14
5	Operation	15
5.1	Using/Changing the tool	15
5.2	Operation	15
6	Service and Care	17
6.1	Cleaning	17
6.1.1	Weekly cleaning of chuck and handpiece section	17
6.2	Servicing	19
6.2.1	Replacing ball bearings	19
6.2.2	Replacing the cable	22
7	Troubleshooting	23
8	Accessories	24
9	Statement of conformance	25
10	Replacement parts	26

1 User instructions

1.1 Service



Service hotline: +49 7351 56-1600 Service.Zahntechnik@kavo.com Please indicate the product serial number in all requests. Additional information can be obtained at: www.kavo.com

1.2 User guide

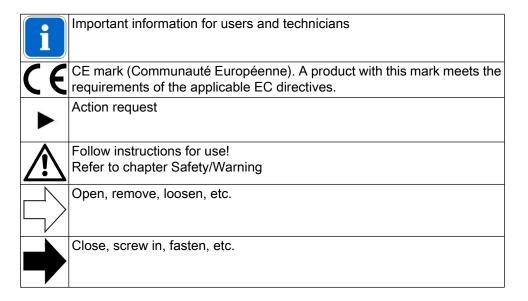
Requirement

Read these instructions prior to first use to prevent misuse and damage.

1.2.1 Abbreviations

Short	Explanation
form	
GA	Instructions for use
PA	Care instructions
MA	Assembly instructions
TA	Technician's instructions
STK	Safety check
IEC	International Electrotechnical Commission
RA	Repair instructions
EMC	Electromagnetic compatibility

1.2.2 Symbols



1.2.3 Target group

This document is for dental technicians and laboratory personnel.

1.3 Warranty terms and 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, non-compliance 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 fibres, 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.

1.4 Transportation and storage

1.4.1 Currently valid packaging ordinance



Note

Only valid for the Federal Republic of Germany.

Properly dispose of and recycle the sales packaging according the applicable packaging ordinance through waste management businesses or recycling companies within a comprehensive return system. KaVo has licensed its sales packaging in accordance with this directive. Please follow the regional public waste disposal system.

1.4.2 Damage in transit

In Germany

If the packaging is visibly damaged on delivery, please proceed as follows:

- The recipient of the package must record the loss or damage on the delivery receipt. The recipient and the representative of the shipping company must sign this delivery receipt.
- 2. Leave the product and packaging in the condition in which you received it.
- 3. Do not use the product.
- 4. Report the damage to the shipping company.
- 5. Report the damage to KaVo.
- 6. You must contact KaVo before returning a damaged product.
- 7. Send the signed delivery receipt to KaVo.

1 User instructions | 1.4 Transportation and storage

If the product is damaged but there was no discernable damage to the packaging upon delivery, proceed as follows:

- 1. Report the damage to the shipping company immediately and no later than 7 days after delivery.
- 2. Report the damage to KaVo.
- 3. Leave the product and packaging in the condition in which you received it.
- 4. Do not use a damaged product.



Note

Failure on the part of the recipient to comply with one of the above obligations will mean that the damage will be considered to have arisen following delivery (in accordance with ADSp. Art. 28).

Outside of Germany



Note

KaVo is not liable for damage arising from transportation. Immediately inspect the delivery after receipt!

If the packaging is visibly damaged on delivery, please proceed as follows:

- 1. The recipient of the package must record the loss or damage on the delivery receipt. The recipient and the representative of the shipping company must sign this delivery receipt.
 - Without this evidence, the recipient will not be able to assert a claim for damages against the shipping company.
- 2. Leave the product and packaging in the condition in which you received it.
- 3. Do not use the product.

If the product is damaged but there was no discernable damage to the packaging upon delivery, proceed as follows:

- 1. Report the damage immediately or at least 7 days after the delivery to the delivery company.
- 2. Leave the product and packaging in the condition in which you received it.
- 3. Do not use a damaged product.



