

Instructions for use K-ERGOgrip 4944



Always on the safe side.



KaVo. Dental Excellence.

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Table of contents

Table of contents	1
1 User instructions	2
1.1 User guide	2
1.1.1 Abbreviations	2
1.1.2 Symbols	2
1.1.3 Target audience	2
1.2 Service	3
1.3 Warranty terms and conditions	4
1.4 Transportation and storage	5
1.4.1 Packaging ordinance of August 28, 1998	5
1.4.2 Transportation damage	5
1.4.3 Storage	7
2 Safety	8
2.1 Description of safety instructions	8
2.1.1 Warning symbol	8
2.1.2 Structure	8
2.1.3 Description of dangerous steps	8
2.2 Safety instructions	9
2.2.1 General information	9
2.2.2 Product-specific	10
2.3 Proper use	11
2.3.1 General information	11
2.3.2 Product-specific	11
3 Product description	12
3.1 K-ERGOgrip 4944 handpiece	12
3.2 Scope of delivery	13
3.3 Technical Data	14
4 First use	16
5 Operation	17
5.1 Replacing the grip sleeve	17
5.2 Using/Changing the tool	19
5.3 Operation	20
6 Service and Care	21
6.1 Cleaning	21
6.1.1 Weekly cleaning of chuck and handpiece section	21
6.2 Servicing	24
6.2.1 Replacing ball bearings	24
6.2.2 Replacing the cable	29
7 Troubleshooting	30
8 Accessories	31
9 Spares	32
10 Declaration of conformity	33

1 User instructions

1.1 User guide







Requirement

Read these instructions before the initial startup to prevent misuse and damage.

1.1.1 Abbreviations

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

1.1.2 Symbols

	Important information for users and technicians
	CE mark (Communauté Européenne). A product with this mark meets the requirements of the relevant EC directives, i.e. the applicable standards in Europe.
	Action request
	Follow instructions for use! See the section Safety/Warning Symbol
	Open, remove, loosen, etc.
	Close, screw in, fasten, etc.

1.1.3 Target audience

This document is for dental technicians and laboratory personnel.

1.2 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

1.3 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 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.

1.4 Transportation and storage

1.4.1 Packaging ordinance of August 28, 1998



Note

Only applicable for the Federal Republic of Germany.

KaVo transport packaging must be disposed of and recycled by local disposal service providers and recycling companies in accordance with Dual System requirements.

For more information about disposal and recycling, and an up-to-date list of local disposal service providers and recycling companies, please visit the following Internet sites:

<http://www.umweltdatenbank.de>

<http://www.quality.de>

KaVo will bring KaVo transport packaging returned by the customer at the customer's own cost to the appropriate recycling companies without reimbursement..

1.4.2 Transportation damage

In Germany

If external damage to the packaging is visible upon delivery, follow the procedure below:

1. The recipient must record the loss or damage in the notice of delivery. The recipient and employee of the transportation firm must sign the notice of delivery.
2. Leave the product and packaging unchanged.
3. Do not use the product.
4. Report damage to the shipping company.
5. Report damage to KaVo.
6. A damaged product cannot be returned before talking with KaVo.
7. Send the signed notice of delivery to KaVo.

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

1. Report damage immediately or at least 7 days after the delivery to the delivery company.
2. Report damage to KaVo.
3. Leave the product and packaging unchanged.
4. Do not use a damaged product.



Note

If the recipient does not follow one of the above instructions, the damage will be held to have occurred after the delivery (according to ADSp. Art. 28)..

Outside of Germany



Note

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

If external damage to the packaging is visible upon delivery, follow the procedure below:

1. The recipient must record the loss or damage in the notice of delivery. The recipient and employee of the transportation firm must sign the notice of delivery. The recipient can only assert damages against the transportation company based on these records.
2. Leave the product and packaging unchanged.
3. Do not use the product.

If the product is damaged and there is 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 unchanged.
3. Do not use a damaged product.



Note

If the recipient does not follow one of the above instructions, the damage will be held to have occurred after the delivery (according to . CMR law , section 5, Art. 30).

1.4.3 Storage



Note

Keep the packaging for returning the product for service or repairs .

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

	Transport upright with the arrows pointing upwards
	Fragile - protect against knocks
	Keep dry
	Maximum permitted stacking load
	Temperature range
	Humidity
	Air pressure

2 Safety

2.1 Description of safety instructions

2.1.1 Warning symbol



Warning symbol

2.1.2 Structure



The introduction describes the type and source of the hazard.

This section describes the potential consequences of non-observance.

- ▶ The optional step contains necessary measures for avoiding hazards.

2.1.3 Description of dangerous steps

Safety instructions with these three hazard levels in this document will help you avoid property damage and injury.



CAUTION

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



WARNING

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



DANGER

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

2.2 Safety instructions

2.2.1 General information



Note

Only competent and trained personnel may use the product!

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

Users have a duty to:

- Only use equipment that is operating correctly
- Protect themselves and third parties from danger.

