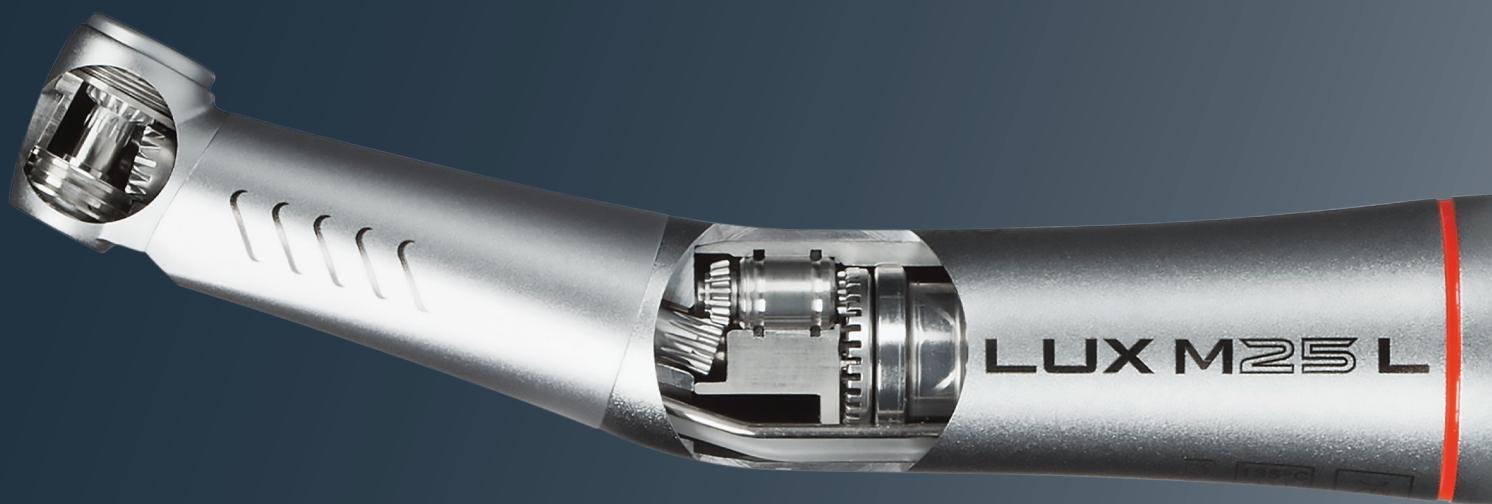


KaVo handpiece care

Tips for prolonging the service life of your handpieces





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Preface



KaVo takes quality very seriously, and investigations have revealed that many issues could be avoided with the correct reprocessing of the handpieces. We would like to give you some tips to help you extend the service life of your equipment.

This brochure provides you with information about the necessary care and the consequences of incorrect care with simple descriptions and visual representation. We hope you find the information in this document useful!

**More than 50% of the handpiece failures
are caused by improper cleaning and care.**

Dental handpieces are exposed to very high loads in the course of your daily routine.

This includes:

- Speeds of up to 400,000 rpm at the outer diameter of the turbine rotor
- High cutting rates
- Strong contact pressure
- Extreme temperatures from sterilization

Wear and tear can also be generated by the following debris reaching the inside of the handpieces:

- Saliva and blood
- Dental materials
- Saline solutions

Malfunctions can arise from:

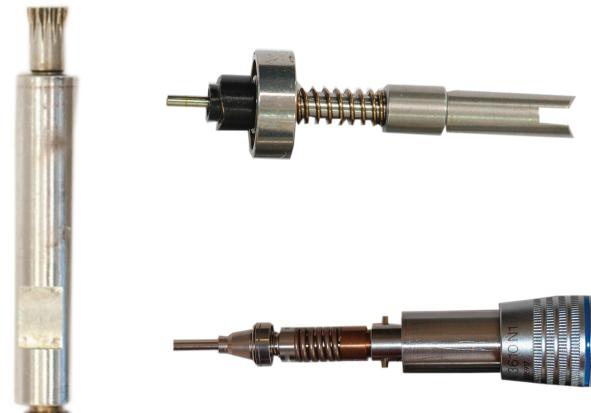
- Incorrect operation and care
- Damage from dropping and impact

If cleaned and serviced well, your handpieces can remain a reliable tool after many years of use.