Note

Failure on the part of the recipient to comply with one of the above obligations will mean that the damage will be considered to have arisen following delivery (in accordance with CMR law, Chapter 5, Art. 30).

1.4.3 Information on the packaging: Storage and transportation



Note

Please keep the packaging should you need to return the product for servicing or repair.

The symbols printed on the outside are for transportation and storage, and have the following meaning:

1 User instructions | 1.4 Transportation and storage

<u> </u>	Transport upright with the arrows pointing upwards
Y	Fragile - protect against impact
	Protect from moisture.
kg max	Permissible stacking load
, C C	Temperature range
	Humidity
hPa hPa	Air pressure

2 Safety | 2.1 Description of safety instructions

2 Safety

2.1 Description of safety instructions

2.1.1 Warning symbol



Warning symbol

2.1.2 Structure



A DANGER

The introduction describes the type and source of the danger.

This section describes the possible consequences of misuse.

▶ The optional step contains necessary measures for avoiding hazards.

2.1.3 Description of danger levels

Safety instructions with three hazard levels are used in this document for avoiding personal and property damage.



A CAUTION

CAUTION

indicates a hazardous situation that can lead to property damage or minor to moderate injury.



MARNING

WARNING

indicates a hazardous situation that can lead to serious injury or death.



A DANGER

DANGER

indicates a maximum hazardous situation that can directly cause serious injury or death.

2.2 Purpose – Proper use

2.2.1 General information



Note

Only competent and trained personnel may use the product!

2 Safety | 2.2 Purpose - Proper use

This KaVo product has been designed solely for dental technology, industrial and trade applications. The product may not be used for a purpose for which it was not intended.

"Proper use" includes following all the instructions for use and ensuring that all inspections and service tasks are performed.

This product has only been approved for use indoors.

The overarching guidelines and/or national laws, national regulations and the rules of technology applicable to the startup and use of the KaVo product for the intended purpose are to be applied and complied with.

During use, national legal regulations must be observed, in particular:

- the applicable health and safety regulations.
- the applicable accident prevention regulations.

2.2.2 Product-specific

The K5 plus handpiece 4911 is for working on crowns, bridges, and plastic and cast model prostheses.

2.2.3 Disposal of electronic and electrical devices



Note

According to EC directive 2002/96 concerning used electrical and electronic devices, this product is subject to the cited directive and must be disposed of accordingly within Europe.

Before disassembling / disposing of the product, it must be completely processed (disinfected, sterilized) according to the section "Preparation methods" Additional information can be obtained from KaVo (www.kavo.com) or your dental supplier.

For final disposal, contact:

Germany

To return an electrical device, proceed as follows:

- At the homepage www.enretec.de of enretec GmbH, you can download a form for a disposal request under the menu item eom, or you can use it as an online request.
- 2. Fill out the request with the corresponding information, and send it as an online request or by fax (+49(0)3304 3919 590) to enretec GmbH.

The following avenues are also available for questions and for initiating a disposal request:

Telephone: +49 (0) 3304 3919 500

E-Mail: pickup@eomRECYCLING.com and

Post: enretec GmbH, eomRECYCLING Department

Kanalstraße 17 16727 Velten

3. Your**permanently installed**device will be picked up in your practice, and your**movable**unit will be picked up at the curb at your address on the agreed deadline

The owner or user of the device will bear the costs for disassembly, transportation and packaging.

International (EU)

For country-specific information on disposal, contact your dental supplier.

2.3 Safety instructions

2.3.1 General information



Note

Only competent and trained personnel may use the product!

The user must ensure that that the unit works properly and is in a satisfactory condition before each use.

Users have a duty to:

- Only use equipment that is operating correctly
- to protect himself, the patient and third parties from danger.
- to avoid contamination from the product.

Authorized to repair and service the KaVo product:

- Technicians from KaVo branches with appropriate product training.
- the technicians of the KaVo franchised dealers specifically trained by KaVo.