Authorised to repair and service the KaVo product:

- The technicians of KaVo branches.
- Technicians of authorised dealers specially 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



Note

The waste that arises must be recycled or disposed of in a manner safe for humans and the environment. Observe the applicable national regulations. Please direct all questions regarding the proper disposal of KaVo products to the nearest KaVo branch.



Improper servicing or repair of the product

Damage to the product

- ▶ Only professionals or personnel trained by KaVo may repair and service the electronic part of the device!
- ▶ Only use original KaVo replacement parts!



Injury or damage from damaged functional parts.

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

- ▶ When operating parts are damaged: Stop working and eliminatethe damage, or notify a service technician.
- ▶ Check the electrode lines and accessories for damage to the insulation.



Damage from liquids.

Malfunctions of electrical components.

- ▶ Cover openings in the product to prevent the penetration of liquids.
- ▶ Remove liquids from the interior of the device.



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

- ▶ Perform regular proper care and maintenance.



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!



Injury or damage due to wear.
Irregular running noise, significant vibration, overheating, imbalance or insufficient grip

- ▶ Stop work and seek service support.

2.2.2 Product-specific



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.



Risk of injury due to rotating tools.
Eye injury.

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



Unsuitable speed
Damage to product
Problems processing selected material

- ▶ Check the speed setting each time you turn on the unit!



Hazard from dust and chips.
Damage to health from inhalation or injury.

- ▶ Use protective shield.
- ▶ Use vacuum.

2.3 Proper use

2.3.1 General information



Note

Only competent and trained personnel may use the product!

This KaVo product has been designed solely for dental technology, industrial and trade applications. It is impermissible to use the product 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 is intended for interior use only.

Follow the general guidelines and/or national laws, national regulations and the rules of technology for this product applicable for startup and use of the KaVo product for the intended purpose.

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

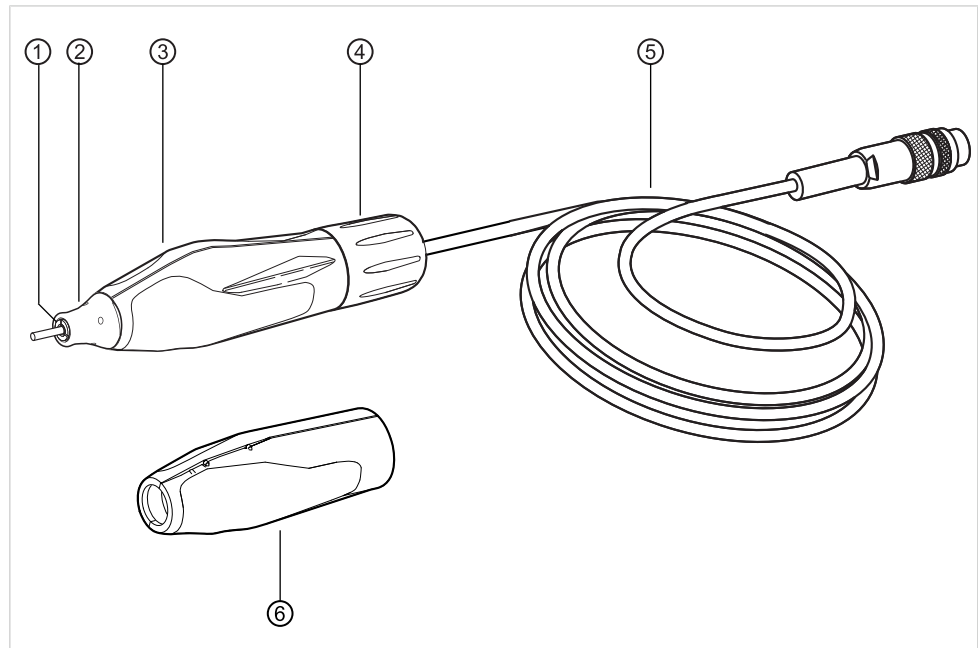
- the applicable health and safety regulations.
- the applicable accident prevention regulations.

2.3.2 Product-specific

The K-ERGOgrip handpiece 4944 can be used when working on crowns and bridges as well as prostheses made from plastic and chrome.

3 Product description

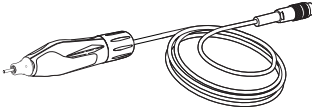
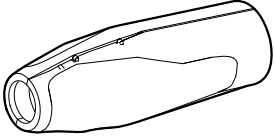
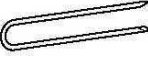

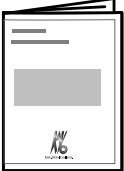
3.1 K-ERGOgrip 4944 handpiece



- ① Chuck 2.35 mm
- ② Tip
- ③ ERGO grip shell

- ④ Knob
- ⑤ Connection cable (including knob)
- ⑥ Replaceable grip shell

3.2 Scope of delivery

Figure	Description	Material number
	K-ERGOgrip 4944 hand-piece	Mat. No. 1.003.7555
	Grip sleeve	Mat. No. 1.003.8708
	Clamp	Mat. No. 1.004.1148
	Cleaning brush	Mat. No. 0.229.3205
	Instructions for use	