Improperly serviced handpieces



Used handpieces that have been serviced regularly and properly



General

Original KaVo spare parts

Non-original or counterfeit spare parts cause damage to the product and other associated risks.

Advantages of original KaVo spare parts:

- Optimum safety for patient and user
- Longevity based on service life tests and continuous improvements
- Warranty remains valid (any non-KaVo parts used will void the manufacturer's or repair warranty)

If a user fails to use original KaVo spare parts, the medical device is no longer approved by KaVo. As a consequence, the end user or spare parts manufacturer assumes full risk of any incident resulting from counterfeit spare parts.

General

Symbols and guidelines

For the handpieces to have a long service life, you need to comply with the labels on the handpieces.

Handpiece with important symbols



Only KaVo medical devices marked with the thermal disinfection (1) or sterilization symbol (2) may be reprocessed in the washer disinfector (RDG) or sterilized in the steam sterilizer.

Protect the chuck system

Use dental burs with good shafts

Always check the quality of dental burs before inserting them into the handpiece. Burs should be free of any dents or scoring.

If a bur with poor quality shafts are used, the handpiece may suffer substantial damage. Damage to the handpiece chuck system could lead to stuck burs or the bur slipping inside the chuck mechanism.

**Worn-out or damaged shafts/grooves
(you can feel grooves when you run a fingernail along the shafts)**

DON'T



Comply with dental bur dimensions

For manufacturer information concerning the length, diameter, shaft shape and maximum speed, please refer to the corresponding instructions for use.

Note

Only use carbides or diamonds that comply with EN ISO 1797-1 type 3, are made of steel or hard metal and meet the following criteria:

- | | |
|-----------------------------------|--|
| • Shaft diameter: 1.59 to 1.60 mm | • Shaft clamping length: at least 9 mm |
| • Overall length: max. 21 mm | • Blade diameter: max. 2 mm |

Excerpt from KaVo handpiece Instructions for use. Non-compliance with information provided by the manufacturer voids any warranty claims against KaVo.

Protect the chuck system

Note on shaft clamping length:

The dental bur shaft must be smooth along the minimal shaft clamping length and must not show any recesses/grooves (see Instructions for use).

- The min. shaft clamping length of KaVo miniature turbines is 9 mm
- The min. shaft clamping length of KaVo standard turbines is 11 mm



If the bur is not fully inserted and seated into the chuck (clamping length) the front and rear bearings on the turbine will have uneven loading and fail prematurely.

Non-approved dental bur (shaft has recesses/grooves in the clamping area)

DON'T



Consequences of non-compliance with manufacturer specifications:



- The dental bur retention force may be too low due to a worn-out shaft and the dental bur may be released during the treatment.
- The shaft can spin freely in the chuck and destroy the chuck.
- There is a risk that the dental bur will drop out.
- The ball bearings, gear wheels and chuck can be overloaded, e.g. by the dental bur being too long.

Protect the chuck system

Separating crowns with cross-toothed burs

Dental bur manufacturers recommend dental burs that are specifically matched to different materials. Please comply with the specified maximum speeds since higher speeds have a detrimental effect on the cutting performance and the reliability of the chuck system.

It is suggested that cross-toothed tools are used for crown separation. If you use straight-toothed tools, please make sure that these do not hook into a tooth.



Stop the handpiece immediately if the tool hooks into the tooth!

Straight-toothed tools can abruptly become hooked into the tooth. This puts stress on the chucking system and could lead to chuck damage.