KaVo cannot accept responsibility for damage caused by:

- External factors beyond its control, poor media quality or defective installation
- The use of incorrect information
- Repair work carried out incorrectly

2 Safety | 2.3 Safety instructions



Note

Any waste generated must be recycled or disposed of in a manner safe for humans and the environment, and the applicable national regulations complied with. Questions on proper disposal of the KaVo product can be answered by the KaVo branch.



⚠ CAUTION

Improper product maintenance or repair.

Damage to product

- ► Repair and servicing work on the electronic part of the unit may be done only by skilled staff or by technicians trained by KaVo.
- Only use original KaVo spare parts.



MARNING

Injury or damage from damaged functional parts.

When functional parts are damaged, it can cause additional damage or personal injury.

- ► When functional parts are damaged, stop working and eliminate the damage or contact a service technician.
- ▶ Check the electrode lines and accessories for damage to the insulation.



⚠ CAUTION

Damage due to liquids

Problems with electric components.

- Protect product openings from penetration of liquids.
- ▶ Remove liquids from the inside of the device.



⚠ CAUTION

Premature wear and malfunctions from improper servicing and care. Reduced production time.

▶ Perform regular proper care and maintenance.



⚠ CAUTION

Injury or damage caused by unsuitable drills or grinders.

Drill or grinder falling out of chuck.

- ▶ Only use drills or grinders meeting the requirements of BS EN ISO 1797-1!
- ► Never use drills or grinders with worn shafts!
- ► Follow the instructions for use supplied by the drill or grinder manufacturer!



⚠ CAUTION

Injury or damage due to wear.

Irregular running noise, significant vibration, overheating, imbalance or insufficient grip.

► Stop work and seek service support.

2.3.2 Product-specific



⚠ CAUTION

Risk due to incorrectly stored handpiece.

Injury caused by chucked drill or grinder.

Damage to clamping system caused by handpiece falling down.

► Store the handpiece properly in a tray or tool carrier.



⚠ CAUTION

Risk of injury due to rotating tools.

Eye injury.

- ► Wear safety glasses.
- ▶ Use protective shield.



⚠ CAUTION

Unsuitable speed

Damage to product

Problems processing selected material

► Check the speed setting each time you turn on the unit!



⚠ CAUTION

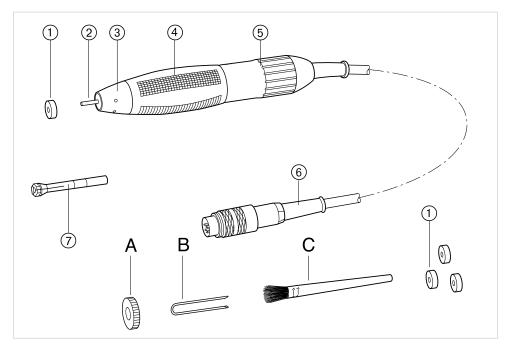
Hazard from dust and chips.

Damage to health from inhalation or injury.

- ► Use protective shield.
- ► Use vacuum.

3 Product description

3.1 Handpiece K5 plus 4911



Handpiece K5 plus 4911

- A Chuck key
- **B** Clamp
- C Cleaning brush

- ① Cover
- ② Straight pin
- ③ Grip tip
- ④ Handpiece part
- ⑤ Motor part
- 6 Cable
- ① Chuck

3.2 Scope of delivery

Figure	Designation	Material number
	K5 plus handpiece 4911	Mat. no. 1.001.6733
	Chuck 2.35 mm	Mat. no. 0.674.4871
	Care set	Mat. no. 0.411.3180
	Instructions for use	

3.3 Technical data

Speed

Area	1,000 – 35,000 rpm
Alta	1,000 – 33,000 ipili

Dimensions

Length	149 mm
Diameter of handpiece	28 mm
Diameter of motor part	26 mm

Weight

Handpiece	216 g
Cable	100 g

Voltage and power

Output	85 W	
Torque	4.5 Ncm	

Environmental conditions

Permissible ambient temperature range	+5° to +40°C
Permissible to maximum relative humidity	80%

Exposure mode

Operating time	2 minutes/ON
Pause time	8 minutes/OFF

Requirements, classification

Degree of soiling	2
Overvoltage category	II

3 Product description | 3.3 Technical data

Transportation and storage conditions



Temperature range: -20°C to +70°C



Relative humidity: 5% to 95% (non-condensing)



Air pressure: 700 hPa to 1060 hPa



Note

Prior to start-up, very cold products must be heated to a temperature of Heat to 20°C to 25°C. Avoid condensation.