3.3 Technical Data

Number of revolutions

Range	1,000 to 50,000 rpm
-------	---------------------

Dimensions

Length	140 mm
Handpiece diameter	38 mm

Weight

Handpiece	202 g
Cable	107 g

Voltage and power

Output	160 W
Torque	7 Ncm

Environmental conditions

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

Intermittent range

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

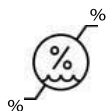
Requirements, classification

Degree of soiling	2
Overvoltage category	II

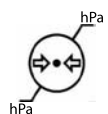
Transportation and storage conditions



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 20 ° to 25 °C. Avoid condensation.

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 combined control/handpiece approved by KaVo must be warranted.



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
 - TLC 4955 knee control
 - TLC 4956 foot control
 - TLC 4957 table top control

5 Operation

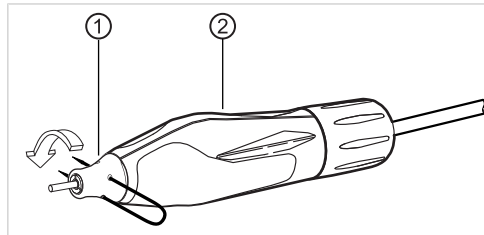


Note

Note the safety instructions before each use.

5.1 Replacing the grip sleeve

The handpiece is supplied fitted with an ERGOgrip grip sleeve.

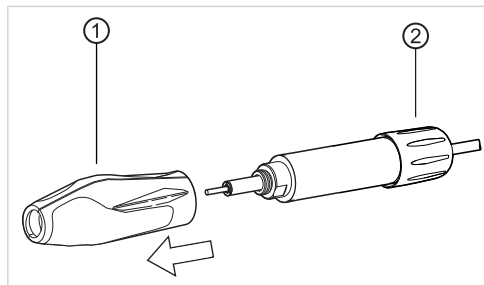


- ▶ Take hold of the handpiece by the grip sleeve ② insert the clip into the tip ① and unscrew the tip ① in the direction indicated by the arrow.
- ▶ Pull the tip ① towards you.

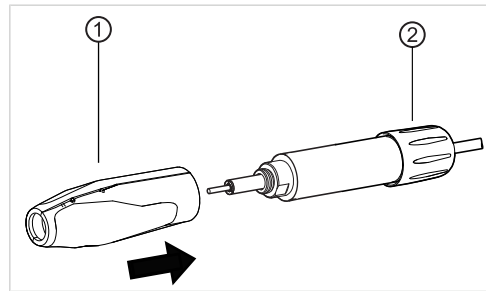


Note

Removing the tip may leave the felt disk loose in the tip or on the rotor. If the felt disk is on the rotor it must be removed.



- ▶ Take hold of the handpiece by the knob ② and remove the grip sleeve ① by pulling it towards you.

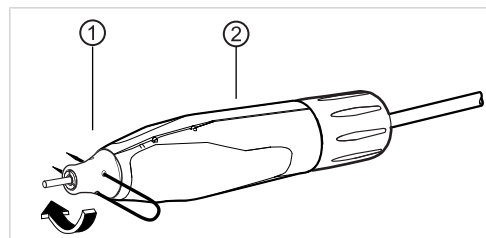


- ▶ Take hold of the handpiece by the knob ② and fit the new grip sleeve ①.



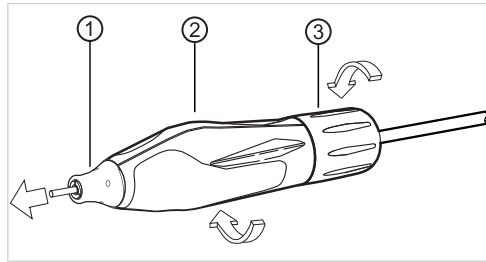
Note

If the felt disk has been removed from the rotor, it must be pushed back onto the rotor.

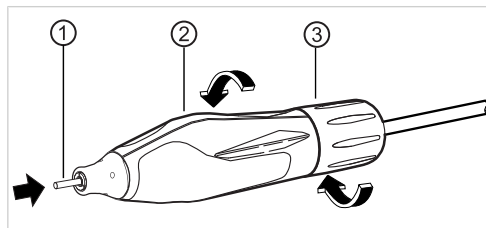


- ▶ Screw the tip ① to the handpiece ② and tighten with the clip in the direction indicated by the arrow.

5.2 Using/Changing the tool



- ▶ Turn the grip sleeve ② and knob ③ in opposite directions as indicated by the arrows until the chuck opens completely (you will hear a double-click).
- ▶ 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.
- ▶ Take hold of the handpiece by the grip sleeve ② and turn the knob ③ in the direction indicated by the arrow until the chuck closes completely (you will hear a double-click).