Straight-toothed tool

DON'T



Never leave the dental bur in the chuck after a treatment

The chuck should bear no load during storage in order to prolong its service life. Storage of handpieces together with the dental bur is associated with a risk of injury or infection.

Handpiece without dental bur

DO



Handpiece with dental bur

DON'T



Protect the chuck system

Close the tensioning ring of the handpiece



Never start operating the straight handpiece while the chuck is open.
The handpiece and chuck will malfunction or jam.

Never press the push-button during operation of the device



Never press or wipe the push-button on the turbine, straight or contra-angle handpiece while the handpiece is rotating, because of:

- Excessive wear and tear on drive/rotor
- Damage to the push-button/chuck

Push-button is pressed during ongoing operation



Possible consequences of push-button actuation during operation include:

- Push-button can heat up excessively
- Malfunction of the push-button
- Chuck does not release or does so with difficulty
- Metallic abrasion particles of the lid might get into the ball bearings

Protect the chuck system



Never use the handpiece as a cheek retractor. The friction between the push-button and the chucking system generates heat that may cause burn injuries to the mucosal membranes.

Push-button used correctly



Do

Push-button was abraded due to incorrect use



DON'T

Protect the chuck system

Lubrication of ball bearing:

Insufficient lubrication of the ball bearings causes signs of excessive wear and tear possibly leading to defects. To prevent any secondary damage, have defective ball bearings replaced quickly.

Signs indicative of defective ball bearings include:

- Loud running noise
- Uneven operation
- Handpiece jams completely
- Overheating

New ball bearing

Do



Defective ball bearing

DON'T



Even missing lubrication once, in particular after internal cleaning, can lead to early damage to the ball bearings.

Preserve your surgical handpieces

Properly maintain surgical instruments

Surgical instruments need to be subjected to special treatment.



After each use, clean the handpiece immediately under running lukewarm water to remove all external debris.

If the handpiece can be taken apart, take it apart and clean the insides under running lukewarm water.

Consequences of failure to clean:

The coagulation of blood or crystallization of saline solutions can lead to corrosion.

Before any sterilization, make sure that no residual saline solution is present in the handpiece. This may lead to malfunction of the handpiece.

Clean surgical handpiece

DO



Soiling on surgical handpieces

DON'T



Prevent damage from dropping

Preventing damage when the handpiece is dropped

Check the handpiece by eye for any changes during the reprocessing process in order to protect both the handpiece and the patient.

Handpiece showing damage from being dropped



Procedure for detecting damage from dropping the handpiece:

- Visual inspection for external damage reveals deformation
- Functional test reveals excessive running noise and/or excessive heating

If you are not sure about damage from dropping a handpiece, please contact KaVo Technical Support at 888-ASK-KAVO to schedule a handpiece evaluation in order to prevent possible secondary damage.

Prevent damage from dropping

Snap handpieces onto the coupling audibly

The handpiece must be audibly snapped into the motor/turbine coupling.
If it fails to snap-in, it may drop to the floor and be damaged.

**Attachment of a handpiece on a motor coupling
(two clicks for KaVo e-motors)**



Never remove the handpiece from the motor or coupling while the foot control is pressed.

Reprocessing

Disinfection

The handpiece must never be immersed in a disinfection/ultrasonic bath, because:



- The ball bearings might be destroyed
- Other technical defects on the handpiece may occur

Do not immerse handpiece or coupling in a disinfection bath

DON'T



- Never use chloride-containing disinfectants:
- Use agents released by the manufacturer exclusively
 - Unsuitable disinfectants can lead to corrosion

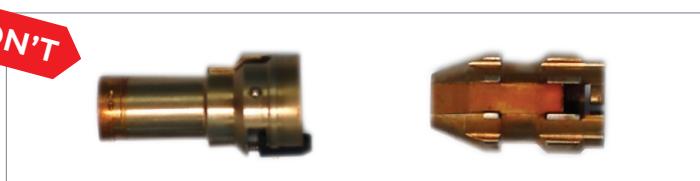
Agent attacked the surface

DON'T



Handpiece that has been cleaned with chloride-containing disinfectant

DON'T



Reprocessing

In general, wipe disinfection is recommended. If excessive amounts of disinfectant or a non-approved disinfectant is sprayed onto the handpiece or the motor/turbine coupling, malfunctions may occur.