4 First use

4 First use

Requirement

The handpiece must only be operated and stored with the tool or test probe chucked.



Note

Opening the chuck will lock the handpiece; in the event of unintentional operation, the control will switch to error mode.

The combination of the control unit and handpiece must be approved by KaVo.



Note

When it is new, you can hear a soft, irregular clicking or buzzing at high speeds of the micromotor. This bearing noise is completely normal, and disappears as soon as the lubricant is evenly distributed.

The handpiece can be used on the

- K-Control
 - Knee control 4960
 - Table-top control 4965
 - Foot control 4970
- K-Control, TLC
 - Knee control 4955
 - Foot control 4956
 - Table-top control 4957

5 Operation

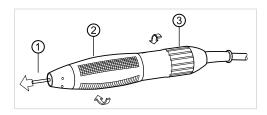


Note

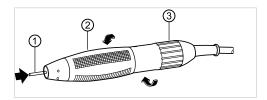
Note the safety instructions before each use.

5.1 Using/Changing the tool

- ► Grip the handpiece part ②, and turn it and the motor ③ in opposite directions as indicated by the arrows until the chuck opens completely.
- ► Take the tool or test probe ① out of the chuck.



- ▶ Insert a new tool or test probe ① into the chuck as far as it will go.
- ► Grip the handpiece part ②, and turn the motor ③ in the direction indicated by the arrow until the chuck closes completely.





Note

Once you have inserted the tool (insert the tool as far as it will go, tool shaft length: minimum 16 mm) you need to check the functionality of the chuck. KaVo recommends a grip test at 50 N.



Note

Only use tools that work properly. Follow the instructions of the tool manufacturer.

5.2 Operation



Note

Unsuitable lighting in the workplace can give rise to what is known as the stroboscope effect.

This simulates tool standstill at certain speeds.

The problem can be solved by providing suitable lighting.

Prior to every use, check the required speed on the control unit and modify it if necessary. 5 Operation | 5.2 Operation

► Operate the handpiece as specified in the instructions for use of the upstream control unit.

6 Service and Care

KaVo recommends that only **original KaVo parts®** be used for operating and repairs since their safety, operation and specific suitability have been tested in extensive tests.

⚠ WARNING



Repair and servicing the electrical part of the unit.

Electrical shock.

- ► Only a qualified professional or trained individual may repair or service the electrical part of the device.
- ► Follow safety instructions.
- ▶ Pull the power plug or completely disconnect the device from the power connection to de-energize the device.

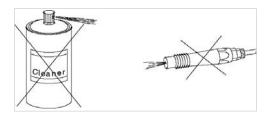


⚠ CAUTION

Ingress of dust or liquids into the handpiece.

Damage to ball bearings and O-rings.

► Never use compressed air or cleaning agents (such as spray cleaners, degreasers, etc.)!

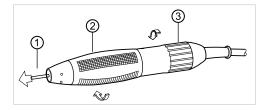


6.1 Cleaning

6.1.1 Weekly cleaning of chuck and handpiece section

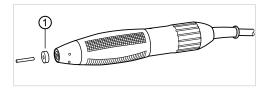
Removing the chuck

- ► Grip the handpiece part ②, and turn it and the motor ③ in opposite directions as indicated by the arrows until the chuck opens completely.
- ► Take the tool or test probe ① out of the chuck.