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

Use only functional tools. Follow the instructions of the tool manufacturer.

5.3 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.

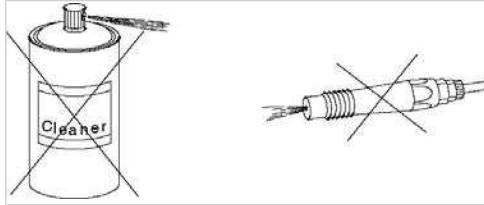
- ▶ Prior to every use, check the required speed on the control unit and modify it if necessary.
- ▶ Operate the handpiece as specified in the instructions for use supplied with the upstream control unit.

6 Service and Care



Ingress of dust or liquids into the handpiece.
Damage to ball bearings and O-rings.

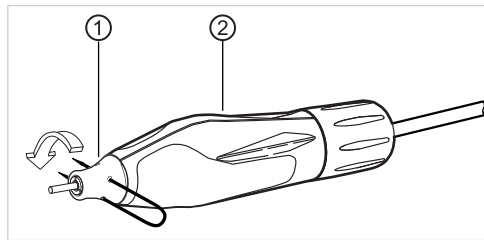
- ▶ Never use compressed air or cleaning agents (such as spray cleaners, degreasers, etc.)!



6.1 Cleaning

6.1.1 Weekly cleaning of chuck and handpiece section

Removing the chuck

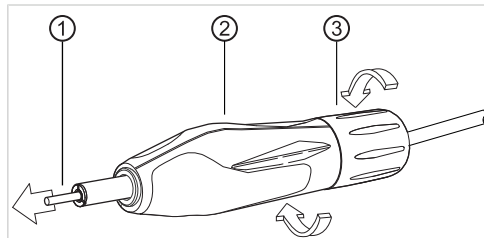


- ▶ Take hold of the handpiece by the grip sleeve ② insert the clip into the tip ① and unscrew the tip ① in the direction indicated by the arrow.
- ▶ Pull the tip ① towards you.

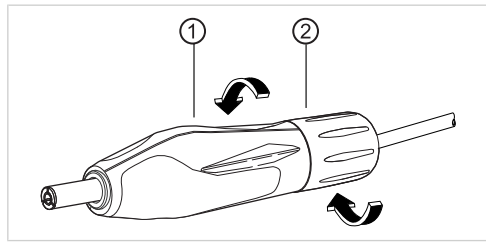


Note

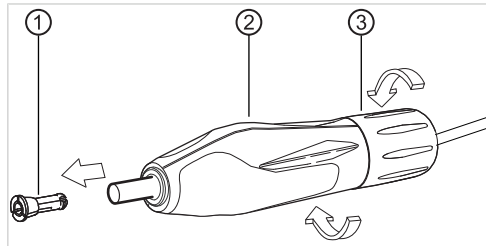
Removing the tip may leave the felt disk loose in the tip or on the rotor. If the felt disk is on the rotor it must be removed.



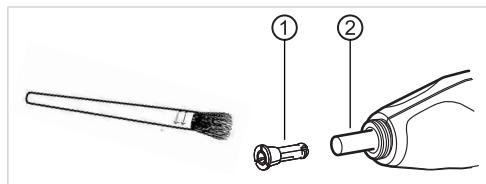
- ▶ Turn the grip sleeve ② and knob ③ in opposite directions as indicated by the arrows until the chuck opens completely (you will hear a double-click).
- ▶ Take the tool ① out of the chuck.



- ▶ Turn the grip sleeve ① and knob ② in opposite directions as indicated by the arrows until the chuck closes again completely. Do not use a tool to do this!

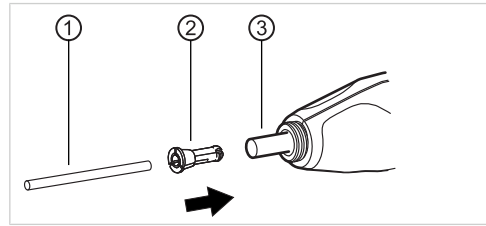


- ▶ Turn the grip sleeve ② and knob ③ in opposite directions as indicated by the arrows until the chuck ① opens again completely. The chuck ① is released.
- ▶ Pull the chuck ① towards you.

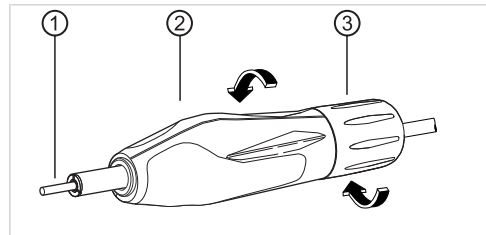


- ▶ Use the cleaning brush to clean the chuck ① and front opening ② on the handpiece.

Fitting the chuck



- ▶ Push the chuck ② into the opening on the handpiece ③ until it snaps into place.
- ▶ Push the tool ① as far as it will go into the chuck ②.