Disinfectant flowed into the motor

DON'T



If the disinfectant flows into the handpiece or into the motor/turbine coupling, defects on the coupling may occur.

Wipe disinfection



Spray disinfection



Thermodisinfection

Please make sure to use only the chemicals recommended by the manufacturer of the device. Replace the water filters of the washer disinfector regularly as the machine would otherwise rinse with water containing particles.



Dry handpieces completely, otherwise corrosion may occur.

Reprocessing

Automated care using the QUATTROcare™ PLUS

In general, automated care of rotating dental handpieces using the KaVo QUATTROcare PLUS is preferred over manual care. The handpieces are lubricated and serviced professionally and correctly with the proper amount of QUATTROcare Spray.

After lubrication, excessive oil is purged from the handpiece with compressed air.

The use of QUATTROcare Plus ensures consistent servicing and minimizes errors, which leads to savings from unnecessary repairs.

**Weekly chuck care
using the KAVO
QUATTROcare Plus**



**Handpiece and head
care using the KaVo
QUATTROcare Plus**



**KaVo QUATTROcare
Plus Spray**



QUATTROcare PLUS: All O-rings of the service couplings on the QUATTROcare PLUS must be in working order. Otherwise, the handpiece will not be lubricated properly.



In the presence of heavy debris, repeat the cleaning/lubricating process and run the handpiece in between. The oil foam expands by more than 300 times its volume. In the process, it takes up the dirt particles and expels them from the handpiece.

Reprocessing

Manual care with KaVo Spray

Handpieces

This services the inside of the handpieces. For this purpose, spray into the handpiece for at least 1 second. If the spray time is too short, the service life may decrease.



A sufficient duration of the spray action is indicated by oil foam exiting from the chuck and lid.

For proper care, keep the can upright and the spray head upwards.



If the can is nearly empty, visually check to see if the handpiece has been lubricated sufficiently.

If the oil does not exit as a clear liquid after servicing, cleaning and/or lubricating need to be repeated.

Motors

KaVo electrical motors, like the KL703 short motor, must not be lubricated, since they feature inherent permanent lubrication.

Air-driven motors and KaVo's INTRAsurg 500 motor should be lubricated after each use.

Reprocessing

General care instructions for the QUATTROcare PLUS and KaVo Spray

- Use original KaVo sprays exclusively. The oil from KaVo is specifically matched to the materials used by KaVo.
- Use matching spray heads for the products and applications exclusively. There are different spray heads available for turbines and contra-angle handpieces. These seal the rear of the handpieces during the spray process.
- During service with the QUATTROcare PLUS, make sure not to damage the O-rings on the QUATTROcare PLUS. Otherwise, the oil leaks on the side and does not flow into the handpiece.

Service procedure:



- Remove the dental bur
- Lubricate the chuck at least 1x per week
- If possible, service handpieces and heads separately
(reference instructions for use of the handpiece)
- Lubricate the handpieces and heads **after** each use and **before** each sterilization
- During manual servicing, hold the handpiece between the bag and cellulose of the KaVo Cleanpac™. This allows leaking oil and/or soiling on the head/handpiece to be contained and detected.

Chuck care with spray tip



Head care



Handpiece care



Protect handpieces during storage

Storage of the handpieces after servicing:

Use a handpiece stand (KaVo part number: 0411.9902) for storage to enable excessive residual oil to leak out. Otherwise, the residual oil will impact the operation of the handpiece. This may cause the handpiece to over heat, which may lead to further damage to the ball bearings.