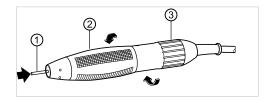


6 Service and Care | 6.1 Cleaning

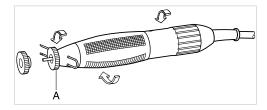
▶ Remove the chuck ①.



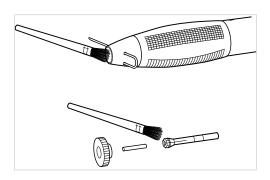
- ▶ Insert a new tool or test probe ① into the chuck as far as it will go.
- ► Grip the handpiece part ②, and turn the motor part ③ in the direction indicated by the arrow until the chuck closes completely.



- ► Slowly turn the shaft in the pin ① until the clamp **B** can be inserted with a slight amount of resistance into the grip tip ②.
- Open the chuck. Shove out the chuck with the original chuck key A while the pin or tool is inserted.

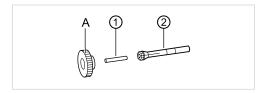


- ► Clean the front opening of the handpiece with a brushMat. no. 0.411.3180.
- Clean the chuck thread and surface as well as the rotor cone, and apply a slight amount of lubricant.

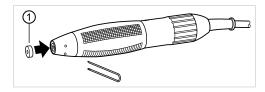


Fitting the chuck

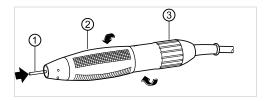
▶ Insert the chuck ② and pin ③ with the original chuck key **A**, and tighten.



- ► Reattach the cover ①.
- ▶ If worn, replace the cover (three units in the care set).
- ► Remove the clamp **B** from the grip tip.



- ► Insert a new tool or test probe ① into the chuck as far as it will go.
- ► Grip the handpiece part ②, and turn the motor part ③ in the direction indicated by the arrow until the chuck closes completely.

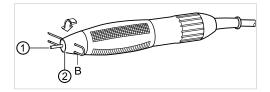


6.2 Servicing

6.2.1 Replacing ball bearings

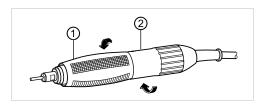
Disassembly

- ► Slowly turn the shaft in the pin ① until the clamp **B** can be inserted with a slight amount of resistance into the grip tip ②.
- ► Loosen the grip tip in the direction of the arrow, and remove the clamp **B** and grip tip.

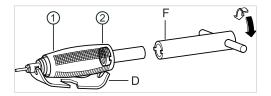


6 Service and Care | 6.2 Servicing

► Remove the handpiece part ①from the motor part ②.



- ► Loosen the threaded ring ② with the socket wrench **F** (note the left-hand thread) while holding the rotor shaft ⑨ by the key surface ① using the key**D**.
- ▶ Completely remove the rotor shaft out of the front of the handpiece ②.

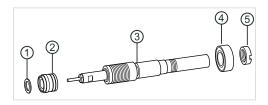




Note

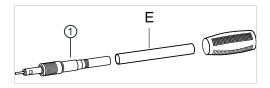
The rotor shaft ① is magnetic.

► Remove the felt washer ① and ball bearing ② from the rotor shaft ③. Remove the ball bearing ④ from the handpiece.

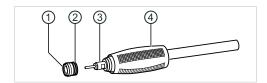


Assembly

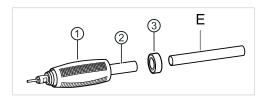
► Screw the installation bolt **E** (installation tool) onto the rotor shaft ① (note the left-hand thread), and insert the rotor shaft ① from the front onto the handpiece.



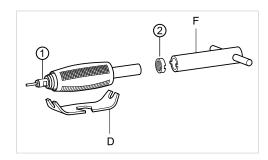
Press the new ball bearing ① (with the O-ring side ② facing in) into the housing
 ④ onto the rotor shaft ③.



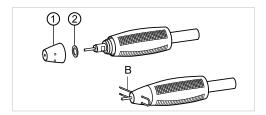
▶ Push out the installation bolt **E** (note the left-hand thread) and ball bearing ③ over the magnetic side of the rotor onto the rotor shaft ②.