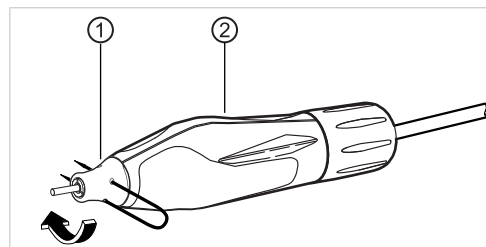


- ▶ Turn the grip sleeve ② and knob ③ in opposite directions as indicated by the arrows until the chuck ① closes completely.



Note

If the felt disk has been removed from the rotor, it must be pushed back onto the rotor.



- ▶ Screw the tip ① to the handpiece ② and tighten with the clip.



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.



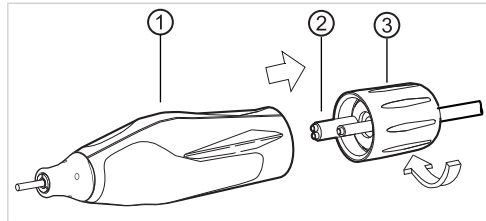
Note

Use only functional tools. Follow the instructions of the tool manufacturer.

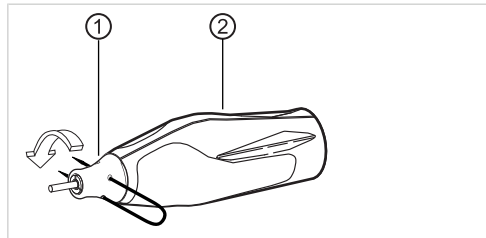
6.2 Servicing

6.2.1 Replacing ball bearings

Removing ball bearings



- ▶ Unscrew the knob ③ from the handpiece ① and pull off the connection cable ② in the direction indicated by the arrow.

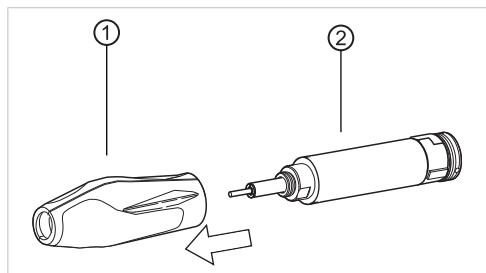


- ▶ Take hold of the handpiece by the grip sleeve ② insert the clip into the tip ① and unscrew the tip ① in the direction indicated by the arrow.
- ▶ Pull the tip ① towards you.

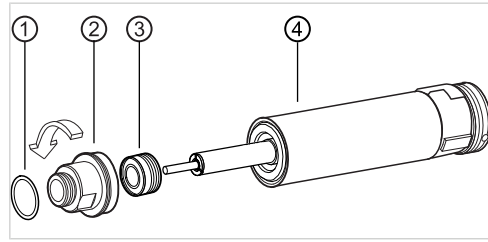


Note

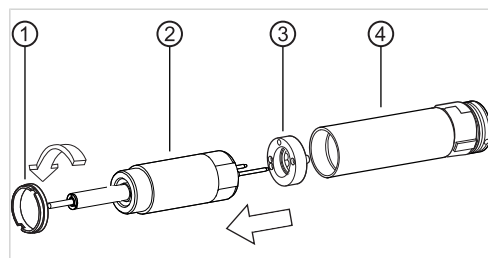
Removing the tip may leave the felt disk loose in the tip or on the rotor. If the felt disk is on the rotor it must be removed.



- ▶ Pull the grip sleeve ① towards you and off the sleeve ②.



- ▶ Remove the felt ring ① from the rotor ②.
- ▶ Using an open-ended spanner (16 mm), unscrew the bearing housing ② from the sleeve ④ in the direction indicated by the arrow and remove the bearing housing ②.
- ▶ Use a pin (diameter: 8 mm-0.02) to push the ball bearing ③ out of the bearing housing ②.



- ▶ Insert the socket wrench in the threaded ring ①, and screw the threaded ring ① out of the sleeve ④ in the direction of the arrow.
- ▶ Remove the threaded ring ① from the sleeve ④ and pull the motor unit ② off the sleeve ④.
- ▶ Take the ring ③ off the motor unit ②.

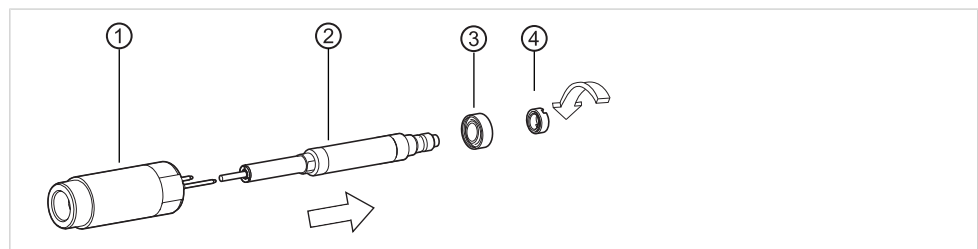


DANGER

Risks due to strong permanent-magnet field

The functions of implanted systems (such as pacemakers) can be influenced. Metal objects can be attracted and in the event of impact may damage the permanent magnet, for example.