Use of the handpiece stand allows the residual oil to leak out



Handpieces have been placed down and residual oil remains inside the handpiece



Handpieces that are stored in the dentists element instrument holder right after servicing



Never plug the serviced instrument onto the motor/turbine coupling and never store it in the instrument holder. The oil leaks into the hose and may lead to a defect on the coupling.

Additional routine service

Maintain handpiece spray ports

Handpiece spray channels may become clogged due to local, hard water or insufficient amounts of water being used. If the amount of spray is too low, check if the spray channels are clogged and clean them as appropriate.

If the amount of water is too low, the tooth and the pulp may be damaged by overheating.

Short-term remedy:

Puncture the spray nozzles exclusively with the needles from the manufacturer.



Caution: Never place the handpiece in a descaling agent or spray it with a descaling agent, as this may lead to corrosion.

Spray nozzle from KaVo



Use of the endo file



Long-term remedy:

Cleaning of the spray nozzles by a certified repair center.

Additional routine service

Replacing the water filter

Protect the integrity of handpiece spray with the use of an integrated water filter (on select handpiece models). If the water quality is poor, the water filter (if applicable) can become dirty.

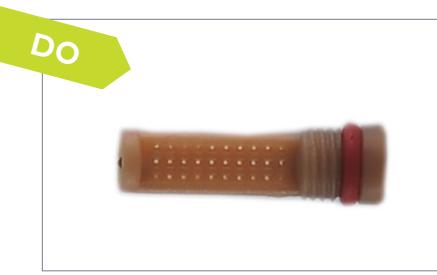
Consequences of a dirty water filter:

- The spray quality and the amount of water decrease
- The particles get into the handpiece head

Replacing a water filter



New functional water filter
(for material number, see page 28)



Additional routine service

Replacing the O-rings

If the motor or turbine coupling is leaking, the O-rings need to be replaced:

- O-rings can become porous or swell up
- O-rings might be pulled off inadvertently during wipe disinfection

Consequences of defective O-rings on the motor coupling:

- The water does not get where it is needed. This leads to damage to ball bearings, inside of the motor, spray air and cooling air

Consequences of defective O-rings on the turbine coupling:

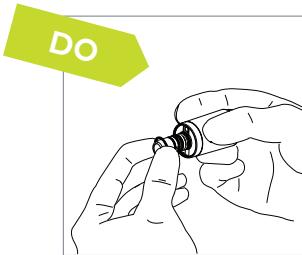
- The water gets into the ball bearings of the turbine rotor and, via the return air duct, into the treatment unit

Procedure for replacement of the O-rings:

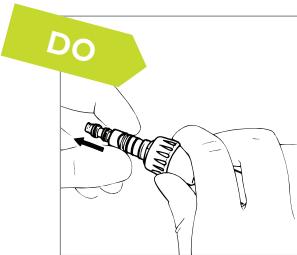
- Compress the O-rings between the fingers such that the O-ring lifts off slightly
- Pull off the O-rings toward the front
- Always replace all O-rings available (ensures even wear / usage time)
- Do not use any sharp/hard tools

Additional routine service

**Replacing an O-ring
on an INTRAmatic
(E-style) coupling**



**Replacing an O-ring on a
MULTIflex coupling**



Servicing the O-rings:

- Use recommended oils exclusively since the O-rings may otherwise degrade or swell up with other chemicals
- Do not use petroleum oils, such as Vaseline®

The following tips prolong the durability of O-rings:

- Attach and remove the handpiece in a straight line and with a slight twisting motion onto/from the motor/turbine coupling
- Lubricate the O-rings with a cotton swab moistened with KaVo Oil

Additional routine service

Replacing the LED lamp

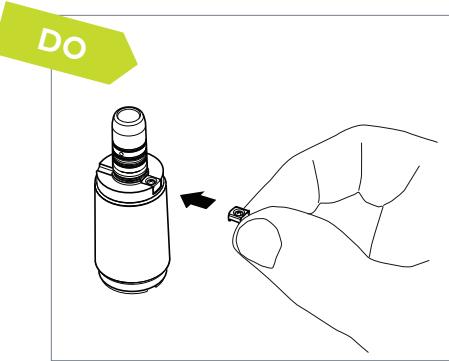
When inserting a new LED lamp for a MULTIflex™ or KaVo electric motor, make sure that the contacts in the coupling are not damaged.