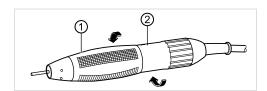
► Hold the rotor shaft ① with the wrench **D**, and screw the threaded ring ② tight with the socket wrench **F** (note: left-hand thread).



- ▶ Insert the felt washer ②, and screw on the grip tip ①.
- ► Screw the grip tip tight with the clamp **B**.



► Screw the handpiece part ① tight with the motor part ②.



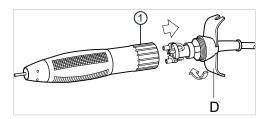


Note

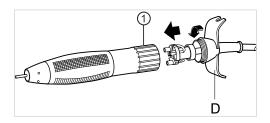
To increase the service life of the ball bearings, KaVo recommends the following: After changing the ball bearing, let the handpiece idle for about 60 minute at 10,000 to 15,000 rpm.

6.2.2 Replacing the cable

▶ Use the wrench (D) to unscrew the cap 2 from the motor part ①, and pull the line in the direction of the arrow.



Completely insert a new 3-pole line into the motor part ①, and screw in the cap
 ② with the wrench D.





Note

Check the functionality of the handpiece.

7 Troubleshooting





Repair and servicing the electrical part of the unit.

Electrical shock.

- ► Only a qualified professional or trained individual may repair or service the electrical part of the device.
- ► Follow safety instructions.
- ► Pull the power plug or completely disconnect the device from the power connection to de-energize the device.

Malfunction	Cause	Remedy
The handpiece cannot rotate or temporarily shuts off.	Handpiece is blocked, clamping system may be open	Close the chuck correctly with the tool in-situ.
	Cable break.	Check the line including the plug-in connections, and ex- change if necessary.
		See also: 6.2.2 Replacing the cable, Page 22
	Electronic fault in control unit.	► Check the controls and have them repaired if necessary.
The tool is not tightly held by the chuck.	Tool shaft and chuck diameters are not the same.	Use a tool/chuck with a suitable diameter.
	The chuck is loose.	► Correctly insert the chuck.
		See also: 6.1.1 Weekly cleaning of chuck and handpiece section, Page 17
	Chuck is worn.	► Replace chuck.
		See also: 6.1.1 Weekly cleaning of chuck and handpiece section, Page 17
The handpiece is noisy or heats up when running.	Ball bearing defective due to wear or soiling.	Check the ball bearing and ex- change if necessary.
		See also: 6.2.1 Replacing ball bearings, Page 19
	Prolonged operation at very high load.	 Rectify cause for high load. You may need to increase the speed. Use a tool with a smaller diameter.
	Electronic fault in control unit.	Check the controls and have them repaired if necessary.

8 Accessories

Presentation	Material summary	Mat. no.
	Handpiece rest	0.642.0352
	Chuck 3.175 mm	0.674.4891
	Chuck 3.0 mm	0.674.4881
	Key D	0.411.3962
	Key F	0.411.0211
	Installation bolt	0.411.4282

9 Statement of conformance



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 TLC Type 4955/4956/4957 in connection with handpiece

K-ERGOgrip 4944 / POWERgrip 4941 / K5plus 4911 / K5 – 4910 / K9 - 960 / K9 - 970 / K 9 – 4930 / K11 – 4990 / K12 - 4940

2006/95/EC EC Low Voltage Directive 2004/108/EC EMC Directive

EN 61010-1 Safety requirements for electrical equipment

for measurement, control and laboratory use.

General requirements

EN 61326-1 Electrical equipment for measurement, control

and laboratory use - EMC requirements -

Part 1: General requirements

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.

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.

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.

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.

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

CE

CZ

ES

Beaud Rahow

Bernd Rakow Quality Director

10 Replacement parts

Verk.-Nr. K5 plus 4911 bzw. K1 Japan

Mat.-Nr. 1.001.6733



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