- ▶ Anyone with an implanted system must maintain a safety clearance of 5 metres from the rotor.
- ▶ Do not place the rotor in the vicinity of metal objects.



- ▶ Pull the rotor ② out of the stator ①.
- ▶ Hold the rotor ② with a fork wrench (7 mm), and screw off the threaded ring ④ from the rotor ② turning the socket wrench the direction of the arrow (left-hand thread).
- ▶ Remove the ball bearing ③ from the rotor ②.

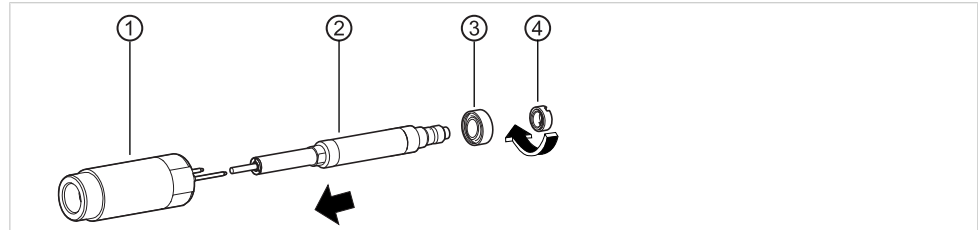
Fitting the ball bearing



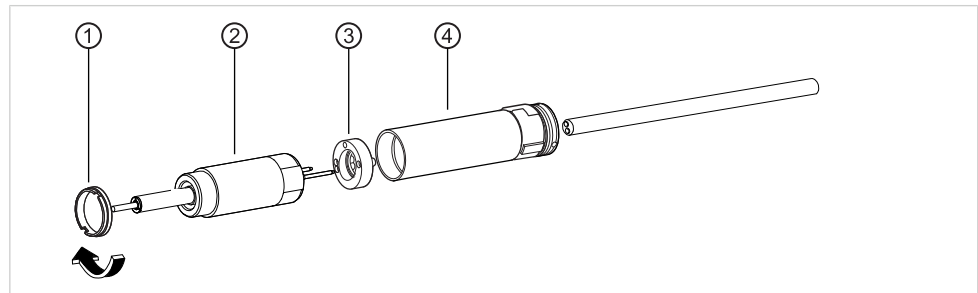
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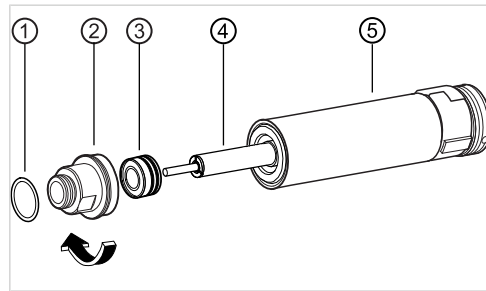
- ▶ Anyone with an implanted system must maintain a safety clearance of 5 metres from the rotor.
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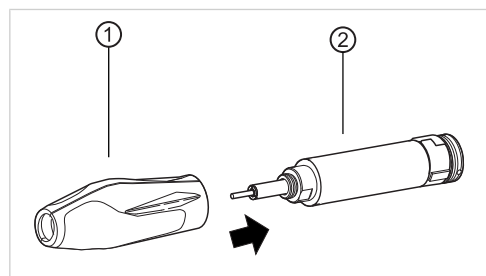
- ▶ Slide the ball bearing ③ onto the rotor ②.
- ▶ Place the threaded ring ④ on the rotor ②.
- ▶ Hold the rotor ② with a fork wrench (7 mm), and screw the threaded ring ④ tight using the socket wrench (left-hand thread).
- ▶ Push the rotor ② into the stator ①.



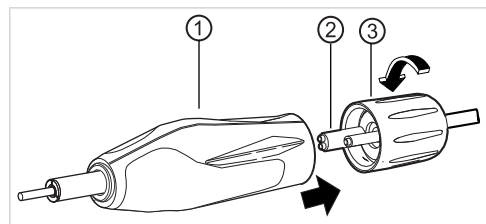
- ▶ Place the ring ③ on the motor unit ② and push into place.
- ▶ Use the docking guide to push the motor unit ② into the sleeve ④. Push the docking guide into the sleeve ④ from behind, thread the motor unit's contacts ② into the docking guide and push the motor unit ② and the docking guide into the sleeve ④ from the front.
- ▶ Screw the threaded ring ① into the sleeve ④ using the socket wrench.



- ▶ Insert the ball bearing ③ into the bearing housing ②, making sure that the ball bearing ③ is positioned correctly.
- ▶ Place the bearing housing ② on the rotor ④ and screw into place on the sleeve ⑤ using an open-ended spanner (16 mm).
- ▶ Place the felt ring ① on the rotor ②.



- ▶ Slide the grip sleeve ① over the sleeve ②.