The LED must be inserted with the pins in the correct orientation for the LED to work properly. If the LED fails to light up after installation, reinstall it after turning it 180°.

**LED replacement on a
MULTIflex coupling**



**LED replacement on an
INTRAmatic coupling**



Care agents and spare parts

| Product name | Part no. |
|---|-----------|
| Water filter (GENTLEforce™, GENTLESilence™, GENTLEmini™) | 1000.4823 |
| Water filter (COMFORTdrive™, MASTERmatic™, GENTLEpower™, MASTERtorque™, EXPERTtorque™, EXPERTmatic™) | 1002.0271 |
| Wrench for water filter (1002.0271) | 1002.0321 |
| O-ring (MULTIflex™ coupling black), 10 pcs. | 1004.2776 |
| O-ring (MULTIflex coupling white), 10 pcs. | 1004.2775 |
| O-ring (INTRAmatic™ motor), 10 pcs. | 0200.6120 |
| MULTI LED (handpieces) | 1007.5372 |
| Mini LED (INTRA LUX™ S600 LED) | 1007.8474 |
| High-pressure lamp (for MULTIflex LUX couplings, pneumatic and electric motors) | 1002.2928 |
| Nozzle needle (spray tubing, INTRA™, INTRAmatic) | 010.0931 |
| Nozzle needle (handpieces) | 0410.0921 |
| Spray repair kit (INTRA, INTRA LUX) | 0410.0610 |
| INTRA handpiece stand 2151 | 0411.9501 |
| Insert for handpiece stand (MULTIflex) | 0411.9902 |
| Insert for handpiece stand (COMFORTdrive) | 1006.0525 |
| Cellulose pad (for handpiece stand) | 0411.9862 |
| KaVo Spray 2112A (box of 6 cans) | 0411.9640 |
| Spray head (INTRA) for straight and contra-angle handpieces, heads, chucks | 0411.9911 |
| Spray head (COMFORTdrive) | 1005.3154 |
| Spray head (MULTIflex) for turbines, SONICflex, INTRAfex | 0411.9921 |
| Pack of Cleanpac, 10 pcs. | 0411.9691 |
| QUATTROcare™ PLUS handpiece maintenance system | 1008.3805 |
| QUATTROcare PLUS Spray (box of 6 cans) | 1005.4525 |
| Surgery service coupling | 1009.9489 |
| INTRA service coupling | 1009.6143 |
| INTRA heads service coupling | 0411.7941 |
| MULTIflex service coupling | 1009.6142 |
| COMFORTdrive service coupling | 1005.1707 |
| Service coupling for chuck (for automated chuck servicing) | 0411.7603 |
| Chuck servicing set (for manual servicing with KaVo QUATTROcare spray can) | 1003.1253 |

Our commitment

We are working continuously to increase the satisfaction of our customers and hope that the information compiled in this brochure helps you prolong the service life of your handpieces.

If you need further information on handpiece care and maintenance, please contact your local KaVo representative or our Technical Service department at 888-ASK-KAVO.

Thank you!

Dental Excellence from KaVo.



Handpieces

KaVo has always been the leader in creating innovative solutions for dental practitioners. Our vast line of quality handpieces showcase our attention to your level of care while delivering performance that lasts.



Treatment Units

Beautiful lines, patient comfort and simple operation are just a few of the benefits to the line of KaVo treatment units. Everything you need to perform any procedure—all in one solution.



Imaging Solutions

Designed with ease-of-use for all clinicians in mind, KaVo now offers dependable and consistent imaging solutions that provide vital information to support accurate diagnosis and predictable treatment planning.

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