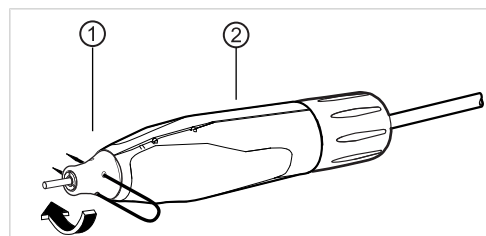


- ▶ Plug the connection cable ② firmly into the handpiece ① and screw the knob ③ back onto the handpiece ①.



Note

If the felt disk has been removed from the rotor, it must be pushed back onto the rotor.



- ▶ Screw the tip ① to the handpiece ② and tighten with the clip in the direction indicated by the arrow.



Note

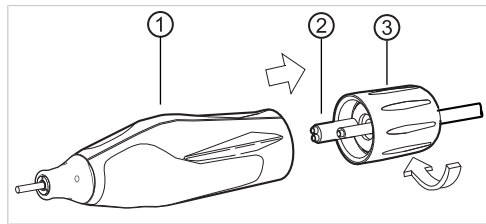
Check the handpiece after exchanging the ball bearing:
Run through the speed range of the handpiece and check for unusual noise.



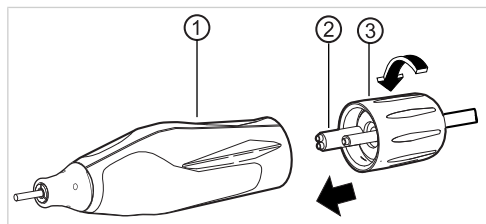
Note

To increase the service life of the ball bearings, KaVo recommends: After the ball bearings are changed, run the handpiece for approximately 60 minutes at 10,000 to 15,000 rpm.

6.2.2 Replacing the cable



- ▶ Unscrew the knob ③ from the handpiece ① and pull off the connection cable ② in the direction indicated by the arrow.



- ▶ Plug the connection cable ② firmly into the handpiece ① and screw the knob ③ back onto the handpiece ①.



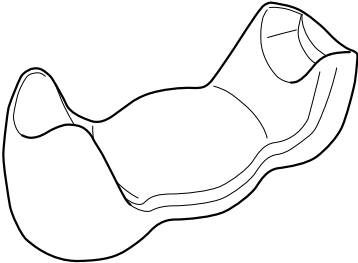


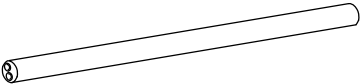
Note

Check the functionality of the handpiece.

7 Troubleshooting

Malfunction	Cause	Remedy
Handpiece has stopped rotating and/or is stopping intermittently.	Handpiece is blocked, clamping system may be open	▶ Close the chuck correctly with the tool in-situ.
	Cable break.	▶ Check the cable and connectors and replace if necessary.
	Electronic fault in control unit.	▶ Have the control unit checked and repaired if necessary.
Tool no longer gripping sufficiently in chuck.	Tool shaft and chuck diameters are not the same.	▶ Use a tool/chuck with a suitable diameter.
	Chuck is worn.	▶ Replace chuck.
Loud running noise and/or heat rise on handpiece.	Ball bearing defective due to wear or soiling.	▶ Check and/or replace ball bearing.
	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.	▶ Have the control unit checked and repaired if necessary.

8 Accessories

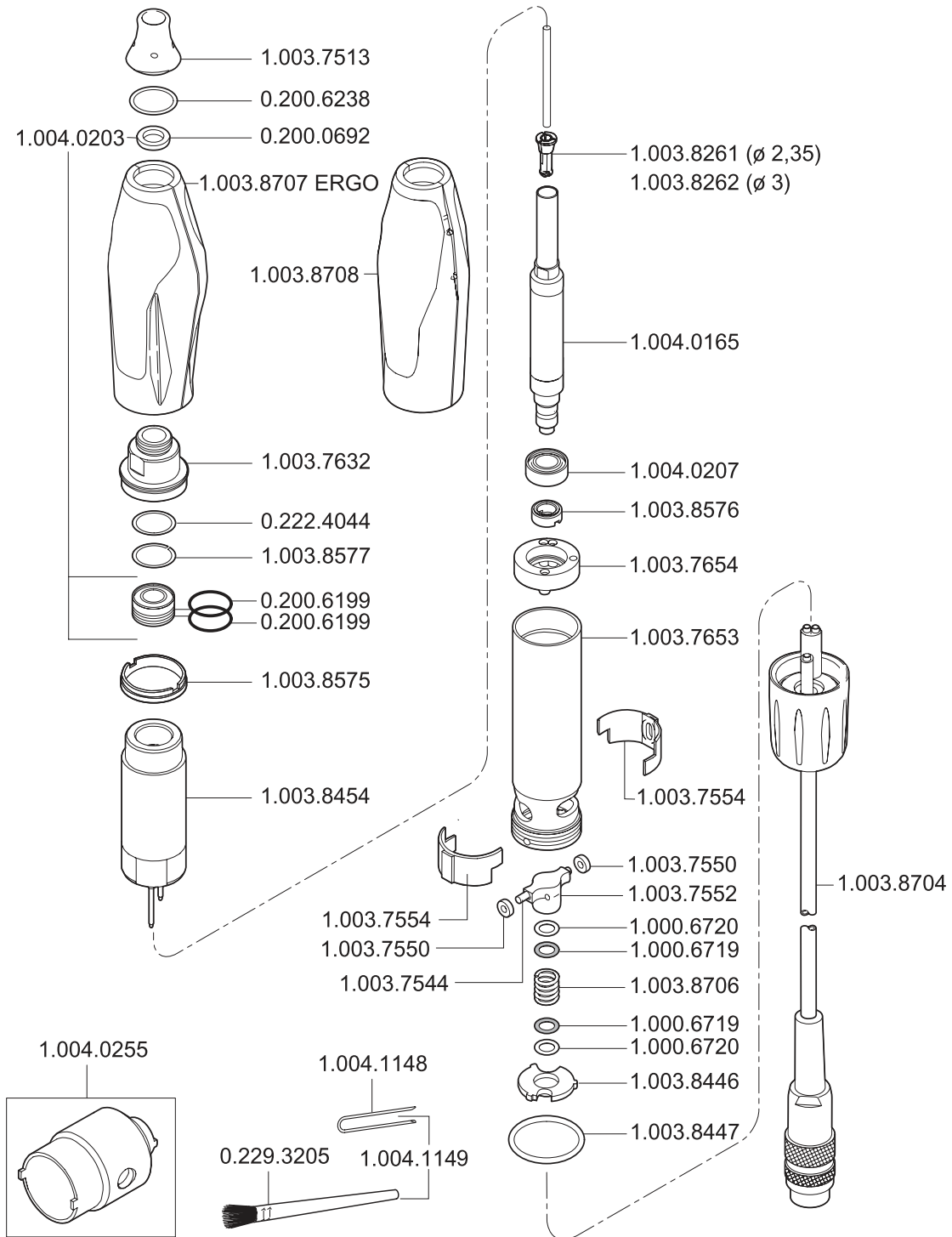
Presentation	Brief description	Mat. No.
	Handpiece rest	1.005.3460
	Chuck 3.00 mm	1.003.8262
	Socket wrench	1.004.0255
	Docking guide	1.005.3461

9 Spares

K-ERGOgrip
Mat.-Nr. 1.003.7555



05 / 2007



10 Declaration of conformity



KaVo. Dental Excellence.

EG-Konformitätserklärung EC-Conformity Statement

DE		GB	
Wir, Kaltenbach & Voigt GmbH Bismarckring 39 D-88400 Biberach		We, Kaltenbach & Voigt GmbH Bismarckring 39 D-88400 Biberach	
erklären, dass die von uns ab dem 07-2007 hergestellten Produkte		declare that the products	
K-Control TLC 4955 / 4956 / 4957 K-ERGOgrip 4944		K-Control TLC 4955 / 4956 / 4957 K-ERGOgrip 4944	
auf die sich diese Erklärung bezieht, übereinstimmen mit den Grundlegenden Anforderungen gemäß den Bestimmungen der Richtlinie		manufactured by us from 07-2007 onwards to which this statement refers, conform to the essential requirements according to the provisions of directive	
2006/95/EG 89/336/EWG	Niederspannungs-Richtlinie EMV-Richtlinie	2006/95/EC 89/336/EEC	EC Low Voltage Directive EMC Directive
Zur Beurteilung des Erzeugnisses wurden folgende Normen oder normativen Dokumente angewandt:		The following standards or normative documents were applied to evaluate the product:	
EN 61010-1:2001	Sicherheitsbestimmungen für elektrische Mess-, Steuer-, Regel- und Laborgeräte	EN 61010-1:2001	Safety requirements for electrical equipment for measurement, control, and laboratory use
EN 61326:1997 + A1:1998 + A2:2001 + A3:2003	Elektrische Mess-, Steuer-, Regel- und Laborgeräte - EMV-Anforderungen - Teil 1: Allgemeine Anforderungen Teil 2: Besondere Anforderungen - Prüf- und Messgeräte für Anwendungen ohne EMV-Schutzmaßnahmen Teil 3: Störfestigkeitsanforderungen für Geräte, die in industriellen Anwendungen sicherheitsbezogene Funktionen haben oder für sicherheitsbezogene Funktionen vorgesehen sind	EN 61326:1997 + A1:1998 + A2:2001 + A3:2003	Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements Part 2: Particular requirements - Test configurations, operational conditions and performance criteria for sensitive test and measurement equipment for EMC unprotected applications Part 3: Immunity requirements for equipment performing or intended to perform safety related functions

Biberach, 2007-06-27


Christoph Gusenleitner

Geschäftsführer
Managing Director

